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HYPOTHESES

RESEARCH METHODOLOGY

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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ANALYSIS OF IPOS UNDERPRICING: EVIDENCE FROM BOMBAY STOCK EXCHANGE

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ABSTRACT

Underpricing of IPOs has been contemplated as a prevalent phenomenon across the world. When companies go public, the equity they sell in as initial public offering tends to be underpriced, resulting in a substantial price jump on the first-day trading. Nevertheless, underpricing an IPO results in "money left on the table"- lost capital that could have been projecting for the company had the stock been offered at a higher price. The main purpose of this paper is to investigate the difference in the firm-specific factors that significantly affect the underpricing of IPOs for the period of 2000-2011. Furthermore, it studies if there is any statistically significant difference in the pricing mechanism and underpricing. The research is established on an empirical study. The sample for the study consists of 320 IPOs. All the market & firm specific variables are regressed against the underpricing. Multiple regressions are used to find which variables statistically consequential in affecting underpricing. The factors embodied in the study are pricing mechanism (book built or fixed price option), subscription rate, and issue size. A two-way ANOVA is done to recognize if there is a statistically significant difference in the underpricing and pricing mechanisms. All the variables are regressed opposingly the underpricing. We found R square 37.6 % and adjusted R square 36%. However, Durbin-Watson imparted 1.633 value of this regression model. Subscription rate & issue size was found to be significant in affecting the underpricing. There is negative relationship amid issue size and level of underpricing, however, positive relationship in subscription rate and underpricing. Nevertheless, there is no significant difference between underpricing and pricing mechanism. The study provides useful insights into which market and firm specific variables are prominent in determining the extent of underpricing of IPOs. The study has more consequential implications for investors who subscribe to different IPOs for listing day gain as this study would benefit them in understanding which type of firms are more likely to underpriced.

KEYWORDS
IPO, Underpricing, Market related variables, pricing mechanism, Firm-specific factors.

1.0 INTRODUCTION

The decision to go public, or make an initial public offering (IPO) of equity, symbolizes an important landmark in a firm's life cycle. There are several motives for a company to go public. **First**, the business can raise capital at a lower cost. The money raised can be use to finance investments for future growth of the company or acquiring additional business. **Another** reason for a company to go public is that selling shares on the stock market offers more liquidity to the existing shareholders. The shareholders of a private firm often have a large share of their wealth invested in the company. By turning to the stock market, the entrepreneur and existing shareholders have the opportunity to turn their investment into cash and diversify their investments. **Third** rationale is that an IPO brings the firm into the spotlight of other companies and increases the chance of potential mergers and acquisitions.

A well-functioning IPO market provides exit options for stakeholders in young firms, access to low cost capital for growing firms, and greater access to capital for future expansion of large firms. Flow of capital to firms can stimulate growth in an economy. Consequently, regulators are interested in mechanisms that facilitate better functioning IPO markets. India has a relatively mature capital market, with a long history of uninterrupted operations even across the World Wars.

In 1999, investment banks were allowed to use a version of book building as a mechanism for bringing IPOs to the Indian capital market. Book building refers to the process of generating, capturing, and recording investor demand for shares during an IPO in order to support efficient price discovery. The empirical evidence on the performance of private and government firms is also inconclusive. ***(Megginson W. N., 1994)*** Suggested that privatized firm perform better than their counterparts. On the other hands***, (Kay, 1986)*** provided evidence which is supportive of government enterprise. Several papers discussed the vital role played by underpricing in achieving the desired ownership structure. Among these papers ***(LaPorta, 1999)***, has pointed out that for emerging market countries, ownership structure plays a very important role in corporate finance. ***(Kim, 2004)***, study the relations hip between managerial ownership and firm performance using Thai IPO firms. Signaling (***Allen, 1989***), asymmetric information ***(Ibbotson, 1975)***, *Offer size* **(W.L. Megginson and K.A. Weiss, 1991)** *age of the* firm ***(Muscarella, 1989)***, ***(W.L. Megginson and K.A. Weiss, 1991)***, ***(McDonald, 1972),*** *Pricing mechanism at BSE* ***(Bansal.R & Khanna, 2012)*** *determinants of ipo underpricing at* ***KSE (Sohail and Raheman, 2009).***

1.1. PRICING MECHANISMS

There are two frequently used techniques to issue shares in an initial public offering; book building, fixed-price and auctions. In India and other countries, the book building technique is the most frequently used method to price shares.

1.1.1 BOOK-BUILDING

Book Building accusations price that the market can bear. Book building usually prompts to more aggressive pricing than traditional fixed price method. Under book building, since all applicants above the cut-off points are allotted shares, ideally, there should not be any pressure of unsatisfied demand in the market, leading to a lesser possibility of market prices rising above the issue price after listing. Thus, IPOs based on book building method may deliver fair pricing.

1.1.2 PRICE DISCOVERY THROUGH THE BOOK BUILDING PROCESS

"Book Building" means a process undertaken by which a demand for the securities tendered to be issued by a body corporate is elicited and built up, and the price for the securities is considered based on the bids obtained for the quantum of securities offered for subscription by the issuer. This method furnishes an opportunity to the market to discover price for securities.

1.1.3 COMPARISON OF PRICING MECHANISMS

Pricing is the main part of IPO process for both investors and issuing company or corporate house To. determine the right price of shares is most important. While deciding the IPOs, there are mainly two pricing methods that are IPO book building and fixed price option. The pricing processes are distinctive in these pricing mechanisms. So we must consider diverse things while calculating the price. And there is a variation in both pricing methods And. price update is depended on different market conditions.

2.0 WHAT IS UNDERPRICING?

Underpricing of IPOs has been considered as a prevalent phenomenon across the world. When companies go public, the equity they sell in as initial public offering tends to be underpriced, resulting in a substantial price jump on the first day trading. Underpricing is generating additional value in the stock when it first becomes traded. This leads to significant gains for investors who have been allocated shares at offer price. However, underpricing an IPO results in "*money left on the table"*- lost capital that could have been raised for the company had the stock been offered at a higher price. ***(Baron, 1982).***

2.1 REASONS FOR UNDERPRICING

Allotment of shares in IPOs elevates an interesting question- *what makes the investors rush towards IPOs*? It seems that there is a significant difference in the prices at which the IPOs are offered to the investors and the price at which they trade on the day of the listing. So if the investors get shares allotted in an IPO at a lower price than sell them on the first day of listing at higher prices, then they can make substantial gains. This phenomenon is known a "under pricing" in the IPO market. In other words, the market (on the day of the listing) seems to conceive that the offer price of the stock was lower and justifies a higher price. The higher the underpricing, greater is the amount of money that can be made by investors who got allocations in the IPO and sell these on the day of listing. This phenomenon is also referred to as "money left on the table" by the firms.

Much of the theoretical research on IPOs has focused on explaining IPO underpricing. Possible reasons for underpricing include self-interested investment bankers ***(Baron, 1982)***, the "winner's curse" ***(Rock, 1986)***, signaling ***(Allen, 1989)*** book building ***(Benveniste, 1989)***. Evidence suggests also that in some countries IPO underpricing may be due to the regulatory environment ***(Loughran T. &., 1994)***, because the allocation of IPO shares can be used as a bribe. Attempts were made to examine the reasons for the initial high returns of these new issues. Some theoretical work suggests that the underpricing of IPOs is associated with asymmetric information and investors' concerns that the decision to issue equity is an attempt to expropriate wealth from outsiders ***(Ibbotson, 1975).***

Empirical studies have found evidence that the underpricing for IPOs of financial institutions is related to proxies for asymmetric information. *Offer size* ***(Megginson, 1991)***, *age of the firm* ***(Muscarella, 1989)***; ***(Megginson, 1991); (McDonald, New issues stock price behaviour, 1972*****),*** and the volatility of the post-offer return ***(Ritter, 1984)***, have all been associated with IPO underpricing. Recently research work has been done on relationship of pricing mechanism and level of underpricing in Indian stock market by ***(Bansal, 2012).***

This paper undertakes to investigate the extent of underpricing in the Indian primary market by taking a sample of IPOs for the period of eleven years from 2000 to 2011. In addition to, it also investigates what are the different market and firm specific factors that affect the underpricing of IPOs. *These factors include subscription rate (Issue subscribe by Investors), issue size (Number of share offered * offer price), and pricing mechanism (book built & fixed price option).* Multiple regression exhibit that which among these variables is statistically significant to affecting underpricing.

The study furnishes useful insights into which market and firm specific variables are consequential in determining the extent of underpricing of IPOs. The study has more prominent implications for investors who subscribe to different IPOs for listing day gain as this study would help them in understanding which types of the firm are more likely to underprice. This model is also very useful to prediction in prognostication for upcoming public issue.

The rest of the paper is organized as follows. Section 3 describes the literature review which is followed by data and methodology in section 4 & 5. Section 6 shows results and discussion followed by conclusion in section 7.

3.0 LITERATURE REVIEW

One of the earliest and seminal works in the field was done by ***(Ibbotson R. , 1975)***.He studied both initial and aftermarket performance (measured by risk-adjusted returns) on newly issued common stocks which were offered to the public during the 1970s. The empirical evidence on the performance of private and government firms is also inconclusive. ***(Megginson W. N., 1994)*** Suggested that privatized firm perform better than their counterparts. On the other hands***, (Kay, 1986)*** provided evidence which is supportive of government enterprise. Several papers discussed the vital role played by underpricing in achieving the desired ownership structure. Among these papers ***(LaPorta, 1999)***, has pointed out that for emerging market countries, ownership structure plays a very important role in corporate finance. ***(Kim, 2004)***, study the relations hip between managerial ownership and firm performance using Thai IPO firms. Signaling (***Allen, 1989***), asymmetric information ***(Ibbotson, 1975)***, *Offer size* **(W.L. Megginson and K.A. Weiss, 1991)** *age of the* firm ***(Muscarella, 1989)***, ***(W.L. Megginson and K.A. Weiss, 1991)***, ***(McDonald, 1972),*** *Pricing mechanism at BSE* ***(Bansal.R & Khanna, 2012)*** *determinants of ipo underpricing at* ***KSE (Sohail and Raheman, 2009).*** Recently ***(Islam A. a., 2010)*** conducted empirical tests on the relationship between Subscription rate, issue size, industry type and underpricing using 196 initial public offerings on the Dhaka Stock exchange.

(Rock, 1986), showed that those investors who are more informed (than the firm as well as other investors) about high under pricing offers crowd out uninformed investors. On the other hand, these more informed investors withdraw in issues, which are over priced leaving the uninformed investors with the winner's curse problem. Thus, the uninformed investors would not participate in over priced issues. Hence in order to attract such investors, the firm tries to get under price its IPO.

(Loughran T. &., 2002), found that during 1990-1998 firms, which went public had total earnings of $8 billion while they left $27 billion on the table even though they paid $13 billion as fees to him under writers. This made Loughran and Ritter propound a prospect theory for under pricing where they state that issuers of IPOs leave a lot of money on the table because they see a prospect of higher trading price in the first few days of listing, consequently, offsetting their loss of wealth in under pricing the IPOs and in fact, resulting in net gains to their wealth levels. More importantly they found that most IPOs leave little money on the table.

(Leite, 2007), generalized the informational assumptions of the the Rock model to address empirical evidence and conjectures that the standard model based on informed and uninformed investors is unable to address. They exhibited that high (low) market returns induce the issuer to price the issue more conservatively (aggressively) to create a negative relation between the public signal and the quality of the marginal investor, and in turn a positive link between market returns and underpricing.

(Dolvin, 2008), addressed the question of if or not periods of high underpricing adversely affect pre-existing shareholders. They construct that high levels of underpricing are associated with increased share retention, which effectively offsets much of the potential cost. Comprehensive, the proportion of shareholder wealth lost is stable over time, unlike underpricing itself. Furthermore, many factors known to be related to underpricing are not significant determinants of the cost of going public to pre-existing owners.

(Kumar, 2010) has shown the efficiency of IPO issuing mechanisms using a sample of Indian IPOs that tapped the primary market during 2003-07 by taking into thoughtfulness the total costs the issuers have to face i.e., including both direct as well as indirect costs. He encounters that from a total cost point of view the issuers fare neither better nor worse using either book building or the fixed price offers. Their results also revealed that the issue expenses associated with book building is more than those associated with fixed price offers after controlling for issue size and firm specific characteristics.

(Islam and Ali, 2010), has Analyzed the levels of underpricing in initial public offerings (IPOs) and its determinants of Dhaka Stock Exchange (DSE). Key trends in the levels of underpricing and overpricing are highlighted out on a year to year, and industry as the industry basis. Regression Analysis shows that offer size and size of the company are positively related to the degree of underpricing. However, age of the firm and offer timing were build to have no significant impact on the degree of underpricing of IPO in the Dhaka Stock Exchange.

(Bansal and Khanna, 2012), has analyzed that whatever there is any significant difference in the magnitude of level of underpricing of ipos that evaluated through the book build with those are priced through the fixed price option. They construct the magnitude of underpricing is concerned; the book-build and fixed price option gave different results. They found significant difference in level of magnitude of underpricing in IPOs that priced through the book build with those that are priced through the fixed price option.

4.0 METHODOLOGY

The data is analyzed using multiple linear regression and ANOVA. All the firm specific variables are regressed against the underpricing to find out which variables are significant in determining the underpricing. A two-way ANOVA is done to see if there is a statistically significant difference in *the underpricing between book build issues and issue by fixed price option.*

H1: There is no statistical significant difference in subscription rate and level of underpricing.

H2: There is no statistical significant difference in issue size and level of underpricing.

H3: There is no statistical significant in pricing mechanism and level of underpricing.

4.1 MEASURES FOR VARIABLES

The variables used in the study have been measured as described below.

4.1.1. MEASURE OF UNDERPRICING

Consistent with the standard methodology, underpricing is calculated as the percentage change from the offer price to the closing price in the secondary market.

Traditional Underpricing = ((closing price - offer price) /offer price) * 100.

Log underpricing = ln (P1-P0/P0)* 100

Log Underpricing = ln (closing price/ offer price) is used to determine the level of underpricing and to make standard practice and to avoid hetroscadisticity. Underpricing is used as dependent variable in this regression model.

4.1.2. MEASURE OF SUBSCRIPTION

The subscription measured as the quantity of shares of the total times had investors subscribe after the issue. The natural logarithm of this value is used as it is a standard practice and to remove hetroscadisticity.

4.1.3. MEASURE OF ISSUE SIZE

The issue size is measured as the total number of shares offered multiplied by the offer price. Again, the natural logarithm of this value is used as a standard practice and to remove hetroscadisticity.

4.1.4 MEASURE OF PRICING MECHANISM

A dummy variable is used to find the effect of pricing mechanism on level of underpricing. If ipo issued by book build is give 1 otherwise 0.

4.2 THE MULTIPLE REGRESSIONS MODEL

The impact of the independent variables namely, Subscription rate , Issue size, pricing mechanism both Book build & Fixed price option on the dependent variable underpricing is modeled through multiple regression as:

Underpricing = α + β1 Subscription + β2Issue Size + β3pricing mechanism + e

5.0. DATA COLLECTION

The data for the study was obtained from the website of the Bombay stock Exchange (BSE) http://www.bse-india.com/ under the heading of book building in IPOS. We also supplemented these data from CMIE & Capital line database. The period for which the data was taken for the study was Jan 2000 to 31st dec 2011. BSE was selected for the purpose of this study because it is the largest exchange in the country in terms of trading volumes. There were a total 550 IPOs for the period under study out of which 320 IPOs were underpriced.

IPOS ON BOMBAY STOCK EXCHANGE FROM 2000-2011

TABLE 1: IPOS AT BOMABY STOCK EXCHANGE FROM 2000-2011

Year	Total Issue	Issue in Bse	BB method	FPO method	BB-Underp	Fpo-Underp
2000	118	67	11	56	6	30
2001	16	10	2	8	0	2
2002	5	5	1	4	0	4
2003	14	11	4	7	3	5
2004	28	25	17	8	9	6
2005	70	67	48	19	26	14
2006	90	89	68	21	36	14
2007	106	105	91	14	58	7
2008	38	38	33	5	16	2
2009	21	21	21	0	14	0
2010	73	73	71	2	47	2
2011	40	39	38	1	19	0
Total	**619**	**550**	**405**	**145**	**234**	**86**

6.0 RESULTS ANALYSIS

6.1. DESCRIPTIVE STATISTICS

The descriptive statistics of the various variables in the model are as follows-

DESCRIPTIVE STATISTICS

TABLE 2: PROVIDES THE DESCRIPTIVE STATISTICS FOR THE OVERALL STUDY SAMPLE

	Ln_UND	*Ln_SUBSC*	*Ln_ISSUESI*
Mean	3.164458	2.280388	4.476758
Median	3.280198	2.197225	4.440404
Maximum	7.476755	5.068904	9.646987
Minimum	-0.336472	0.000000	-0.400478
Std. Dev.	1.357890	1.330978	1.748377
Skewness	***0.240327***	***0.052702***	***0.084059***
Kurtosis	***3.060826***	***1.793809***	***3.433706***
Jarque-Bera	***3.129709***	***19.54677***	***2.884866***
Probability	0.209118	0.000057	0.236352
Sum	1012.626	729.7240	1432.563
Sum Sq. Dev.	588.1928	565.1092	975.1258
Observations	**320**	**320**	**320**

6.2. CHECKING THE DATA FOR STAIONARITY OF THE TIME SERIES

A plot of the degree of the underpricing with respect to the number of observations (320) was obtained. Since the issues listed by close of Dec, 2011 were the most recent and the count was from them backwards up to Jan – 2000, the plot shows that the degree of underpricing.

FIG 1: DEGREE OF UNDERPRICING AND AUTO CORRELATION FUNCTION (ACF)

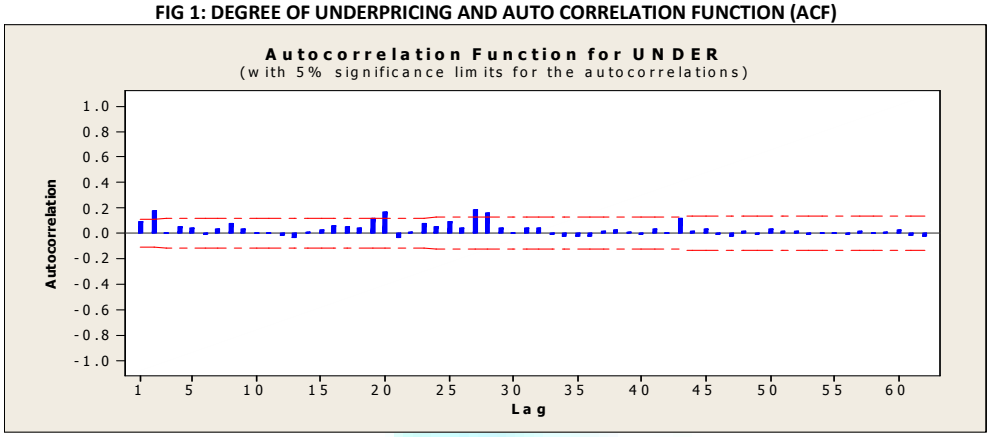
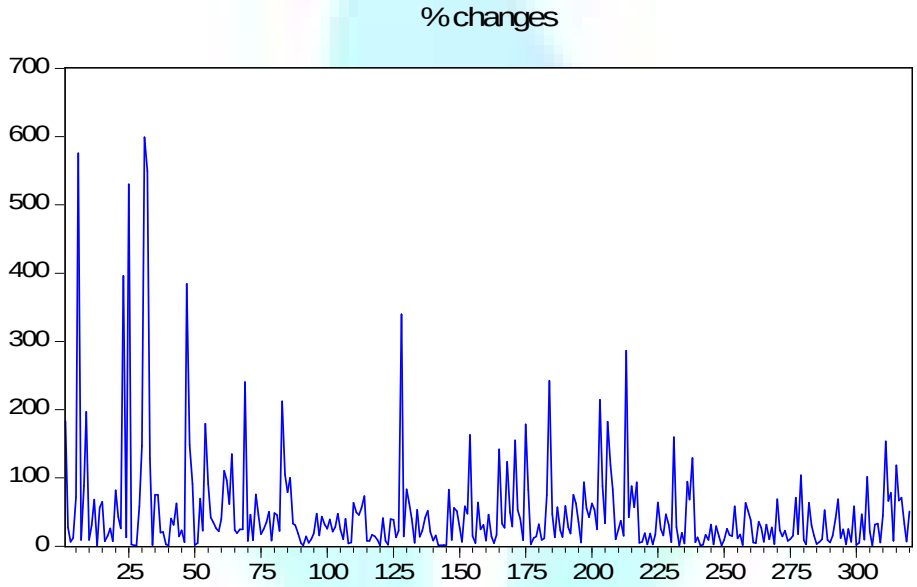


FIG 2: DEGREE OF UNDERPRICING – FIRMS TO THE EXTREME LEFT IN THE X ASIS WERE LISTED IN JAN 2000 AND THOSE TO THE EXTREME RIGHT IN DEC-2011. OTHER FIRMS GOT LISTED IN THE INTERVENING MONTHS. Y AXIS SHOWS THE DEGREE OF UNDERPRICING IN PERCENTAGE TERMS.



In order to test whether the series is stationary or not, the plots of auto correlation functions (ACF) were used and were found to be within confidence intervals. To further establish stationarity, a unit root stationarity test.

TABLE NO 4: STATIONARITY RESULTS BY AUGMENTED DICKEY-FULLER TEST EQUATION

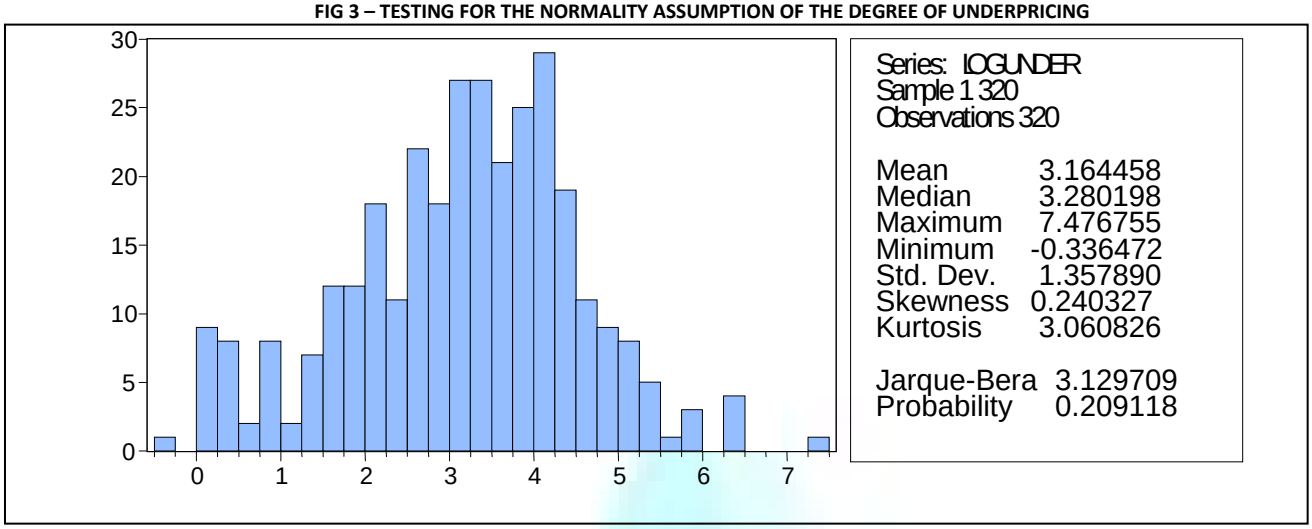
Null Hypothesis: UNDER has a unit root		Exogenous: Constant	
Lag Length: 0 (Automatic - based on SIC, maxlag=16)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.93049	0.0000
Test critical values:	1% level	-3.450812	
	5% level	-2.870444	
	10% level	-2.571584	
*MacKinnon (1996) one-sided p-values.			

The computed ADF test-statistic (-13.93) is smaller than the critical values - **"tau" (** -2.5715, -2.870, -3.4508 at 10%, 5%, 1% significant level, respectively), therefore we can reject Ho. It means the underpricing I series doesn't has an unit root problem and the underpricing series is a stationary series at 1%, 10% and 5% significant level.

6.3. TESTING THE NORMALITY OF THE DEPENDENT VARIABLE

In order to find out whether the dependent variable which is degree of underpricing follows the normality assumption or not, we plotted the histogram and conducted Jarque Bera test which gave the following results:

FIG 3 – TESTING FOR THE NORMALITY ASSUMPTION OF THE DEGREE OF UNDERPRICING



The values of both skewness and kurtosis are near the accepted values of Zero and three respectively for a normal curve and the Jarque Bera test does not reject the assumption of normality at 5% level.

6.4. TESTING OF COLINEARITY

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
	(Constant)	4.263	.288		14.822	.000	3.697	4.829		
	Logsubs	.343	.053	.328	6.489	.000	.239	.447	.934	1.071
	Logissue	-.409	.051	-.497	-8.043	.000	-.510	-.309	.623	1.606
	ipotypecode	-.247	.202	-.076	-1.227	.221	-.644	.149	.627	1.594

a. Dependent Variable: logunder

COLLINEARITY DIAGNOSTICS[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	logsubs	logissue	ipotypecode
1	1	2.974	1.000	.01	.02	.01	.02
	2	.807	1.920	.00	.02	.01	.49
	3	.183	4.031	.03	.93	.11	.00
	4	.036	9.052	.96	.03	.88	.49

a. Dependent Variable: logunder

6.5. ESTIMATION THE REGRESSION EQUATION

Underpricing = α + β1 Subscription + β2Issue Size + β3pricing mechanism + e

TABLE NO 5: RESULTS OF MULTIPLE LINEAR REGRESSION

Dependent Variable: LOGUNDER
Method: Least Squares
Date: 02/12/12 Time: 14:31
Sample: 1 320
Included observations: 320
White Hetroskedasticity – Consistent standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	4.205417	0.262988	15.99088	0.0000
LOGSUBSC	0.353431	0.050827	6.953572	0.0000
LOGISSUESIZE	-0.399437	0.046294	-8.628348	0.0000
IPO_TYPE	-0.218552	0.181881	-1.201621	0.2304
R-squared	0.371932	Mean dependent var		3.164458
Adjusted R-squared	0.365020	S.D. dependent var		1.357890
S.E. of regression	1.164132	Akaike info criterion		3.154250
Sum squared resid	428.2443	Schwarz criterion		3.201354
Log likelihood	-500.6800	Hannan-Quinn criter.		3.173060
F-statistic	39.34181	Durbin-Watson stat		1.633583
Prob(F-statistic)	0.006772			

LOGUNDER = 4.20541694165 + 0.353430595174*LOGSUBSC - 0.399436849451* LOGISSUESIZE - 0.218552352029* IPO_TYPE

The adjusted R squared is 36.50%. The low value could be because of the wide heterogeneity in the firms considered as the sample. The coefficient of SUBSC & issue size is significant at 1% level. The Durbin Watson statistic is close to 2, which reveal that the degree of underpricing is not simulated by first-order auto correlations. In fact, we have checked for the robustness of these results by Akaike information Criterion (AIC) improves slightly.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.712	1	15.712	7.589	.006
Within Groups	658.346	318	2.070		
Total	674.058	319			

Predictors: (Constant), ipotypecode

a. Dependent Variable: logunder

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167.315	3	55.772	39.34	.000[a]
	Residual	506.743	316	1.604		
	Total	674.058	319			

a. Predictors: (Constant), ipotypecode, logsubs, logissue

b. Dependent Variable: logunder

RESIDUALS STATISTICS[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.4924	4.9266	3.1302	.72422	320
Residual	-5.35723	2.84949	.00000	1.26037	320
Std. Predicted Value	-3.642	2.480	.000	1.000	320
Std. Residual	-4.230	2.250	.000	.995	320

a. Dependent Variable: logunder

7.0 DISCUSSION

Derived on the results of multiple linear regressions it was construct that variables such as subscription and issue size are statistically significant at 1% level of significance. Ipo type has no relevant association at the level of underpricing. There is a consequential relationship between subscription rate and the level of underpricing at 1% level of significance (z = 6.95). So we reject hypothesis 1. The subscription has positive association with the underpricing, which insinuates that higher subscription rate tends to more underpriced and vice-versa. At the time of higher subscription rate the investors who fail to get shares in the ipo market might be transforming towards this increased demand in the secondary market, leading to higher underpricing.

There is a significant connection between issue size and level of underpricing at 1 % level of significant (z= 8.62), which reject hypothesis 2. The issue size has a negative impact on the underpricing, which intimates that firms with more issue size tend to be underpriced less and vice-versa. It can be authoritative that large issue size leads to be increased in supply of share in ipo, leading to lesser underpricing. There is no significant distinction in pricing mechanism and underpricing (z= -1.21). So we accept hypothesis 3 at 5% level of significance (table value z = -1.96). There is no significant difference between pricing mechanism and level of underpricing.

Our study also gave corresponding results regarding subscription rate, i.e. (1***(Ritter, 1984),*** are having a positive relationship between the level of underpricing and the ex ante uncertainty about the value of the firm. The results indicating the positive relationship of subscription rate & level of underpricing in the present study is in confirmation with results found by ***(Islam, 2010***), in their study. The results indicating the negative relationship of issue size with underpricing in the present study is in confirmation with the results found by ***(Deb, 2010),*** book build has found to be more effective pricing mechanism compare to fixed price option The results indicating that there is no significant relationship between pricing mechanism and level of underpricing is in confirmation with result found by ***(Bansal, 2012).*** Pricing mechanism is no significant related with level of underpricing.

8.0 CONCLUSION

This study has several important contributions. This paper analyzed the extent of underpricing in the Indian primary market and examined as to which factors are weighty in affecting the underpricing. Between the variables, only the subscription and issue size was found to be relevant in affecting the underpricing. There is a momentous negative relationship between the issue size and underpricing. While there is a important positive relationship between the subscription and underpricing which implies that larger issuing size firms underpriced less and vice-versa. And firm with highly subscribed tends to be more underpriced. Notwithstanding, there is no significant difference between underpricing and pricing mechanism.

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BANKRUPTCY PREDICTION OF FIRMS USING THE DATA MINING METHOD

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ABSTRACT

The purpose of this paper is to anticipate financial bankruptcy of firms in Iranian Stock Exchange using the data mining technique. To that effect, required data were gathered from financial statements of 89 companies listed in Iranian Stock Exchange active in the business of Compact Disks, and the required data were estimated and extracted for a seven-year period (2003-2009). Statistical methods used in this paper include regression analysis, diagnostic analysis, and artificial neural network. The neural network used in this paper is a multilayer perceptron trained by error back propagation algorithm and include triple layer feed-forward neural network arranged as input, centric and output neurons. The sample of the study consists of two groups of bankrupted and solvent firms. The bankrupts group has been selected based on "Article 141" of Commerce Law during 2003 to 2009, and the solvent group has been chosen randomly and with respects to the industry of the bankrupted firm. Results reveal that data mining model with 53.78% accuracy in identifying bankrupted firms and 97.10% accuracy in identifying solvent firms, and artificial neural network model with 85% accuracy in identifying bankrupted firms and 95% accuracy in identifying solvent firms can predict bankruptcy of the firms.

KEYWORDS
bankruptcy prediction, data mining, artificial neural network model, diagnostic analysis.

INTRODUCTION

Bankruptcy of firms usually has an impact on stock exchanges' liquidity and economy development. In time of bankruptcy, banks normally make funds less available to bankrupted firms and, in order to recompense the extra-risk, ask for higher interests. Similarly, financial investment institutes, such as pension funds institutes and insurance companies, decrease buying shares and focus more on investments and bonds issued by banks or similar markets. All these would lead to lesser liquidity in capital market, increase in firms' capital cost and decrease in economical growth. With respects to adverse effects of bankruptcy on capital markets and economy, scholars and stakeholders decided to develop prediction models by using different approaches in order to reduce the disadvantages and damages due to those adverse effects. Usually, different and interrelated factors lead to bankruptcy of firms; hence, it is not a simple task to identify the exact cause or causes of bankruptcy and financial issues in each specific case. Generally, factors that lead to bankruptcy of organizations are whether internal or external to the organization. External factors are those that are not controllable by the firm, however, they may lead to financial problems for the firm. On the other hand, internal factors are due to managers' faults or their inability in taking appropriate actions with respects to managerial decisions; examples include providing and increasing customers' credit, excessive sales on credit, and inefficient management.[1] Bankruptcy prediction is a binary prediction in which the firm is either bankrupted or solvent and the model developed for such prediction should be capable of determining state of bankruptcy or non-bankruptcy of firms. Data mining methods include: 1- Artificial Neural Network; 2- Diagnostic Analysis; 3- Regression Analysis; 4- Neuro-fuzzy.

In a study titled "A Comparative Study of Bankruptcy Prediction using Altman, Logit and Artificial Neural Network Models", Garkaz and Barzegar Khandoozi (2010) analyzed this issue during the 2003-2009 period; financial ratios in neural network model include: 1- working capital to total assets; 2- retained earnings to total assets; 3- EBIT to total assets; 4- equity to debt ratio; 5- net sales to total assets. Accuracy of the models in the year of bankruptcy, one year and two years previous to that is 83.5%, 76.5% and 79.5%, for Altman model; 73.5%, 64.7% and 63.8% for logit model; and, 93.7%, 99.4% and 90% for Artificial Neural Network, respectively.

In a paper titled "Predicting Financial Exhaustion of Firms in Tehran Stock Exchange during 2006-2009 using Logit, Neuro-Fuzzy Network, and Neural Network", Moosavi and Ahangari (2012) used MAE (Mean Absolute Error) and RMSE (Root Mean Squared Error) to evaluate performance of these algorithms. According to findings, mean errors for neural, logit and neuro-fuzzy models were 31%, 39% and 41%, based on RMSE, and 23%, 32% and 34%, based on MAE, respectively.

Using neuro-fuzzy model, Zangane (2009) showed that both neuro-fuzzy and logistic regression can predict bankruptcy of firms; the period for that study was 1997-2008. Findings revealed an accuracy of 96.27% for neuro-fuzzy model and 80.21% for logistic regression model.

Sung Yin Chun (2009) compared logit, artificial neural network, combinatory multiple discriminant analysis, decision tree, support vector technique and combinatory neural network technique, and by using neural network learning, offered a hybrid model for predicting bankruptcy. The results showed an accuracy of 78.15% for combinatory multiple discriminant analysis model, 78.04% for logit model, 78.01% for artificial neural network model, 72.38% for decision tree, 78.0170% for support vector technique, and 78.92% for combinatory neural network model.

Yeldiz and Akkoc (2010) conducted a research titled "Bankruptcy Prediction using Neuro Fuzzy: An Application in Turkish Banks". The sample of the study consisted of 55 banks that were divided to two groups as training and validation. The training group consisted of 11 bankrupted banks and 22 solvent banks. The validation group consisted of 8 bankrupted banks and 14 solvent banks. Independent variables consisted of the following six financial ratios: 1- capital ratios; 2- assets quality; 3- liquidity; 4- profitability; 5- income-expenditure structure; and 6- activity ratios. The results showed an accuracy of 90.91%.

RESEARCH DATA, HYPOTHESIS AND METHODOLOGY

In this research, which mainly aims at predicting firms' bankruptcy using the best predictor variables from previous studies, perceptron neural networks and diagnostic analysis are used alongside the following predictor variables. It should be mentioned that "Clause 141" of Commerce Law is the criteria for choosing a firm as bankrupted. According to "Clause 141" of Commerce Law, in the event of loss of at least half of the firm's assets, board of directors is obliged to bring together members of the general meeting of stakeholders as to decide for liquidation or survival of the firm.

Data include: 1- shareholders' equity to total liabilities and shareholders' equity ratio; 2- leverage ratios; 3- debt to equity ratio; 4- return on assets; 5- earning per share ratio; 6- return on equity ratio; 7- current ratio; 8- quick ratio; 9- current assets to total assets ratio; 10- cash flow to total debt ratio; 11- cash flow ratio; 12- inventories to total asset ratio; 13- inventories to sales ratio. Statistically, this research is a modeling study, and with respects to its methodology, it is a descriptive (semi-experimental) correlation study in which the relationship between variables is analyzed with regards to the research's objective.

Criteria for Sample Companies

They should be listed in Stock Exchange and their fiscal year should end by mid-March each year. They should not be financial intermediary firms and information about them should be available.

Hypotheses:

Hypothesis 1- Data mining model can predict firms' bankruptcy.

First, using data refinement methods, wild data were removed and then lost data were simulated using simulation method in data mining. Subsequently, we have examined factors influencing bankruptcy by using diagnostic analysis method. The results are shown in figure 1. Using Fisher statistic, we concluded that variables are significant and therefore predictable.

TABLE 1: SIGNIFICANT DIAGNOSTIC MODEL

P-value	F-value
0.000	***19.19***

19.19F=

TABLE 2: SIGNIFICANT COEFFICIENTS TEST

p-level	F-remove	Partial	Wilks'	
0.6621	0.1911	0.9997	0.6791	Equity ratio/assets
0.6375	0.2222	0.9996	0.6792	Equity Ratio
0.0904	2.8764	0.9950	0.6823	Debt/Equity
0.6958	0.1530	0.9997	0.6791	Profit before interest and taxes/ interest
0.0000	52.7839	0.9150	0.7420	Return on Assets
0.0849	2.9797	0.9948	0.6825	Earnings Per Share(EPS)
0.0725	3.2382	0.9943	0.6828	Return on equity
0.1811	1.7931	0.9969	0.6810	Currnt ratio
0.6336	0.2275	0.9996	0.6792	Acid-test raito
0.4970	0.4619	0.9992	0.6795	Currunt assets to total assets
0.0825	3.0247	0.9947	0.6825	Cash flow to totall debt ratio
0.0252	5.0376	0.9912	0.6849	Cash flow ratio
0.0079	7.1160	0.9876	0.6874	Inventory to total assets ratio
0.0000	27.4320	0.9539	0.7117	Inventory to sale ratio

According to figure 2, F function can be achieved through statistics of the similar test. From these statistics, it was revealed that what coefficients are significant and what are their values. In general, Return on Assets, Cash Flow ratio, Inventories to Total Assets ratio, and Inventories to Sales ratio are significant in the model; we used step-by-step diagnosis analysis technique to eliminate them. The results are shown in figure 3.

TABLE 3: SIGNIFICANT S ANALYSIS STEP-BY-STEP DIAGNOSIS TECHNIQUE

P-value	F-value
0.000	62.95

According to figure 3, it can be seen that the model is still statistically significant even after elimination of redundant variables. Now we examine the effect of significant variables of the model.

TABLE 4: SIGNIFICANT S ANALYSIS STEP-BY-STEP VALUES

p-level	F-remove	Partial	Wilks'	
0.000000	155.8338	0.787644	0.884333	Return on Assets
0.000000	32.9682	0.946039	0.736270	Inventory To Sale Ratio
0.003698	8.4958	0.985514	0.706778	Inventory To Total Assets ratio
0.020832	5.3702	0.990795	0.703012	Cash flow ratio

TABLE 5: VALUES OF SIGNIFICANT S ANALYSIS STEP-BY-STEP DIAGNOSIS TECHNIQUE

bankrupt	Non-bankrupt	
-1.30751	2.81911	Return on Assets
5.80543	3.77797	Inventory To Sale Ratio
-0.08599	-0.06060	Inventory To Total Assets ratio
0.00327	0.00163	Cash flow ratio
-2.48236	-1.33353	Fixed

According to figure 5, diagnosis function for solvent firms is as follows and the criterion for assuming a firm as solvent is 0.5918.

P=-1.33353+2.81911* Return on Assets +3.77797* INVENTORY TO SALE RATIO

-0.06060*INVENTORY TO TOTAL ASSETS ratio +0.00163* CASH FLOW RATIO

Diagnosis function for bankrupted firms is as follows and the criterion for assuming as bankrupted is 0.4082.

P=-2.4824+1.3075* Return on Assets +5.8054* INVENTORY TO SALE RATIO-0.08599* INVENTORY TO TOTAL ASSETS ratio +0.00327* CASH FLOW RATIO

After employing the above diagnosis function on samples, we can see that the model can describe about 79% of the firms.

TABLE 6: EXPLANATORY POWER OF DATA MINING

bankrupt	Non-bankrupt	Percent correct	
10	335	97.10	Non-bankrupt
128	110	53.78	bankrupt
138	445	79.42	Overall firms

Considering the probability value and comparing that value with the significance level, one can conclude that the "Data mining model can predict firms' bankruptcy".

Hypothesis 2- Artificial neural network model can predict firm's bankruptcy.

Similarly, to determine explanatory power of neural network model, data refining and simulation methods were used at first. Subsequently, using various models of neural networks, we tried to estimate the accuracy of neural networks in bankruptcy prediction. Neural function used in this study is perceptron. Based on a computing unit called perceptron, a type of neural network is generated. A perceptron takes a vector of inputs with real numbers and calculates a linear combination of these inputs. If the result exceeds a specific threshold, perceptron's output will be equal to 1, otherwise it will be equal to -1.

Perceptron's output is calculated based on the following equation:

$$O(x_1, x_2, \ldots, x_n) = \begin{cases} 1 & \text{if } w_0 + w_1x_1 + w_2x_2 + \ldots + w_nx_n > 0 \\ -1 & \text{otherwise} \end{cases}$$

We fed the network with the data for 5 times; the results are as follow: In figure 7 the accuracy of different neural networks are presented

TABLE 7: THE ACCURACY OF DIFFERENT NEURAL NETWORKS

Test perf.	Training perf.	neural network
90.51724	86.29550	MLP 14-12-2
89.65517	88.43683	MLP 14-9-2
88.79310	87.36617	MLP 14-4-2
90.51724	91.00642	MLP 14-7-2
88.79310	86.72377	MLP 14-***8***-2

According to figure 7, it is MLP 14-7-2 neural network model that has predicted a high percentage of the bankruptcies.

After employing mentioned neural networks, predicted bankruptcy of each network is shown in figure 8.

TABLE 8: PREDICTED BANKRUPTCY OF EACH NETWORK

bankrupt	Non-bankrupt		
187	280	**Overall firms**	MLP 14-12-2
133	270	accurate predictions	
54	10	Inaccurate predictions	
71	96	accurate predictability power	
28	3	inaccurate predictability power	
187	280	**Overall firms**	MLP 14-9-2
148	265	accurate predictions	
39	15	Inaccurate predictions	
79	94	accurate predictability power	
20	5	inaccurate predictability power	
187	280	**Overall firms**	MLP 14-4-2
150	258	accurate predictions	
37	22	Inaccurate predictions	
80	92	accurate predictability power	
19	7	inaccurate predictability power	
187	280	**Overall firms**	MLP 14-7-2
159	266	accurate predictions	
28	14	Inaccurate predictions	
85	95	accurate predictability power	
14	5	inaccurate predictability power	
187	280	**Overall firms**	MLP 14-***8***-2
134	271	accurate predictions	
53	9	Inaccurate predictions	
71	96	accurate predictability power	
28	3	inaccurate predictability power	

As mentioned, according to figure 8 the best neural network model is MLP 14-7-2 model that has the highest accurate predictability power. Overall, 280 bankrupted firms and 187 solvent firms were observed. Of these observations, 266 of solvent firms and 159 of bankrupted firms were accurately selected. Inaccurate predictions were 14 for solvent firms and 28 for bankrupted firms. The prediction accuracy percentage is 95 for solvent firms and 85 for bankrupted firms which shows better results than other models. Since neural networks predict the status of the firms accurately in 90 percent of times, it could be accepted that neural networks can predict bankruptcy of firms.

Hypothesis 3- The level of the first type error is equal for data mining and neural networks bankruptcy prediction models. (First type error means that the firm is solvent but the model has selected it as bankrupted.)

Since the bankruptcy predictability power of neural network model and diagnosis analysis technique is identified, it would be adequate to compare inaccuracy of the two models in determining bankruptcies; then, the following hypotheses are proposed:

H0: The level of the first type error is the same for data mining and neural networks bankruptcy prediction models.

H1: The level of the first type error is not the same for data mining and neural networks bankruptcy prediction models.

The statistical representation of this hypothesis is as follows:

H0: $\alpha 1 = \alpha 2$

H1: $\alpha 1 \neq \alpha 2$

Where α1 and α2 are first type errors of diagnosis analysis and neural networks models, respectively.

TABLE 9: THE LEVEL OF THE FIRST TYPE ERROR IS THE SAME FOR DATA MINING AND NEURAL NETWORKS BANKRUPTCY

Inaccurate predictions for solvent	The prediction accurate solvent	first type error	
10	335	2.90	data mining
14	266	5.00	neural networks

TABLE 10: TABLE OF TEST RATIO

P-value	Z-value
0.1849	1.3258

With regards to the probability value and comparing that value with the significance level, one can conclude that the null hypothesis or the hypothesis stating "the level of the first type error is the same for data mining and neural networks bankruptcy prediction models" is not rejected in 95% confidence level. As the values for errors are too close, it cannot be generalized, and so they are assumed as equal.

Hypothesis 4- The level of the second type error is the same for data mining and neural networks bankruptcy prediction models. (First type error means that the firm is bankrupted but the model has selected it as bankrupted.)

It is adequate to compare inaccuracy of the two models in determining non-bankruptcies; then, the following hypotheses are proposed:

H0: The level of the second type error is the same for data mining and neural networks bankruptcy prediction models.

H1: The level of the second type error is not the same for data mining and neural networks bankruptcy prediction models.

H0: $\beta 1=\beta 2$

H1: $\beta 1 \neq \beta 2$

Where β1 and β2 are the second type errors of diagnosis analysis and neural networks models, respectively. According to diagnosis analysis and neural networks models:

TABLE 11: THE LEVEL OF THE SECOND TYPE ERROR IS THE SAME FOR DATA MINING AND NEURAL NETWORKS BANKRUPTCY

inaccurate predictions in bankrupt	accurate predictions in bankrupt	second type error	
110	128	46%	data mining
28	159	15%	neural networks

TABLE 13: TABLE OF TEST RATIO

P-value	Z-value
0.0000	7.5225

With regards to the probability value and comparing that value with the significance level, one can conclude that the null hypothesis or the hypothesis stating "the level of the first type error is the same for data mining and neural networks bankruptcy prediction models" is not rejected in 95% confidence level. As the difference is high, the result can be generalized.

RESULTS AND FINDINGS

In order to perform statistical analysis required for predicting firms' bankruptcy using data mining method, 89 companies listed in Iranian Stock Exchange were chosen as samples for this study and the required data were estimated and extracted for a seven-year period (2003-2009). To determine the accuracy of the proposed hypotheses using the designed tests, information's averages were analyzed. Based on the first hypothesis of the research, data mining method can predict bankruptcies. Accuracy of this model was shown to be 53.78% for bankrupted firms and 97.10% for solvent firms. Based on the second hypothesis of the research, neural network model can predict bankruptcies. Accuracy of this model was shown to be 85% for bankrupted firms and 95% for solvent firms. Based on the third hypothesis of the research, the level of the first type error is equal for data mining and neural networks bankruptcy prediction models. Therefore, Stock Exchange can use these models for ranking of the firms and provide investors and other financial users with important information. Meanwhile, by timely disclosing of information, it could be possible to help firms' managers and economical policy makers of the country finding timely and appropriate solutions. Since by using neural network model it would be possible to analyze the bankruptcy of firms, with 95% accuracy in identifying solvent firms and 85% accuracy in identifying bankrupting firms, before bankruptcy, we suggest creditors, investors and users of financial information to determine the possibilities of bankruptcy of the subject firms using the above-mentioned model. This way, in addition to decreasing the investment risk, they could make wiser decisions. We suggest auditors to use this model in situations where they are supposed to give their opinions about continuity or bankruptcy of firms subject to auditing. Bankruptcy prediction of firms is one of the major issues in financial decision making, and, with respects to the consequences of this phenomenon on macro and micro levels of societies, considerable tools and models, each employing different methods or predictor variables, are developed globally.

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THE EFFECT OF BASEL III REQUIREMENTS ON IMPROVING RISK-MANAGEMENT CAPABILITIES IN JORDANIAN BANKS

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ABSTRACT

Capital adequacy is important ingredient for banking sector stability and this study focuses on assessing The Effect of Basel III requirements on improving risk-management capabilities in Jordanian Banks. The survey methodology was adopted and questionnaires were drawn to elicit information from financial accountants, risk management and regulatory compliance in Jordanian banks. (130) staffs were sampled. The mean scores of staff perceptions were analyzed and the t- test statistics was explored to test the hypotheses. The study found evidence that there is a positive relationship between Basel III requirement and increase quality of capital, increase quantity of capital, reduce leverage ratio, increase short term liquidity coverage and increase the stability of long tearm balance sheet funding for Jordanian commercial banks. Also the study advice to, enhance the current capital requirement for Jordanian banks, by starting to build up the new buffers from retained earnings and to take gradual action to mitigate the rise in risk-weighted assets.

KEYWORDS

Basel III, Bank for International Settlements (BIS), Basel Committee, Basel Committee on Banking Supervision (BCBS), Capital Adequacy, Liquidity.

JEL CLASSIFICATION

E40

INTRODUCTION AND MOTIVATION TO THIS STUDY

The Basel III capital adequacy accord is the most recent international effort to establish a new capital standard for banks. Specifically, Basel III is an agreement on capital requirements among countries' central banks and bank supervisory authorities. The accords are not treaties. Member countries may modify the agreement to suite their financial regulatory structures. Basel capital accords are produced by the Bank for International Settlements Basel Committee on Banking Supervision (Ernst &Young, 2010). These agreements provide a framework for determining the minimum capital financial institutions must hold as a cushion against losses and insolvency. The less capital a bank holds the more capital it has to lend, which generally increases the bank's profitability, but makes it more vulnerable to losses and failure, which could lead to the need for government financial assistance. Without financial institutions holding this minimum amount of capital, banking regulators would not permit banking organizations to conduct normal banking business.

The proposed Basel III guidelines seek to improve the ability of banks to withstand periods of economic and financial stress by prescribing more stringent capital and liquidity requirements for them, and enhances banks‟ ability to conserve core capital in the event of stress through a conservation capital buffer. The prescribed liquidity requirements, on the other hand, are aimed at bringing in uniformity in the liquidity standards followed by banks globally. This would help banks better manage pressures on liquidity in a stress scenario(European Parliament, 2010).

On September 12, 2010, the Basel Committee for Banking Supervision (Basel Committee, 2010) specified further details for capital requirements, in particular target ratios and the transition periods during which banks must adapt to the new regulations.

The new regulation aspires to make the banking system safer by redressing many of the flaws that became visible in the crisis. Improving the quality and depth of capital and renewing the focus on liquidity management is intended to spur banks to improve their underlying risk-management capabilities. The rationale is that ultimately, if banks come to a fundamentally revamped understanding of their risks—what we call a new risk paradigm—that should be good for their business and for consumers, investors, and governments.

Basel III's focus is on capital and funding. It specifies new capital target ratios, defined as a core Tier 1 requirement of 7.0 percent (further specified as a minimum of 4.5 percent of core Tier 1 capital and a required capital conservation buffer of 2.5 percent). The broader requirement for all Tier 1 capital is set at 8.5 percent; this includes the core Tier 1 minimum of 7.0 percent and a minimum of additional (noncore) Tier 1 capital of 1.5 percent. Basel III also sets new standards for short-term funding and sketches out requirements for longterm funding(BIS, Sep,2010).

In response to the new regulation, banks are already building their capital and funding stocks and taking risk off their books in several ways. In addition, there are three other sets of actions to steer the ship through the currents of Basel III: better capital and liquidity management, balancesheet restructuring, and business-model adjustments.

The task is monumental, however. The reasarcher conclude that Jordainan Banks face a significant challenge merely to achieve technical compliance with the new rules and ratios, let alone to reorient the institution for success. Nor is the implementation challenge made much easier by the long transition periods prescribed by Basel III, with some rules not being implemented until 2019. In fact, jordanian banks should have to begin monitoring certain ratios well before the date of mandatory compliance to meet the requirements even sooner as a way to reassure markets and rating agencies and give themselves business flexibility.also to review the challenges of implementation.

THE PROBLEM OF THE STUDY

As a major task of banks is to measure and manage the risks that arise from their business activities and as stakeholders are generally concerned with the levels of risks that a financial institution has taken to achieve a particular outcome, Under Basel III the financial institutions will faces many challanges for implimintation, so in this reasarcher investigate if the current requirment under Basel III can led to inhance the quality and quantity of capital for jordanian banks by decreasing the risk and based on the above and for lack of research addressing these points , the reasarcher put the following hypothesis :

Hypothesis 1: There is a positive relationship between Basel III requirment and increase quality of capital for jordinain commercial banks.

Hypothesis 2: There is a positive relationship between Basel III requirment and increase quantity of capital for jordinain commercial banks.

Hypothesis 3: There is a positive relationship between Basel III requirment and reduce leverage ratio for jordinain commercial banks.

Hypothesis 4: There is a positive relationship between Basel III requirment and increase short tearm liqudity coverage for jordinain commercial banks.

Hypothesis 5: There is a positive relationship between Basel III requirment and increase the stability of long tearm balance sheet funding for jordinain commercial banks.

THE IMPORTANCE OF THE STUDY

The objective of the study is to improve the jordanian banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy. This reasarch sets out the rules text and benifites for implemening the Basel III framework.

PURPOSE OF THE STUDY

The purpose of this study is to measure the current Basel III requirement and proof if led for Improving the quality and depth of capital and renewing the focus on liquidity management is intended to spur banks to improve their underlying risk-management capabilities.

LITERATURE REVIEW

In this chapter the researcher will discuss the Key Elements of the Basel III Framework, new definition of capital and liquidity requirement.

THE BASEL III CAPITAL ADEQUACY ACCORD

Basel III is a work in progress that is far from completion. What is being called Basel III is a consultative document entitled, strengthening the Resilience of the Banking Sector that was first promulgated on December 17, 2009, by the Basel Committee on Banking Supervision at the Bank for International Settlements (BIS) in Basel, Switzerland. This document was an expanded and updated version of an earlier document entitled, Enhancement of the Basel II Framework that was published in July 2009. There is yet to be a BIS document entitled Basel III. The purpose of these two documents was to specify how to improve the banking sector's ability to absorb financial and economic shocks arising from stresses, whatever the source. This in turn would reduce the risk of spillovers from the financial sector to the real economy. Specifically, the central part of the Basel III regulatory reform package is to establish the minimum regulatory capital and liquidity requirements that banks must hold to absorb unexpected losses.

A NEW DEFINITION OF CAPITAL

Basel III redefines regulatory capital. To raise the quality, consistency and transparency of regulatory capital, the committee determined that Tier 1 capital must consist predominantly of common equity and retained earnings. Under current standards, there are two types of capital counted in meeting the capital adequacy rules under Basel I—core capital and supplementary capital. Tier 1 is core capital and is made up of mainly common shareholders' equity (issued and fully paid), disclosed reserves, most retained earnings, and perpetual non-cumulative preferred stocks. Supplementary or Tier 2 capital consists of subordinated debt, limited-life preferred stocks and loan loss reserves, and goodwill (KPMG, 2011).

Banks can hold as little as 2% of common equity to risk weighted assets. Consequently, banks can display strong Tier 1 capital containing a limited amount of tangible common equity.

The financial crisis demonstrated that the resources to cushion against credit losses and write-downs came out of retained earnings, which is a part of a bank's tangible equity base. Under the Basel III framework Tier 1 capital is adjusted to narrow it as close as possible to bank tangible common shares. Goodwill and preferred stocks, as well as other assets, would not be included in the new Tier 1 capital. The committee had not set the percentage of risk-weighted assets that banks must hold in the form of the new Tier 1 capital (Peter, Bogie and Michael 2010).

Capital requirement policy that would increase the minimum common equity that banks must hold as capital from the current 2% to 4.5 % by 2015. However, instead of just tangible common equity, the central bank governors added mortgage servicing rights (MSRs), deferred tax assets (DTAs), and holdings in other financial institutions (HIOFIs) to be part of Tier 1. The banks argued that MSRs, which are contractual agreements in which the rights to service existing mortgages can be easily sold to offset unexpected losses, should be considered Tier 1 capital. DTAs, assets that are used to reduce the amount of taxes that a company will pay in a later tax period, were also added to Tier 1 capital. Bankers argued that DTAs are very liquid assets that can be used to offset unexpected losses. Finally, HIOFIs were considered by bankers as equivalent to the bank's own common equities and could be easily sold to offset losses. These three added assets, however, should not exceed in aggregate more than 15% of a bank's Tier 1 capital, which limits dilution of the amount of common tangible equity in Tier 1 capital. The total minimum total capital plus capital conservation buffer would be 8.0% on January 1, 2015. Between January 1, 2016, and January 1, 2019, there would be a 2.5% increase in the minimum total capital and conservation buffer at a rate of 0.625% per year, as shown in row 3 of Table 1, which would total 10.5% on January 1, 2019. Almost 60% of the minimum total capital plus conservation buffer would be Tier 1 capital. As mention above, Tier 1 capital would consist of common equity capital after adjustments and would be increased to 6.0% beginning January 1, 2015 (Committee of European Banking Supervisors, 2011)

A NEW LIQUIDITY REQUIREMENT

Banks experienced liquidity difficulties during the financial crisis, despite meeting their regulatory risk-weighted assets capital requirements. Basel III introduced a new global liquidity standard to be internationally harmonized (BCBS, 2009). The committee's standard establishes a minimum liquidity requirement along the lines of the minimum capital requirement of the Basel capital accords.

The rapid reversal of the liquidity market in 2008 placed the banking system under severe stress, which required central bank actions to support both the functioning of money markets and individual institutions (Daniel Pruzin, 2010). The Basel committee developed two minimum standards for funding liquidity. First, there is a 30-day liquidity coverage ratio, consisting mostly of government securities and cash, which would promote short-term resilience to potential liquidity disruptions. The second is a long-term structural ratio to address liquidity mismatches and provide incentives for banks to use stable sources to fund their operations.

On September 12, 2010, the central bank approved the introduction of the liquidity coverage ratio requirement effective in 2015 after an observation period beginning in 2011 and ending in December 2014. In the observation period, the committee plans to put in place rigorous reporting processes to monitor the ratio and continue to review the implications of the liquidity coverage ratio for financial markets, credit extensions and economic growth. (Walter, 2010) The new liquidity requirement Basel III introduces two new liquidity standards as follows:

The Liquidity Coverage Ratio ("LCR"):

The LCR is intended to measure a bank's ability to access funding for a 30 day period of acute market stress. Banks will be required to have a segregated stock of highly liquid and unencumbered assets that are at least equal to its estimated "net cash outflows" for a thirty day period during a time of acute liquidity stress. The 30 day stressed period assumes certain institution-specific and system wide liquidity shocks including a credit rating downgrade of the bank of three notches, partial loss of unsecured wholesale funding, withdrawal of some retail deposits, some committed but unfunded credit and liquidity lines provided by the bank being drawn down and general market volatility. High quality liquid assets: Qualifying high quality liquid assets (i.e., the numerator of the LCR) are generally unencumbered, easily and immediately convertible to cash with little or no loss of value even during times of stress, and central bank eligible.

Qualifying assets fall into one of two categories: Level 1 and Level 2. Only cash, central bank reserves and certain securities issued by governments, central banks and some international finance agencies constitute Level 1 assets. Other qualifying liquid assets will be treated as Level 2 assets. A 15% haircut is applied to all Level 2 assets and, after applying this haircut, Level 2 assets cannot make up more than 40% of the total liquid assets used to calculate the LCR. (Daniel Pruzin, 2010).

Also, regarding net cash outflows, Basel III sets out complex formulae for determining "net cash outflows" (i.e. the denominator of the LCR), which involve the weighting of cash inflows and outflows to determine net cash outflows. While the term "net cash outflow" suggests otherwise, a bank cannot completely net cash inflows and outflows for the purpose of calculating the denominator of the LCR.

The formula is designed to ensure that there will be enough high quality liquid assets to service at least 25% of un-netted cash outflows, in addition to having liquid assets sufficient to service 100% of net cash outflows. The Basel Committee also adopts a conservative approach to the treatment of credit facilities. Banks will not be able to include as a cash inflow their ability to draw down on any credit or liquidity facility lines granted by another bank, yet banks are required to assume a 100% drawdown of committed credit and liquidity facilities granted to other banks for the purpose of calculating cash outflows.

The Net Stable Funding Ratio ("NSFR"):

The purpose of the NSFR is to limit short-term liquidity mismatches and encourage the use of longer term funding (Kashyap and Stein, 2004). A bank is required to have stable funding sources in excess of the amount of stable funding it would likely need over a one-year period of extended market stress.

This is a longer term structural ratio that covers a bank's entire balance sheet as well as certain off-balance sheet commitments. Essentially a sufficient amount of stable funding is required to finance those assets which are regarded as not being capable of being monetized through sale or use as collateral in secured

borrowings during a liquidity event lasting one year. Available stable funding: These are the available reliable sources of funds over a one-year period under conditions of extended stress.

Stable funding sources include Tier 1 and Tier 2 capital, preferred stock (that does not otherwise qualify as Tier 2 capital) with maturity greater than one year, liabilities with maturities greater than one year, and deposits and funding with maturities less than one year which would be expected to stay with the bank even during stress events. Basel III gives various stable funding sources different weightings, to be used in calculating the available amount of stable funding. These weightings reflect the perceived availability and stability of the various sources. Required funding: The amount of stable funding that is required is the sum of the various types of asset held and funded by a bank and off-balance sheet contingent exposures incurred and other activities of the bank that could expose it to liquidity risk - in effect the illiquid portion of a bank's asset book. Determining the required amount of stable funding is again a complex calculation that requires a bank's assets and activities to be weighted in accordance with various weighting factors. For example, encumbered (e.g., pledged) assets have a weighting of 100% unless the encumbrance expires within a year. Interestingly, loans to corporates would be assigned a higher weighting than equivalent borrowings by such corporates through bond issues.

Implementation of the LCR and NSFR: The observation period for both the LCR and the NSFR begins on January 1, 2012. The minimum standard for the LCR is intended to be introduced on January 1, 2015, and the NSFR minimum standard is intended to be introduced on January 1, 2018. It should be noted that the Basel Committee has already indicated that some refinements to the calculation of the LCR and the NSFR may be necessary. Impact: Compliance with the new liquidity ratios is likely to be the most challenging aspect of Basel III implementation for many banks. To ensure compliance, the Basel Committee recommends that banks and their supervisors regularly assess each bank's contractual maturity mismatch, concentration of funding, available unencumbered assets, and ability to satisfy liquidity ratios in all relevant currencies.

Despite the fact that Basel III provides for long implementation periods for these ratios, banks will need to be in a position to report data regarding liquidity by the beginning of the relevant observation period (which is January 1, 2012 for both the LCR and the NSFR). Banks may also be subject to market pressure to comply with the liquidity ratios even before the deadlines set out in Basel III.

RESEARCH DESIGN

In this chapter I will present the design of our research. First, the research hypotheses will be discussed. Second, the sample selection and composition is presented. Then, the empirical model used to test hypotheses will be explained and analysis:

Hypotheses development

As we know that Basel III applies for financial institutions. So Jordanian banks involves in the new reqyirment under basel III, therefore; Jordanian banks should: (i) review their current activities in order to identify new avenues; and (ii) revisit their risk management objectives and strategies and clarify them as necessary in order to apply the requirement under the new Basel III requirements, but i found that it may be useful for Jordanian banks to determine how these changes affect bank figures.

Based on the above the researcher will test the following hypotheses:

Hypothesis 1: There is a positive relationship between Basel III requirment and increase quality of capital for jordinain commercial banks.

Hypothesis 2: There is a positive relationship between Basel III requirment and increase quantity of capital for jordinain commercial banks.

Hypothesis 3: There is a positive relationship between Basel III requirment and reduce leverage ratio for jordinain commercial banks.

Hypothesis 4: There is a positive relationship between Basel III requirment and increase short tearm liqudity coverage for jordinain commercial banks.

Hypothesis 5: There is a positive relationship between Basel III requirment and increase the stability of long tearm balance sheet funding for jordinain commercial banks.

Sample selection

In my sample I will include all Jordanian banks, so the study population includes all Jordanian banks up to the year (2010)'s which is (16) Jordanian banks. The study sample included all of these banks,'s that represent sampling units.

Our primary respondents for representing the unit of analysis they are a financial accountants , risk management and regulatory compliance staff within banks , and after the distribution of questionnaires on the sample of the study, we have been obtained (60) questionnaire, which represented the study sample to reach the the objectives of this study.

Statistical Models

The research Relied on the questionnaire as a primary head to collect the necessary data for the study , also the researcher using the program package Statistical Social Sciences (SPSS) is a shortcut to a (Statistical package For Social Sciences) in the analysis of the data that was selected statistical methods appropriate to meet the objectives of the study and testing of hypotheses, where the we extracted frequencies in order to know the characteristics of the study sample, also we used the arithmetic mean as a measure of central tendency used to describe the study sample answers and the order of importance of items and degrees of approval or rejection for the items contained in the questionnaire.

Finally , the researcher using the test (t) for each sample (one sample T.test) to test five hypotheses of the study, and the reason for the use of this test is that it enables us to test hypotheses in the absence of our knowledge of the average value and standard deviation of the society as awhole .

DATA ANALYSES AND RESULTS

TABEL (1): STATISTICAL DATA TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE QUALITY OF CAPITAL FOR JORDANIAN COMMERCIAL BANKS

The Figures	Mean	S.D
Common equity and retained earnings should be the predominant component of Tier 1 capital instead of debt-like instruments, well above the current 50 percent rule.	***4.12***	***0.94***
Harmonized and simplified requirements for Tier 2 capital with explicit target for Tier 2 capital.	***3.51***	***1.01***
Full deduction for capital components with little loss absorption capacity such as minority interests, holdings in other financial institutions, Deferred Tax Assets.	***4.3***	***0.88***
Gradual phase-out of hybrid Tier 1 components, including many of the step-up/innovative/SPV–issued Tier 1 instruments used by banks over the past decade.	***2.98***	***0.86***
Total Score	**3.73**	**0.60**

TABLE (2): T-TEST TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE QUALITY OF CAPITAL FOR JORDANIAN COMMERCIAL BANKS

hypotheses	N	Mean	S.D	df	T-calculated
There is a positive relationship between Basel III requirment and increase quality of capital for jordinain commercial banks.	130	3.73	0.60	129	13.81

We can conclude that the value of the arithmetic average are (3.73) is higher than the arithmetic average of the value of (3) in the measuring tool, and the value of (t) calculated are (13.81) is higher than the tabular value of t (1.96) at the significance level ($\alpha = 0.05$), which indicates that There is a positive relationship between Basel III requirement and increase quality of capital for Jordanian commercial banks.

TABLE (3): STATISTICAL DATA TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE QUANTITY OF CAPITAL FOR JORDANIAN COMMERCIAL BANKS

The Figures	Mean	S.D
Minimum common equity Tier 1: • Increased from 2.0 percent to 4.5 percent • Plus capital conservation buffer of 2.5 percent • Bringing total common equity requirements to 7.0 percent	***4.26***	***0.928***
Minimum total capital increased from 8.0 percent to 10.5 percent (including conservation buffer)	***3.36***	***1.189***
Total Score	***3.81***	***0.64***

TABLE (4): T-TEST TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE QUANTITY OF CAPITAL FOR JORDANIAN COMMERCIAL BANKS

hypotheses	N	Mean	S.D	df	T-calculated
There is a positive relationship between Basel III requirement and increase quantity of capital for jordinain commercial banks.	***130***	***3.81***	***0.64***	***129***	***14.374***

We can conclude that the value of the arithmetic average are (3.81) is higher than the arithmetic average of the value of (3) in the measuring tool, and the value of (t) calculated are (14.37) is higher than the tabular value of t (1.96) at the significance level (α = 0.05), which indicates that There is a positive relationship between Basel III requirement and increase quantity of capital for Jordanian commercial banks.

TABLE (5): STATISTICAL DATA TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENTS AND REDUCE LEVERAGE RATIO FOR JORDINAIN COMMERCIAL BANKS

The Figures	Mean	S.D
The leverage ratio acts as a non-risk sensitive backstop measure to reduce the risk of a build-up of excessive leverage in the institution and in the financial system as a whole. The leverage ratio remains controversial, and there remains ambiguity about certain aspects of the exact mechanics.	***4.09***	***0.89***
The leverage limit is set as 3 percent, i.e. a bank's total assets (including both on- and off-balance-sheet assets) should not be more than 33 times bank capital.	***3.76***	***0.80***
In 2011, reporting templates will be developed. In 2013, regulators will start monitoring leverage ratio data, and the ratio will be effective from January 2018.	***4.55***	***1.00***
The ratio is introduced to supplement the risk-based measures of regulatory capital.	***3.21***	***0.98***
The leverage ratio is implemented on a gross and unweighted basis, not taking into account the risks related to the assets.	***4.32***	***0.79***
Total Score	***3.99***	***0.52***

TABLE (6): T-TEST TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND REDUCE LEVERAGE RATIO FOR JORDINAIN COMMERCIAL BANKS

hypotheses	N	Mean	S.D	df	T-calculated
There is a positive relationship between Basel III requirement and reduce leverage ratio for Jordanian commercial banks.	***130***	***3.99***	***0.52***	***129***	***21.622***

We can conclude that the value of the arithmetic average are (3.99) is higher than the arithmetic average of the value of (3) in the measuring tool, and the value of (t) calculated are (21.62) is higher than the tabular value of t (1.96) at the significance level (α = 0.05), which indicates that There is a positive relationship between Basel III requirement and reduce leverage ratio for Jordanian commercial banks.

TABLE (7): STATISTICAL DATA TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENTS INCREASE SHORT TEARM LIQUDITY COVERAGE FOR JORDINAIN COMM. BANKS

The Figures	Mean	S.D
the Basel Committee has further strengthened its liquidity framework by developing two minimum standards for funding liquidity	***2.91***	***0.94***
The 30-day Liquidity Coverage Ratio (LCR) is intended to promote short-term resilience to potential liquidity disruptions. The LCR will help ensure that global banks have sufficient high-quality liquid assets to withstand a stressed funding scenario specified by supervisors.	***3.51***	***1.01***
For the LCR, the stock of high-quality liquid assets is compared with expected cash outflows over a 30-day stress scenario. The expected cash outflows are to be covered by sufficiently liquid, high-quality assets.	***3.47***	***0.88***
Assets get a 'liquidity'– based weighting varying from 100 percent for government bonds and cash to weightings of 0 percent – 50 percent for corporate bonds.	***2.98***	***0.86***
Total Score	***3.22***	***0.32***

TABLE (8): T-TEST: TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE SHORT TEARM LIQUDITY COVERAGE FOR JORDINAIN COMMERCIAL BANKS

hypotheses	N	Mean	S.D	df	T-calculated
There is a positive relationship between Basel III requirement and increase short tearm liquidity coverage for Jordanian commercial banks.	***130***	***3.22***	***0.32***	***129***	***7.808***

We can conclude that the value of the arithmetic average are (3.22) is higher than the arithmetic average of the value of (3) in the measuring tool, and the value of (t) calculated are (7.808) is higher than the tabular value of t (1.96) at the significance level (α = 0.05), which indicates that There is a positive relationship between Basel III requirement and increase short tearm liquidity coverage for Jordanian commercial banks.

TABLE (9): STATISTICAL DATA TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENTS AND INCREASE THE STABILITY OF LONG TEARM BALANCE SHEET FUNDING FOR JORDINAIN COMMERCIAL BANKS

The Figures	Mean	S.D
The Net Stable Funding Ratio (NSFR) is designed to encourage and incentivize banks to use stable sources to fund their activities to reduce the dependency on short-term wholesale funding	***3.36***	***0.89***
The NSFR compares available funding sources with funding needs resulting from the assets on the B/S.	***2.85***	***0.80***
Required and available funding amounts are determined using weighing factors, reflecting the "stability" of the funding available and the duration of the asset.	***4.04***	***1.00***
The weighing factors for assets vary from 0 percent and 5 percent for cash and government bonds, respectively to, 65 percent for mortgages, 85 percent for retail loans, and 100 percent for other assets.	***3.42***	***0.98***
For determining stable funding available for liabilities, the weighing factors vary from 100 percent for Tier 1 capital to 90 percent for core retail deposits and 50 percent for unsecured wholesale funding	***3.96***	***0.79***
Total Score	***3.53***	***0.49***

TABLE (10): T-TEST TO MEASURE THE RELATIONSHIP BETWEEN BASEL III REQUIREMENT AND INCREASE THE STABILITY OF LONG TEARM BALANCE SHEET FUNDING FOR JORDINAIN COMMERCIAL BANKS

hypotheses	N	Mean	S.D	df	T-calculated
There is a positive relationship between Basel III requirment and increase the stability of long tearm balance sheet funding for jordinain commercial banks	***130***	***3.53***	***0.49***	***129***	***12.284***

We can conclude that the value of the arithmetic average are (3.31) is higher than the arithmetic average of the value of (3) in the measuring tool, and the value of (t) calculated are (12.284) is higher than the tabular value of t (1.96) at the significance level ($\alpha = 0.05$), which indicates that There is a positive relationship between Basel III requirement and increase the stability of long tearm balance sheet funding for Jordanian commercial banks

RESULTS

The previous sections of this chapter presented the results of our research. In this section, we will recap and analyze these results.

First, there is a positive relationship between Basel III requirment and increase quality of capital, increase quantity of capital, reduce leverage ratio, increase short tearm liqudity coverage and increase the stability of long tearm balance sheet funding for jordinain commercial banks.

Second, Basel III would make significant changes in bank regulatory capital requirements. It would increase the amount of common tangible equity held as minimum regulatory capital because common equity improves loss absorbency.

Third, the purpose of Basel III is to remedy the regulatory capital and liquidity failures that resulted in the 2007-2009 global financial crises.

Fourth, Basel III redefines regulatory capital. To raise the quality, consistency and transparency of regulatory capital, the committee determined that Tier 1 capital must consist predominantly of common equity and retained earnings. Under current standards, there are two types of capital counted in meeting the capital adequacy rules under Basel I—core capital and supplementary capital. Tier 1 is core capital and is made up of mainly common shareholders' equity (issued and fully paid), disclosed reserves, most retained earnings, and perpetual non-cumulative preferred stocks. Supplementary or Tier 2 capital consists of subordinated debt, limited-life preferred stocks and loan loss reserves, and goodwill.

Fifth, The key elements of the proposed Basel III guidelines include the following:

1. Definition of capital made more stringent, capital buffers introduced and Loss absorptive capacity of Tier 1 and Tier 2 Capital instrument of Internationally active banks proposed to be enhanced.
2. Forward looking provisioning prescribed
3. Modifications made in counterparty credit risk weights
4. New parameter of leverage ratio introduced
5. Global liquidity standard prescribed

Finally, Basel III is more than just another set of checks and balances for financial institutions in a post-crisis world. It represents the core component of a sweeping wave of regulation that will fundamentally affect the profit generation capacity of the banking industry. As such—and despite the seemingly benign long phase-in periods— banks should move now, decisively, to comply with requirements, restore their profit-generation capacity, and potentially revisit the way they do business in the future.

RECOMMENDATIONS

First, we advise central bank of Jordan to regulate the Basel III requirement and enforce Jordanian banks for adopting by phases and taking into consideration long transition periods for implementation.

Second, central bank of Jordan should require banks to have an effective system in place to identify measure, monitor and control capital as part of an overall approach to Basel III.

Third, Jordanian banks should take into consideration the following points:

- Identify which businesses have most attractive fundamentals under Basel III and which businesses in the firm's portfolio should be considered for exiting, growing, or diverting.
- Ensure an understanding of current liquidity position in sufficient detail and possession of knowledge of where the stress points are
- Ensure management has adequate incentive to optimize use of capital.
- Evaluation of strategic options by examine capital and liquidity management strategies , capital market transactions, and product/business line adjustments

Fourth, Jordanian banks should starting to build up the new buffers from retained earnings and to take gradual action to mitigate the rise in risk-weighted assets.

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APPENDIX 1: QUESTIONER

QUESTIONS	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Common equity and retained earnings should be the predominant component of Tier 1 capital instead of debt-like instruments, well above the current 50 percent rule.					
Harmonized and simplified requirements for Tier 2 capital with explicit target for Tier 2 capital.					
Full deduction for capital components with little loss absorption capacity such as minority interests, holdings in other financial institutions, Deferred Tax Assets.					
Gradual phase-out of hybrid Tier 1 components, including many of the step-up/innovative/SPV–issued Tier 1 instruments used by banks over the past decade.					
Minimum common equity Tier 1: • Increased from 2.0 percent to 4.5 percent • Plus capital conservation buffer of 2.5 percent • Bringing total common equity requirements to 7.0 percent					
Minimum total capital increased from 8.0 percent to 10.5 percent (including conservation buffer)					
The leverage ratio acts as a non-risk sensitive backstop measure to reduce the risk of a build-up of excessive leverage in the institution and in the financial system as a whole. The leverage ratio remains controversial, and there remains ambiguity about certain aspects of the exact mechanics.					
The leverage limit is set as 3 percent, i.e. a bank's total assets (including both on- and off-balance-sheet assets) should not be more than 33 times bank capital.					
In 2011, reporting templates will be developed. In 2013, regulators will start monitoring leverage ratio data, and the ratio will be effective from January 2018.					
The ratio is introduced to supplement the risk-based measures of regulatory capital.					
The leverage ratio is implemented on a gross and unweighted basis, not taking into account the risks related to the assets.					
the Basel Committee has further strengthened its liquidity framework by developing two minimum standards for funding liquidity					
The 30-day Liquidity Coverage Ratio (LCR) is intended to promote short-term resilience to potential liquidity disruptions. The LCR will help ensure that global banks have sufficient high-quality liquid assets to withstand a stressed funding scenario specified by supervisors.					
For the LCR, the stock of high-quality liquid assets is compared with expected cash outflows over a 30-day stress scenario. The expected cash outflows are to be covered by sufficiently liquid, high-quality assets.					
Assets get a 'liquidity'– based weighting varying from 100 percent for government bonds and cash to weightings of 0 percent – 50 percent for corporate bonds.					
The Net Stable Funding Ratio (NSFR) is designed to encourage and incentivize banks to use stable sources to fund their activities to reduce the dependency on short-term wholesale funding					
The NSFR compares available funding sources with funding needs resulting from the assets on the B/S.					
Required and available funding amounts are determined using weighing factors, reflecting the "stability" of the funding available and the duration of the asset.					
The weighing factors for assets vary from 0 percent and 5 percent for cash and government bonds, respectively to, 65 percent for mortgages, 85 percent for retail loans, and 100 percent for other assets.					
For determining stable funding available for liabilities, the weighing factors vary from 100 percent for Tier 1 capital to 90 percent for core retail deposits and 50 percent for unsecured wholesale funding					

CAPITAL STRUCTURE DETERMINANTS: CRITICAL REVIEW FOR SELECTED INDIAN COMPANIES

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ABSTRACT

Capital structure is one of the most significant features of organizational finance and should be managed efficiently. The present study is conducted with an OLS regression method, to identify major determinants of capital structure. The determinants are selected with two prominent theories of capital structure, static trade-off theory and pecking order theory. For conducting the present study, annual reports from 55 companies, listed in stock exchange in India, is collected for last 6 years i.e. from 2006 to 2011. A total number of 330 observations were made. OLS regression for panel data with cross section random effect is run with two equations i.e. total debt to market value of companies and long term debt to market of companies. Analysis shows negative impact of agency cost on total debt ratio of Indian companies. Tax rate is positive only on long term debt and non-debt tax shields are negative on total debt ratio. There is no significant impact of bankruptcy and profitability in determining leverage ratios, while total and long term debt ratios are significantly determined by firm size. Long term debt ratios are significantly determined by firm size. Collateral volume of assets positively influence only total debt ratio while industry characteristic has been found to be a significant determinant of debt ratio.

KEYWORDS

agency cost, bankruptcy cost, profitability, capital structure and tax shield.

INTRODUCTION

A balanced and effective capital structure is of a great concern, in the area of corporate finance. An appropriate capital structure will lead to increased profitability or decreased risk and thus, high share-holders and customer's value. Capital structure is metrics of various probable funds that constitute the assets of the company e.g. higher the proportion of debt in capital structure means higher financial leverages. A wise capital structure decision enables a firm to allocate and control risk.

Previous researches on the topic have aimed to find out:

- The influences of capital structure on firm
- The probable alternatives of capital structure, and
- The determinants of capital structures (Sayeed, 2011)

The present study falls in the last category. In the present study, OLS and Tobit regression have been run on yearly data, ranging from year 2006 to 2011. Prime objective of this study is to investigate the determinants of capital structure in Indian companies. This study differs from other previous studies, as in previous studies, industries like heavy engineering, software technology, telecommunication, oil industries were ignored with some logics. In the present study, author has incorporated all the above mentioned sectors.

In order to simplify, the present study is organized into six sections e.g. literature review, hypothesis, data collection, methodology, result and conclusion.

OBJECTIVE OF THE STUDY

a. To identify the determinants of capital structure in the defined sectors of Indian economy
b. To identify the main determinants of capital structure that influence the financing decision of choice of the capital structure in the economy.
c. To explain the relationship between leverage and capital structure determinant (if possible)

SCOPE OF THE STUDY

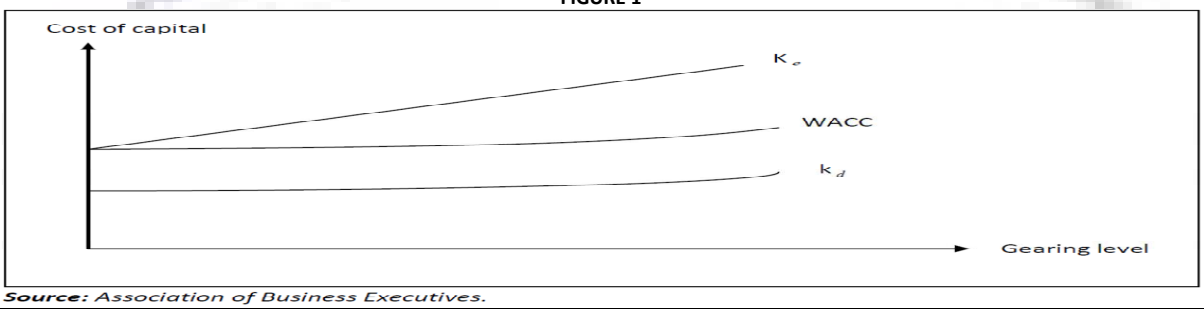
This study will try to identify and analyze the determinants of capital structure in Indian economy. In the present analysis, several sectors have been considered e.g. heavy engineering, which have been ignored in the previous studies. The focus of this study is to cover all the major aspects of the topic but preliminary it tried to determine the capital structure of different sectors listed in Security Exchange Board of India, Mumbai, which will help managers to take better financial decision for their organization. Further, this study can also help creditors, to minimize their risk.

THEORIES OF CAPITAL STRUCTURE

Tekar, Tasseren and Tukel (2009) have examined the most significant determinants of capital structure (Dissanayake, 2012). However, in 1958, Modigliani and Miller have pioneered the theory of capital structure, with detonated debate in not only academic but corporate area as well. A general consensus has been established then that the capital structure has a significant impact on firm value (Akhtar, 2005).

One very prime reason, why companies should introduce the capital structure, is to bring down the cost of finance. Here, it does mean that the cost of debt (k_d) is less than the cost of equity (k_e). One remarkable aspect hare is that additional amounts of debt would increase both the cost of equity (k_e) and cost of debt (k_d). In spite of this; since the k_d is significantly lower than the k_e the WACC will initially decline (Dissanayake, 2012).

FIGURE 1



Source: *Association of Business Executives.*

However, theories of capital structure can be divided into two main thoughts; static trade-off theory and pecking order theory. Static trade-off theory advises the firms' decision about capital structure with the help of trade-off between cost and revenue having debt. This debt results in tax deductible and consequently, reduced tax burden. However, it has one major cost i.e. bankruptcy cost (Mazur, 2007). Further, agency cost is also an important cost (Jensen and Mackling, 1976, Myers, 1977), which associates with negating the conflict of interest between, creditors and shareholders (Sayeed, 2011).

Picking order theory describes that managers select capital with the following preferences like internal finance, debt, equity (Myers and Majluf, 1986) with the assumption that managers do not seek any optimal level of leverage. It believes that debt is collected only when internal sources of funds are not adequate.

Based on these two theories, different studies have developed a set of determinants of debt ratio of the firm and have been empirically tested (Sayeed, 2011). Major studies are Akhtar (2005), Mazur (2007), Kim, Heshmati and Aoun (2006), Eldomiaty (2007) and Sayeed (2011) etc.

CAPITAL STRUCTURE DETERMINANTS

Leverage ratios have been used to represent the capital structure of a firm in maximum studies. There are differences in selecting the numerator and denominator of the leverage ratio. In the previous researches, some have used long term debt (Chkir and Cosset, 2001) while, rest opted total debt as the numerator (Bevan and Danbolt, 2002). In the case of denominator, some have used market value of firm while rest has used book value of the firm for the study purpose (Graham and Harvey, 2001 and Mazur, 2007). In the present study, researcher has used two measures as a proxy of capital structure. The leverage is defined as:

$$LTDM = \frac{ltd}{ltd + mve}$$

$$TDM = \frac{td}{td + mve}$$

Where:

LTDM:Long term debt measure

TDM: Total debt measure

ltd: Long term debt

mve: Market value of equity

td: Total debt

It has been observed that debt is associated with the Agency cost. Agency cost is widely expressed through, three proxy variable (Akhtar, 2005). The given ratio (known as agency cost), treated as TW in literature was proposed in 1988 by Titman and Wessels:

$$TW = \frac{tdcashandmarketablesecurities}{3\ yearaverageasset}$$

Lehn and Poulson (1989) proposed another variable (cited by Akhtar, 2005, re-cited by Sayeed, 2011) which represents the free cash flow of the firm.

$$LP = \frac{EBIT + dept + Amo - tax - Div}{10\ 000}$$

Where,

EBIT: earnings before interest, tax and abnormal profit

dept: depreciation expenses

Amo: amortization reported separately from depreciation

Tax: total tax paid

Div: total dividend paid

Jensen, Solberg and Zorn (1992) and Mehran (1992) (cited by Akhtar, 2005) have proposed another variable for agency cost (re-cited by Sayeed, 2011), which is given as below:

$$JM = \frac{\Delta TotalAssets}{TotalAssets}$$

Where, ΔTotal Assets $_t$– total asset$_{t-1}$

It has been observed that leverage reduces if enough agency cost exists in the organization because of the inverse relationship between these two variables. Therefore, it is expected that TW, LP and JM does have negative impact, on the leverage. In the meantime, debt level should be minimum when, bankruptcy cost is high. High volatility, in earnings of a firm indicates the presence of bankruptcy cost (Sayeed, 2011). Akhtar (2005) has used a proxy variable, as the standard deviation of first difference in earnings and the same, has been considered in the present study. So, there should be negative relationship between BC and leverage.

$$BC = \frac{Standarddeviationoffirstdifferenceine BIT}{TotalAssets}$$

So, our first hypothesis is:

Hypothesis 1: TW, LP, JM and bankruptcy cost should have negative impact on the leverage

As per the trade-off theory, debt reduces the tax liability of the firm. So, if the tax rate is high, firm should have high debt ratio, to reduce the tax load. An effective tax rate, is defined in the literature as (Sayeed, 2011):

$$TAX = \frac{TaxPaid}{profitbeforetax}$$

However, according to De Angelo and Masulis (1980), non-debt tax shields can serve as an alternative, to debt tax shield (Sayeed, 2011). This shield is created by depreciation and is non-cash item which is allowed for tax deduction. If, in any organization, high non-debt tax shield exists, then it will result in reduced tax burden. In this case, a firm will require less amount of debt, to reduce its tax liability. So, the relationship between leverage and non-debt tax shield would be negative:

$$NDTS = \frac{Totalannualdepreciationexpense}{Totalasset}$$

Hence, our second hypothesis is:

Hypothesis 2: There is positive relation between leverage and effective tax rate and higher non-debt tax shields allows, firms to maintain lower leverages

Another variable, that has been widely used in the previous studies is, firm size (Mira, 2005) and (Akhtar, 2005). Bankruptcy risk can be reduced by diversifying the business, if the firm is larger in size. With the same thought, researcher hasassumed a positive relation between firm size and debt ratio. Size means in (total assets). **Hence, our third hypothesis is:**

Hypothesis 3: The bigger the firm, the lower would be the leverage ratio.

Tangible asset provides collateral value, to the assets and thus, they become a determinant of debt ratio, because, it can be used as collateral, to enable firms,to borrow at favourable terms. Following variable were used by different authors e.g. Asktar (2005) and Mazur (2007) as the collateral value of the assets:

$$Collateralvalueofasset = \frac{FixedAsset}{Totalasset}$$

So, our forth hypothesis is:

Hypothesis 4: There is positive relation between fixed asset ratio and debt ratio.

As per the pecking order theory of capital structure, all the firms, with more profit, prefer internal sources of financing, than external sources. So, more profitable firms will have less debt level than the low profitable firms. Some authors like Akhtar (2005) and Mazur (2007) measured profitability by net profit, by sales ratio while, others like Mira (2005) have used EBIT, to total asset ratio. In the present study, researcher continued the study, following the method used by Akhtar (2005) and Mazur (2007) with a logic that net profit figure, is more influenced in managerial decisions rather than EBIT:

$$Prof = \frac{NetIncome}{TotalSales}$$

As we discussed, a more profitable firm generally prefers, internal sources of funding rather than external sources, so, **our fifth hypothesis is:**
Hypothesis 5: Debt ratio is negatively related with profitability

DATA COLLECTION

All the data were collected from Indian companies, listed in Security Exchange Board of India, Mumbai. All the selected companies are big giant in the Indian economy. The values are collected from audited and published annual books of the organizations. Annual reports are collected from the websites, some were not available, so, the researcher has personally, requestedthe organizations for the same. All the annual reports are varied from financial year 2006 to 2011 from the different sectors of the economy. These sectors are; banking with 19 companies, food and health with 2 companies, machinery and infrastructure with 6 companies, minerals with 6 companies, oil and gas with 7 companies, software with3, steel with 5, telecommunication with 2 and utility with 5 companies. Total number of organizations considered for the analysis is 55. TW is average of 3 year's total asset, so additionally annual reports from 2004 have been collected for the sake of study. The selected sectors and number of the organizations are shown in table one:

TABLE 1: SELECTION OF THE SAMPLE

Sector	No. of Organizations selected	No. of years for analysis	No. of observations made
Banking	19	6	114
Food and health	2	6	12
Machinery and Infrastructure	6	6	36
Minerals	6	6	36
Oil and Gas	7	6	42
Software	3	6	18
Steel	5	6	30
Telecommunication	2	6	12
Utility	5	6	30
Total	**55**	**6**	**330**

The descriptive statistics of the variables are listed in table two

TABLE 2: DESCRIPTIVE STATISTICS OF THE VARIABLES

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
TDM	0.611	0.699	0.991	-0.071	0.310
LTDM	0.3660	0.301	0.999	0.000	0.335
TW	0.043	0.008	0.912	-0.002	0.102
LP	5548.3	2669.2	66076.49	-22119.06	9979.94
JM	-0.017	0.042	0.922	-8.988	0.708
NDTS	0.036	0.030	0.209	0.000	0.029
BC	0.026	0.013	0.470	0.000	0.048
PROF	-1.401	0.020	1.480	-381.701	21.377
SIZE	20.142	20.227	23.560	16.489	1.1332
CVA	0.543	0.479	8.958	0.0122	0.695

A correlation matrix has been obtained and shown in table no. 3 to examine multi-collinearity among the variables.

TABLE 3: COLLINEARITY MATRIX

Variables	TDA	TDM	TW	LP	JM	TAX	NDTS	BC	PROF	SIZE	CVA
TDA	1.00	0.21	-0.06	-.079	-0.04	-0.04	0.18	0.13	-0.12	-0.19	0.53
TDM	0.21	1.00	-0.33	-0.36	0.06	-0.09	-0.05	-0.16	-0.09	-0.06	-0.02
TW	-0.03	-0.30	1.00	0.03	0.02	0.09	-0.15	-0.06	0.04	0.05	-0.03
LP	-0.14	-0.32	0.07	1.00	0.06	0.15	0.12	-0.07	0.05	0.57	0.06
JM	-0.79	0.06	0.03	0.04	1.00	0.01	-0.21	-0.12	0.01	0.26	-0.36
TAX	-0.04	0.00	0.09	0.12	0.03	1.00	-0.04	-0.02	0.01	0.02	-0.04
NDTS	0.13	-0.03	-0.16	0.12	-0.23	-0.03	1.00	0.07	0.07	-0.25	0.44
BC	0.13	-0.21	-0.07	-0.05	-0.10	-0.01	0.08	1.00	-0.01	-0.11	0.10
PROF	-0.13	-0.16	0.05	0.04	0.00	0.01	0.05	-0.02	1.00	0.05	-0.05
SIZE	-0.25	-0.04	0.05	0.42	0.22	0.04	-0.24	-0.11	0.04	1.00	-0.21
CVA	0.49	-0.03	-0.02	0.07	-0.53	-0.06	0.43	0.09	-0.04	-0.20	1.00

Table 3, analysis shows that multi-collinearitytest is not significant for this analysis, so the researcher will not consider it again for the analysis purpose.

METHOD OF THE ANALYSIS

In the present study, Multiple OLS (Ordinary Least square) regression method was run to measure the impact of explanatory variables on leverage ratio for the selected companies. It is obvious from the previous studies like Mera (2005) that panel data can control, heterogeneity among the cross sections and time series data methodologyhence, panel data methodology is used in the present study because of the nature of data used for the analysis. Further, cross sectional random effect model is used since, the random effect model provides more accurate estimation of p-values. Tobit regression method is used to verify the results obtained by OLS randon effect model. Rajan and Zingales (1995), Akhtar (2005) and Sayeed (2011) used Tobit regression in their studies of capital structure.
The model for the study is as below:

$$Leverage = \alpha + \beta_1 TW + \beta_2 LP + \beta_3 JM + \beta_4 BC + \beta_5 TAX + \beta_6 NDTS + \beta_7 PROF + \beta_8 SIZE + \beta_9 CVA + \beta_{10} Dummy_1 + \beta_{11} Dummy_2 + \beta_{12} Dummy_{13} + \beta_{13} Dummy_{14} + \varepsilon \text{ ----- (1)}$$

For the representation of the leverage, LTDM and TDM are used as the dependent variable. When TDM is proxy for the leverage in equation (1) is transferred to:

$$LTDM = \alpha + \beta_1 TW + \beta_2 LP + \beta_3 JM + \beta_4 BC + \beta_5 TAX + \beta_6 NDTS + \beta_7 PROF + \beta_8 SIZE + \beta_9 CVA + \beta_{10} Dummy_1 + \beta_{11} Dummy_2 + \beta_{12} Dummy_{13} + \beta_{13} Dummy_{14} + \varepsilon \text{ ----- (2)}$$

While, when TDM is used, the equation will be:

$$TDM = \alpha + \beta_1 TW + \beta_2 LP + \beta_3 JM + \beta_4 BC + \beta_5 TAX + \beta_6 NDTS + \beta_7 PROF + \beta_8 SIZE + \beta_9 CVA + \beta_{10} Dummy_1 + \beta_{11} Dummy_2 + \beta_{12} Dummy_{13} + \beta_{13} Dummy_{14} + \varepsilon \text{ ----- (3)}$$

Table no. 4 shows the summary of the hypothesis and expected sign of the coefficients of the each variables:

TABLE 4: EXPLANATORY VARIABLES AND IMPACTS ON THE LEVERAGES

Theories	Explanatory variable	Expected Impact
Static trade-off theory Variable	Agency Cost	
	TW	Negative
	LP	Negative
	JM	Negative
	Other costs:	
	Bankruptcy Cost (BC)	Negative
	Effective Tax Rate (Tax)	Positive
	Non-Debt tax Shield (NDTS)	Negative
Pecking order theory Variable	Profitability (PROF)	Negative
	Size	Positive
	Collateral Value of Assets (CVA)	Positive
	Dummy variables for organizations	Positive / Negative

RESULTS OF ANALYSIS

TABLE 5: OLS REGRESSION RESULT (WHERE LTDM IS DEPENDENT VARIABLE)

Variable	Coefficient	t-statistic	Prob.
C	-0.746467	-1.927243	*0.0653
TW	-0.066967	-0.541219	0.5775
LP	-2.20E-06	-1.813173	*0.0710
JM	-0.008978	-0.698869	0.4986
TAX	0.027492	2.191509	**0.0292
NDTS	-0.144256	-0.301124	0.8012
BC	0.112396	0.774219	0.4510
PROF	1.37E-05	0.050176	0.9731
SIZE	0.069842	3.101456	***0.0031
CVA	0.014332	0.772098	0.4762

*** AT 1% LEVEL OF SIGNIFICANT
** AT 5% LEVEL OF SIGNIFICANT
*AT 10% LEVEL OF SIGNIFICANT

TABLE 6: OLS REGRESSION RESULT (WHERE TDM IS DEPENDENT VARIABLE**)**

Variable	Coefficient	t-statistic	Prob.
C	-0.613316	-1.541321	0.1364
TW	-0.223146	-3.784516	***0.0004
LP	-2.81E-06	-4.114778	***0.0001
JM	-0.017662	-2.724436	***0.0069
TAX	0.001648	0.178806	0.8342
NDTS	-1.286434	-2.076344	**0.0359
BC	-0.143252	-1.173168	0.2306
PROF	5.10E-05	0.347965	0.7469
SIZE	0.058740	2.796545	***0.0049
CVA	0.013783	0.800487	**0.4293

*** AT 1% LEVEL OF SIGNIFICANT
** AT 5% LEVEL OF SIGNIFICANT
*AT 10% LEVEL OF SIGNIFICANT

OLS regression analysis result is given in table 5 where LTDM, is dependent variable to proxy the leverage while tale 6 shows the OLS regression analysis result where TDM, is dependent variable, to proxy the leverage. After analyzing these two tables, it is now clear the all of the three agency cost variables have negative coefficient, as the researcher has predicted before. In determining the TDM only, all the variables were significant at 1% level of significance. It shows that firm reduces the total debt in the case of intensified agency cost. However, long term debt ratio is unaffected which means, only short term debt should reduce agency cost.

When we discuss our first hypothesis, it is: ***TW, LP, JM and bankruptcy cost should have negative impact on the leverage.*** Now, first part of this hypothesis i.e. higher agency cost should have reduced leverage, can be accepted but only if we consider total debt as the leverage ratio. If we consider LTDM, there is no sufficient evidence to support this hypothesis. Akhtar (2005) and Sayeed (2011) have also reported the same result in their studies. Further, bankruptcy cost should also have negative impact on the leverage as per the prediction. However, regression result in both tables is positive. So, hypothesis for bankruptcy cost is rejected.

Next hypothesis is about the effective tax rate and non-debt tax shield. In the hypothesis researcher has assumed that ***there is positive relation between leverage and effective tax rate and higher non-debt tax shields allows firms to maintain lower leverages.***Both the tables show positive coefficient as expected, however, it is more relevant in the case of LTDM, and not in the case of TDM, which means, with a higher effective tax rate, firms can replace long term debt with short term debt, because of high interest cost associated with long term debt, to reduce tax burden (Sayeed, 2011). In the case of non-debt tax shield, ithas been predicted that it should have negative relation with leverage. The result in both tables confirms the prediction; however, it is significant at 5% level of significance in equation number two. Thus, it clearly indicates that a firm can reduce its' short term debt only when it's non-cash expenditure e.g. depreciation are high. Hence, it is accepted only with total debt ratio. In the previous studies like Akhtar (2005) and Mira (2005), NDTS, was insignificant determinant.

According to next hypothesis, there is positive and significant relation between size of the firm and leverage ratio. Researcher has assumed that ***the bigger the firm, the lower would be the leverage ratio***with an argument that bigger firms can reduce their risk with diversified business. The result from the analysis confirms the prediction of the researcher. This result is consistent with the previous studies like Mira (2005) and Sayeed (2011).

Further, the researcher has assumed that CVA should have a positive relation on the leverage of the firm; ***there is positive relation between fixed asset ratio and debt ratio.*** The result in table 5 shows positive coefficient at 5% level of significance. So, this result supports our hypothesis. Result in table number 6 also supports our prediction.

Last hypothesis is about the profitability. According to this, the researcher has assumed that ***Debt ratio is negatively related with profitability.***But the results, in the both tables show, that there is no enough evidence, to support this. The result (coefficient) is insignificant and it means that profitability is not significant

determinant or does not have any significant impact on capital structure decision. Akhtar (2005) and Mazur (2007) have found significant and negative coefficient of this variable and it support then pecking order theory.

TABLE 7: TOBIT REGRESSION RESULTS WITH DEPENDENT VARIABLES LTDM AND TDM

Significance is shown in z-statistics

Variables	Coefficient for LTDM	z-statistics	Coefficient for TDM	z-statistics
C	0.289126	0.8145185	-0.142935	-0.444787
TW	-0.402281	**-2.195263	-0.674987	***-4.453441
LP	-8.19E-06	***-4.237101	-1.36E-05	***-7.746476
JM	0.035631	1.074442	0.004923	0.176364
TAX	-0.004476	-0.141265	0.001431	0.041359
NDTS	-1.145632	-1.491256	-1.165368	*-1.815892
BC	-0.007768	-0.034556	-0.876776	***-2.778634
PROF	-0.001489	*-1.895519	-0.000756	-1.412251
SIZE	0.033667	**2.074251	-0.064045	***4.043302
CVA	0.061337	*1.777643	0.040123	1.409234

*** AT 1% LEVEL OF SIGNIFICANT
** AT 5% LEVEL OF SIGNIFICANT
*AT 10% LEVEL OF SIGNIFICANT

As per the table 7, regression result, Tobit models and the OLS random effect model are very similar. Agency cost variable like TW and LP have been reveals to have significant negative impact. Further, TAX and NDTS are also negative and found insignificant. BC, is found significant here for the total debt. PROF and CVA do not have any significant coefficient while SIZE has been found significant.

CONCLUSION

In the present study, an advance tool for analysis is applied i.e. OLS regression method. The objective was to know the major determinants of the capital structure in listed and selected Indian companies. This study is based on two prominent theories of the capital structure, static trade-off theory and pecking order theory. For the determination of the possible major capital structure determinants, previous studies have been considered. For the analysis, OLS regression model for panel data with cross section random effect was run. For the sake of the study, there were two equations also, total debt to market value as leverage ratio in one equation while, long term debt to market value as leverage ratio in another. As per the result, it is clear that agency cost is negative but tax rate is positive while non-debt tax shields are again negative on leverage ratio. Bankruptcy cost and profitability are irrelevant in the determination of leverage ratio while form size is positive. Collateral value of the asset has positive influence on total debt ratio only.

The researcher strongly believes that this result may be more reliable, if number of observation can be increased. Again, he has strong believes that managers' personal attitude does have significant impact over the capital structure and it cannot be analyze easily. So, there is adequate space for further studies, with increased number of observation and variables. In the study, human consequences can also be examined, if possible.

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IMPACT OF INFLATION ON BANK LENDING RATE IN BANGLADESH

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ABSTRACT

Ever since Irving Fisher (1930) provided the relationship between the expected inflation and interest rates considerable attention has been paid for it. Many financial controversies and literatures have surrounded this relationship. In Bangladesh context, very less study has been done in this regard as interest liberalizations are of recent past. This study is done with an objective to unearth the influence of inflation on lending rate of commercial banks in Bangladesh. The period 2002 - 2011 has been considered for study. The inflation and lending rate satisfy Dickey Fuller Test. Later, the dependent variable lending rates is regressed with the independent variable inflation. The obtained residuals are again subject to Augmented Dickey Fuller test. The result shows that the residuals are stationary, and the co-integration tests proves that during the period of study, there is no significant relationship between the rates.

KEYWORDS

Inflation rate, Interest rate, Augmented Dickey–Fuller test, Co-integration.

INTRODUCTION

Inflation is a key factor in things that affect interest rates. When a surge in inflation occurs, a corresponding increase in interest rates takes place. Over time, prices of things tend to steadily increase. Therefore the value of money decreases. Lenders are very aware that inflation will erode the value of their money over the time period of a loan, so they increase interest rates to compensate for the loss. This is how lenders are able to stay visible over time with multiple borrowers and multiple outstanding loans. Adjustments are made to interest to recoup the loss made when money loses value.

Whenever there is any news on interest rates, it is accompanied by inflation. It is a known fact that there exists a relationship between interest rates and inflation. But, the extent to which one affects the other for different time periods is not certain. The well-known Fisher hypothesis, introduced by Irving Fisher in 1930 maintains that the nominal interest rate is the sum of the constant real rate and the expected decline in the purchasing power of money. Starting with Fisher and extending to the present, this seemingly simple and intuitive hypothesis has found limited empirical support. Fisher hypothesis provides the relationship between the expected inflation and interest rates. Fisher's hypothesis is that the nominal interest rate (Rt) can be taken to be the sum of real rate of interest (Pt) and the rate of inflation anticipated by the public (Πt). Previous studies show that there is a positive relationship between interest rates and inflation *(Research department, National Bank of Poland)*. Studies have shown that Fisher hypothesis is true in Bangladesh and that there is a long run relationship between interest rates and inflation rates, and interest rates can be modeled considering expected inflation and other macroeconomic variable to arrive at a more valid model of forecasting interest rates.

Fisher hypothesis is the proposition by Irving Fisher that the real interest rate is independent of monetary measures, especially the nominal interest rate. The Fisher equation is

$$r_r = r_n - \pi^e.$$

This means, the real interest rate (r_r) equals the nominal interest rate (r_n) minus expected rate of inflation (π^e). Here all the rates are continuously compounded. For simple rates, the Fisher equation takes form of

$$1 + i = (1 + \rho) \times E(1 + \pi)$$

If r_r is assumed to be constant, r_n must rise when π^e rises. Fisher Effect: The one for one adjustment of the nominal interest rate to the expected inflation rate.

To understand the relationship between money, inflation and interest rates it is important to understand nominal interest rate and real interest rate. The nominal interest rate is the interest rate you hear about at your bank. If you have a savings account, for instance, the nominal interest rate tells you how fast the number of dollars in your account will rise over time. The real interest rate corrects the nominal rate for the effect of inflation in order to tell you how fast the purchasing power of your savings account will rise over time. An easy estimation of the real interest rate is the nominal interest rate minus the expected inflation rate (Note that this estimate is unwise when looking at compounded savings.)

Real interest rate = Nominal Interest Rate - Expected Inflation Rate

Nominal Interest Rate = Real interest Rate + Expected Inflation Rate

If inflation permanently rises from a constant level, let's say 4%/yr., to a constant level, say 8%/yr., that currency's interest rate would eventually catch up with the higher inflation, rising by 4 points a year from their initial level. These changes leave the real return on that currency unchanged. The Fisher Effect is an evidence that in the long-run, purely monetary developments will have no effect on that country's relative prices (Kwong, Mary; Bigman, David; Taya, Teizo-2002)

Interest rate: An interest rate is the rate at which interest is paid by a borrower for the use of money that they borrow from a lender. Interest rates are normally expressed as a percentage rate over the period of one year.

Nominal interest rate: The rate of interest before adjustment for inflation. Suppose 'A' deposits Tk. 100 with a bank for 1 year and they receive interest of Tk.10. At the end of the year their balance is Tk. 110. In this case, the nominal interest rate is 10% per annum.

Real interest rate: The real interest rate is the nominal interest rate minus the inflation rate. It is a measure of cost to the borrower because it takes into account the fact that the value of money changes due to inflation over the course of the loan period. Except for loans of a very short duration, the inflation rate will not be known in advance.

Purchasing power: It is the number of goods and or services that can be purchased with a unit of currency. Currency can be either a commodity money, like gold or silver, or fiat currency like Taka. As Adam Smith noted, having money gives one the ability to "command" others' labor, so purchasing power to some extent is power over other people, to the extent that they are willing to trade their labor or goods for money or currency.

Inflationary expectations

According to the theory of rational expectations, people form an expectation of what will happen to inflation in the future. They then ensure that they offer or ask a *nominal interest rate* that means they have the appropriate real interest rate on their investment. The international Fisher relation predicts that the interest rate differential between two countries should be equal to the expected inflation differential. Therefore, countries with higher expected inflation rates will have higher nominal interest rates, and vice versa.

LITERATURE REVIEW

The empirical research conducted in Bangladesh suggests that there does not exist any co-movement of inflation with interest rates and the relationship between the variables is also not significant. The inflation premium, equal to expected inflation that investors add to real-risk free rate of return, is ineffective. (Md. M Alam, K. A Alam and MD. G.S Uddin-2008). William J Crowder and Dennis L Hoffman (2007) recognizes that the persistence in nominal interest rates and inflation can be modeled under the unit root hypothesis. A fully efficient estimator that separates estimation of long run equilibrium relationship from nuisance parameters is applied. The study finds considerable support for the tax-adjusted Fisher effect. It reveals a long run relationship between interest rates and inflation. However, it also finds that the short term interest rates may not be good predictors of future inflation. Evans, Martin and Karen Lewis (1995) observes co-integration between nominal interest rates and inflation in a sample of post war data and applies the DOLS estimator to estimate the long run response of nominal interest rates with respect to inflation. They support their case with Monte Carlo evidence. They conclude that the Fisher hypothesis is generally consistent with postwar data once we recognize that agents have been forced to form expectations from an inflation process that has undergone several structural changes in the post war period and that their results simply suffer from small sample bias. Liu and Adedeji (2000), Ubide (1997), Leheyda (2005),and Khan and Schimmelpfennig (2006) have recorded clear ideas about the determinants of inflation in developing countries. Most the studies stress money supply as the major source of inflation in the respective economies. Taslim (1982) attempted to analyze the inflationary process in Bangladesh in light of the structuralize monetarist controversy using the data for FY60 to FY80. The author systematically tested both the views in the context of Bangladesh as well as a hybrid model considering both views together. Martin Evans and Karen Lewis (1995) characterize the shifts in inflation by a Markov switching model. They argue that rational anticipations of infrequent shifts in the inflation process induce significant small sample biases in estimates of the long-run Fisher relationship. These small sample biases may create the appearance of permanent shocks to the real rates even when none are truly present. They examine the long-run relationship between nominal interest rates and inflation and are unable to reject the hypothesis that in the long-run nominal interest rates reflect expected inflation one-for-one

NEED AND IMPORTANCE

Level of inflation always has a bearing on the interest rates. The interest rate is a key financial variable that affects decisions of consumers, business firms, financial institutions, professional investors and policy makers. Timely forecasts of inflation rates can therefore provide valuable to financial market participants. Forecasts of interest rates can also help to reduce interest rate risks faced by individuals and firms. In Bangladesh context the relationship between anticipated inflation changes and returns were not of much concern due to administered interest rate mechanism. Since the economic reforms and the liberalization of capital market the interest rates are market determined. The earlier findings report that no relationship between interest rates observed at point of time and rates of subsequently observed inflation exist. However the general finding is that there are relationships between current rates of interest and past rates of inflation. If interest rates are not adjusted for changes in inflation then the real rate of return decreases. Expected price changes have a bearing on the purchasing power, thus on the level of consumption also. Hence interest rate determination in Bangladesh context also needs focus.

RESEARCH METHODOLOGY

PROBLEM STATEMENT

This paper studies whether there is any such impact of bank lending rate on the inflation of Bangladesh

OBJECTIVE

To check the relationship between inflation and bank lending rate

LIMITATION

The study is limited to a period of 10 years only.

DATA SOURCE

This study has been carried out on the basis of secondary data collected from the official web sites of Bangladesh Bank and Bangladesh bureau of statistics.

SAMPLE FRAME

Yearly inflation and interest rate data for ten years from 2002 to 2011.

RESEARCH TOOLS

Augmented Dickey–Fuller test (ADF) is a test for a unit root in a time series sample. It is an augmented version of the Dickey–Fuller test for a larger and more complicated set of time series models. The augmented Dickey–Fuller (ADF) statistic, used in the test, is a negative number. The more negative it is, the stronger the rejection of the hypothesis that there is a unit root at some level of confidence.

The testing procedure for the ADF test is the same as for the Dickey–Fuller test but it is applied to the model

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t,$$

where α is a constant, β the coefficient on a time trend and p the lag order of the autoregressive process. Imposing the constraints $\alpha = 0$ and $\beta = 0$ corresponds to modeling a random walk and using the constraint $\beta = 0$ corresponds to modeling a random walk with a drift.

By including lags of the order *p* the ADF formulation allows for higher-order autoregressive processes. This means that the lag length *p* has to be determined when applying the test. One possible approach is to test down from high orders and examine the t-values on coefficients. An alternative approach is to examine information criteria such as the Akaike information criterion, Bayesian information criterion or the Hannan-Quinn information criterion.

The unit root test is then carried out under the null hypothesis $\gamma = 0$ against the alternative hypothesis of $\gamma < 0$.

$$DF_\tau = \frac{\hat{\gamma}}{SE(\hat{\gamma})}$$

Once a value for the test statistic is computed it can be compared to the relevant critical value for the Dickey–Fuller Test. If the test statistic is less (this test is non symmetrical so we do not consider an absolute value) than (a larger negative) the critical value, then the null hypothesis of $\gamma = 0$ is rejected and no unit root is present.

The intuition behind the test is that if the series is integrated then the lagged level of the series (y_{t-1}) will provide no relevant information in predicting the change in y_t besides the one obtained in the lagged changes (Δy_{t-k}). In that case the $\gamma = 0$ null hypothesis is not rejected.

A model that includes a constant and a time trend is estimated using sample of 50 observations and yields the DF_τ statistic of −4.57. This is more negative than the tabulated critical value of −3.50, so at the 95 per cent level the null hypothesis of a unit root will be rejected (Elliott, G., Rothenberg, T. J. & J. H. Stock, 1996)

HYPOTHESIS ON STATIONARITY OF DATA

Null hypothesis: H_1: Time Series Data is Stationary

Alternative hypothesis: H_o: Time Series Data is Non Stationary

RESULT AND DISCUSSION

Testing of stationarity

For interest rates

Null Hypothesis: D(tseries) has a unit root Exogenous: Constant Lag Length: 0 (Automatic Based on AIC, MAXLAG=0)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.273113	0.014674
Test critical values:	1% level	-4.581538	
	5% level	-3.321041	
	10% level	-2.801304	

Interpretation

The data is stationery at 5% critical value.

For inflation rate:

Null Hypothesis: D(tseries) has a unit root Exogenous: Constant Lag Length: 0 (Automatic Based on AIC, MAXLAG=0)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.320802	0.013827
Test critical values:	1% level	-4.581538	
	5% level	-3.321041	
	10% level	-2.801304	

Interpretation

The data is stationery at 5% critical value.

Co-intergration

Since interest rate and inflation data series are proved to be Stationary, now test for co integration is executed to evaluate if these two are linearly related. *Engel-Granger Co-integration* technique is utilized in this study due to its simplicity and reliability. The residuals obtained are tested for Stationarity using ADF test. If this residual series is proved to be stationary then it can be said that a relationship exists between interest rates and inflation over a long term.

Regression

A regression of interest rate on inflation is run using both MS Excel and SPSS. The output of the regression is as follows.

Output Interest rate on inflation	
Observations	10.000
Sum of weights	10.000
DF	9.000
R^2	0.147
Adjusted R^2	0.025

Analysis of variance:					
Source	DF	Sum of squares	Mean squares	F	Pr > F
Regression	1	6.405	6.405	1.209	0.308
Residual	8	37.082	5.297		
Total	9	43.486			
Computed against model Y=Mean(Y)					

Model parameters:						
Source	Value	Standard error	T	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	4.769	3.041	1.568	0.161	-2.426	11.964
5.4	0.497	0.452	1.100	0.308	-0.573	1.568

Observation	Pred(9.65)	Residual
Obs1	7.654	1.836
Obs2	6.311	0.569
Obs3	7.555	-2.625
Obs4	7.754	1.816
Obs5	8.251	2.859
Obs6	8.350	-0.980
Obs7	9.678	0.562
Obs8	8.082	-3.692
Obs9	8.405	-0.345
Obs10	8.734	-0.187

Next, we check the stationarity of the residuals obtained. If the residuals are stationary, then the two variables are said to co-integrate with each other. i.e., there exists a relationship between inflation and interest rates.

The results obtained are as follows;

Null Hypothesis: D(tseries) has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic Based on AIC, MAXLAG=0)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.773237	0.032243
Test critical values:	1% level	-4.801997	
	5% level	-3.403396	
	10% level	-2.841690	

FINDINGS

The above results show that there is stationary at 5% critical value. Hence, there might be some relationship between the two. However, also keeping in view the regression statistics, i.e., the values of F-test and significance of the test, it can be said that there is no significant relationship between interest rates and inflation.

CONCLUSION

This paper has attempted to study the existence of relationship between interest rates and inflation. The data that has been collected was tested for stationarity and then put to further use. The stationarity was tested using the Augmented Dickey Fuller test (ADF) which revealed that the data was stationary for interest rate and inflation. The persistence of a relationship between interest rates and inflation was tested using the Engle Granger co-integration test. This test involves running a regression of long term interest rates on inflation. The test throws up a list of residuals. These residuals are then tested for stationarity, the result of which proves the existence of a relationship. This test showed feeble relationship between the two for the particular study period. From the above ADF and Granger co-integration test, it can be said the there is no significant relationship between interest rates and inflation during the period of study .i.e., from 2002 to 2011.

SCOPE FOR FURTHER STUDY

This research showed the affect of inflation on interest rate only, a part from inflation there are other factors which influence interest rates, so further research can be done on other factors like deferred consumption, alternative investments, risk of investment, liquidity preference etc.

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APPENDIX

INTEREST RATES AND INFLATION RATES FROM 2002 TO 2011

Year	Interest rate	Inflation rate
2002	9.65	5.40
2003	9.49	5.80
2004	6.88	3.10
2005	4.93	5.60
2006	9.57	6.00
2007	11.11	7.00
2008	7.37	7.2
2009	10.24	9.87
2010	4.39	6.66
2011	8.06	7.31

Source: Bangladesh Bank and Bangladesh Bureau of Statistics

THE PERCEPTION OF BANK EMPLOYEES TOWARDS COST OF ADOPTION, RISK OF INNOVATION, AND STAFF TRAINING'S INFLUENCE ON THE ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN THE RWANDAN COMMERCIAL BANKS

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ABSTRACT

The developments in information technology are radically changing the platform of business transactions in Rwanda. However, the adoption and usage is essentially an aftermath of banks' perception and willingness to embrace and internalize change. This assumption was investigated among the commercial banks in Rwanda with regard to ICTs' cost of adoption, risk of innovation, and staff training. This research was perceptual-tailored and relationship-oriented; identifying the underpinning elements and pinpointing relationships on how the principal factors foster the adoption and usage of ICT in Rwandan commercial banks. Hence, the research is descriptive and correlation research design. Data was collected through a self-constructed and statistically validated questionnaire, thus five commercial banks were used for the research. A sample size of 274 employees of different managerial positions was used for the study. Stratified sampling technique was adopted to sample the employees in each department from the various banks headquarters, and the random sampling technique was used to administer the questionnaires to the respondents. A total of 353 questionnaires were distributed and 274 usable questionnaires were retrieved and utilized for the statistical analysis. The statistical results indicate that cost of adoption, risk of innovation, staff training had perceived and significant influence on ICT adoption and usage among the surveyed commercial banks in Rwanda.

KEYWORDS

ICT, adoption, & banking in Rwanda, cost of adoption, risk of innovation, staff training.

1. INTRODUCTION

The developments in information communication and technology (ICT) are radically changing the platform of business transactions within and outside Africa. These profound developments have opened-up new debates, perspectives and delivery channels for banking products and services. Also, they have created a freedom-enslavement mind-set. The freedom-enslavement mentality is complex and paradoxical. Its complexity emanates from banks' cost-benefit analysis in the adoption of ICT and paradoxical since efficiency-inefficiency doubt is inbuilt. While the control-chaos philosophy has perverted the minds of adopters, the decision to adopt/use is challenging. The technological hardware or facilities are not geographically restricted. Instead, it is the adoption/usage and application of information technology concepts, techniques, and policies to banking services that has become a dividing subject. However, identifying the influence of perceived ease of use and compatibility on adoption/usage in Rwanda context is important to banks and indeed a prerequisite for local and global competitiveness.

Contextually, ICTs and its hype are more than just computers and the internet. ICT encompasses the information that businesses create and use, as well as the wide spectrum of increasingly convergent (Moore, 2004; Brown and Licker, 2007; and Gibbs, Sequeira and White, 2007) and linked technologies that process the information` (Rogers, 2004; Moore, 2004 and Barba, Pilar & Jimenez, 2007). Therefore, ICTs should be viewed as a collective term for a wide range of software, hardware, telecommunications and information management techniques (Davis, 1993; Afuah, 2003 ; and Zappala and Gray, 2006), applications and other devices that are used to create, produce, analyze, process, package, distribute, receive, retrieve, store and transform information (Shavinina, 2003 and Barba, Pilar & Jimenez, 2007). While the understanding appears comprehensive, how the psychology of adopters that categorically shapes the choice of adoption/usage decision is divergent.

Rwandan commercial banks and the management are not humanly different from others, rather the competitive characteristics, total capitalization-related features, network externalities, and decision-making process could distinguish them from others. These identified parameters play macroperspective role in shaping ICTs users' perception on determining and the willingness to adopt/use. Although Rwanda is constrained by divergent factors (Lwakabamba, 2006; Bureau of African Affairs, 2008; and World Bank, 2008; 2009) the use ICT becomes a catalyst for leveraging effect; by providing and improving access to commercial banks basic services. While adoption/usage may conjure interpretative differences, understanding it as a process that is subject to psychological behavior makes this analysis relevant.

The choice of these factors as key determinants of ICT adoption and usage in Rwandan Commercial banks rests on competitive advantage and performance enhancement which are structurally imperative to management decisions, customers' convenience, bank's survival, the employees' self-confidence and the board of directors in decision making. The thrust of the research is to establish the roles of ICTs perceived ease of use and compatibility towards adoption and usage decision in Rwandan commercial banks. The research highlights the principal determinants of ICT adoption and usage and investigated accordingly. The work is divided into sections with the foregoing introduction, followed by the theoretical and related literature review, methodology design, data analysis, interpretation and discussions, and the conclusion respectively.

2. THEORETICAL AND RELATED LITERATURE REVIEW

2.1. COST OF ADOPTION

Use or innovation of a new technology often involves huge upfront costs, for example, investment in production, training of workers, marketing and research development. Hall and Khan (2002), points out that, firms will have an incentive to invest in a new technology only if it can later obtain profits that justify the initial investment.

The use of ICT in organizations as stated by Gerald and Dennis (2006), involves different costs and these costs are both direct and indirect. They further indicate that indirect cost is more significant than direct costs. Organizational cost can arise from the transformation from the old to the new work practices. At first a temporary loss in productivity may be experienced and further additional organizational cost may be experienced once the basic functions of the system are in place. Management time could also be a significant indirect cost because time is spent leading, planning and organizing the integration of new systems into

current work practices and in addition the result of implementing newly adopted technologies may force management to spend time revising, approving and subsequently amending their ICT strategies.

Perceived cost can also be viewed from two perspectives, cost involved in acquiring the technology and cost savings that will be achieved both by the banks and the customers, through the use of the technology.

2.2. RISK OF INNOVATION

Although electronic banking provides many opportunities for the banks, it is also the case that the banking services provided through internet are limited due to security concerns and technology problems. Kaleem and Ahmad (2007) view risk in the context of security concerns, and trust in one's bank, while Saadullah (2007) indicates that perceived risk is related to reliability and system failure. Lichtenstein and Williamson (2006) indicate that security, privacy, trust and risk concerns may impact consumer internet banking adoption. They further indicate that 80% of global phishing attacks in the first quarter of 2005 targeted the financial services sector.

Continuing technological innovation and competition among existing banking organizations and new market entrants has allowed for a much wider array of electronic banking products and services for retail and wholesale banking customers. These include traditional activities such as accessing financial information, obtaining loans and opening deposit accounts, as well as relatively new products and services such as electronic bill payment services.

Security is defined as a threat which creates "circumstances, condition, or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, and modification of data, denial of service and/or fraud, waste and abuse. Craig, Justin, and Eric, (2003) indicates security risk as being one of the major barriers to the adoption of ICT in the banks.

Information communication and technology has created a new realm of opportunities for illegal activity. One can act anonymously or assume false identities; the environment allows deceptive undertakings, such as fraudulent requisitions from electronic stores (e-stores), gathering of sensitive information via unauthorized electronic mail (e-mail) monitoring, the disruption of a web site by sending viruses or the illegitimate acquisition of credit cards numbers. Such illicit actions – and the threat of these – entail increased security costs and consequently higher product prices, and are thus harmful for both organizations operating in electronic commerce and consumers. (Valtonen, Tuomas,Reuna, &Luhtinen 2002).

Toigo, (2003) indicates that strategic risk, operational risk, and reputational risk are some of the risks heightened by the rapid introduction and underlying technological complexity of ICT. Suominen (2001), in his research on the Nordic banks, he notes that there have been some instances where large e-banks have crashed, blocking customers access to their accounts for long periods of time. This has necessitated the banks to invest enormous sums of money to avoid the problem.

Reputation of a service provider is an important factor affecting trust. Kaleem and Ahmad (2008) defines reputation as the extent to which customers believe a supplier or service provider is honest and concerned about its customers. They further content that customers complain about computer logon times which are usually longer than making a telephone call, and also check and recheck the forms filled online, as they are worried about making mistakes. Confidentiality of consumer data and lack of specific laws to govern internet banking is a major concern for both the bankers and the customers. This includes issues such as unfair and deceptive trade practices by the suppliers and unauthorized access by hackers.

In his research, Schaechter (2002) categorized risks that are associated with electronic banking as follows:

a. **Strategic risk.** This refers to the current and prospective impact on earnings or capital arising from adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes. Management should understand the risk associated with electronic banking before making decisions to use particular electronic banking products. Management need to ensure that the particular electronic banking technology is consistent with the authorized institutions strategic plan and whether there is adequate expertise and resources to identify, monitor and control risk.

b. **Operational risk.** The central use of new technology to provide e-banking services has important implications on banks operational risk. These risks arise from fraud, processing errors, and system disruptions. E-banking activities increase the complexity of the banks activities and quantity of its transactions especially if the bank offers services that have not been standardized.

Security is considered the central operational risk of e-banking. Threats may come either from inside or out of the system. The threats include unauthorized access to the system through –back doors, sniffing or spoofing to retrieve and use confidential consumer information, add customer assets, and subtracting customer liabilities

c. **Reputational risk.**

Gefen and Straub (2002), indicate that reputational risk is considerably increased through e-banking. If a bank fails to deliver secure, accurate and timely services on a consistent basis, its reputation is always at risk. In addition to system availability and integrity, breaches in data confidentiality and any other glitches to the security of operations can damage a banks reputation.

Problems encountered in one e-bank can potentially affect other e-banking service providers if customers lose confidence in electronic delivery channels as a whole or view bank failures as being related to supervisory deficiencies in the system.

d. **Legal risk**.

Banks that adopt and use ICT can potentially expand the geographical scope of their services faster than the traditional banks. These banks may however not be fully prepared and may lack sufficient resources to become entirely familiar with the laws and regulations before beginning to offer services in the new jurisdictions. Schaechter (2002) further indicates that there are two important sources of legal risk. The uncertainty about which legislation to apply to e-banking transactions – the legislation of the jurisdiction in which the bank is licensed or in which the services are offered. Second is the difficulty of enforcing the legislation.

In organizations where managers are the major source of decision making over a new technology, if they recognize that the advantages of IT adoption prevail over the risks, their firm is more inclined to adopt IT (Aziz, Zulkifli, & Ghobakhloo, 2010)

2.3. STAFF TRAINING

Bantel and Jackson (1998) ascertain that attained education level is correlated with cognitive ability. Higher levels of education should be associated with an individual's ability to generate and implement creative solution to complex problems. They further conclude that their ability to generate creative solutions explains why people who are more educated have more receptive attitudes towards innovation, and therefore the association between education and both cognitive abilities and attitudes towards innovation suggest that more innovative firms are those that have more highly educated top management team.

So as to gain benefits from technologies, there is a need to invest not only on physical technologies but also capacity-building, and skills. Walker, (2005) contend that, ICT training is a primary organizational factor because it helps users to understand how to best use and adopt ICT. He further indicates that lack of training plays a key role as a barrier to the adoption of ICT., Sánchez, Martínez-Ruiz, & Jiménez-Zarco, (2007) outline that one of the main difficulties for exploiting ICTs potentials is the lack of awareness of the benefits to be derived coupled with little or no specific training on ICTs (both at application and methodological levels).

Human skills may be developed by investment in education in schools and universities, emphasizing computer literacy and informatics in engineering, business and technical schools (Young, 2007). Chun, (2003) indicates that highly educated workers are more likely to implement new technologies such as information technology. The result of Fishbein and Ajezen (2005), research on ICT adoption in Malaysian SMEs, indicate that 130 out of 180 companies never develop formal ICT training for their employees; thus, resulting to lack of trained personnel in ICT, which further hinders the adoption of ICT.

The adoption of continuous training solutions can play an important role in increasing the awareness of the huge potentialities of ICTs for concrete situations; in these way employees and managers can acquire a learning culture, integrating the training in their work activities and understanding in depth the potentialities of communication and information tools (Chun 2003).

3. RESEARCH METHODOLOGY

The theoretical architecture was bridged with methodological design towards deepening the scientific or philosophical undertone of the research. The research employed and utilized descriptive and correctional research design. The choice of these designs was informed by the ability of descriptive method to profile

respondents categorically (Greener, 2008) and the correlation was to examine the relationship between variables (Wallace and Wray, 2006). Collectively, these designs formed the background upon which the statistical analysis is based. Evidence from Adams, Khan, Raeside and White (2007), Remenyi (2002 & 2005), and Pallant (2005) have demonstrated that survey-based research which required grouping is best organized and analyzed with descriptive approach.

Primary data was used for the research. This was collected through a self-constructed questionnaire. The questionnaire was constructed on a likert-scale. The face, content, and construct validity (Greener, 2008) were established through experts' intervention from the field of management. The statistical reliability with Cronbach's alpha for perceived ease of use is 0.64 (64%) and ICT compatibility 0.63 (63%) respectively which Strauss and Corbin (1998), Oppenheim (1992), Diaz de Rada (2005), and Bryman and Bell (2003) have demonstrated to be of acceptable standard. The questionnaire was administered to 353 employees in the chosen five commercial banks' headquarters in Kigali using a stratified random sampling technique. Of the three hundred and fifty three (353) questionnaires distributed, 274 were retrieved and considered usable for the research. The respondents' participation was solicited through a consent letter and the data gather are for academic purpose only.

4. DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

4.1. PROFILE OF THE RESPONDENTS

The profile of the respondents was analyzed through descriptive statistics as presented in Table 1.1 and it indicates that a total of 200 male group representing (73%) and 74 female, representing (27%) of the total 274 respondents used in the study. This proportional difference only reflects the number of respondents surveyed. However, the research of Castel, Salvador, and Sanz (2010) indicates that the male gender tends to adopt new technologies faster that the female counterpart both at home and at work place. Also, Esteves, Bohorquez, & Souza, (2008) in their paper indicate that female have more negative attitudes towards computers and internet than men. It is not this paper submission that gender impact adoption rather a categorization of the respondents.

TABLE 1.1: DISTRIBUTION OF THE RESPONDENTS BY DEMOGRAPHIC FACTORS

Demographic Variables	Categories	Frequency	Percentage
Gender	*Male*	*200*	*73%*
	Female	*74*	*27%*
Educational Level	*Diploma / Certificate*	*87*	*31.8%*
	Bachelors	*178*	*65.0%*
	Masters	*3*	*1.1%*
	PhD	*0*	*0%*
	Others	*2*	*0.7%*
Terms of Employment	*Permanent*	*241*	*88.0*
	Temporary	*17*	*6.2*
	Part Time	*9*	*3.3*
Work Experience	*Less than 1Year*	*96*	*35.0*
	1 to 3 Years	*124*	*45.3*
	4 to 6 Years	*40*	*14.6*
	7 to 10 Years	*11*	*4.0*
	Above 10 Years	*3*	*1.1*

Table 1.1 further indicates that out of the 274 respondents, 87 represented (31.8%) has a certificate or Diploma, 178 respondents (65%) has Bachelors Degree, 3 respondents (1.1%) with Masters Degree, PhD has 0 (0%) respondents, and 2 respondents hold other academic qualifications represented by 0.7% of the total respondents. However, four of the respondents representing 1.5% did not indicate their academic qualifications. Table 1.1 also indicates the term of employment. Of the total 274 respondents, 241 (88%) are permanently employed, 17 respondents (6.2%) are temporary employed, 9 respondents (3.3%) are part time workers and 7 respondents (2.6%) did not indicate their employment category. From the statistical results, permanent employees had the highest percentage, followed by temporary and part-time respectively. Further, this indicates that 96 respondents (35%) have worked with the banks for less than one year, 124 respondents (45.3%) have worked with the bank between one and three years, 40 respondents (14.6%) have worked with the bank between 4 and 6 years, 11 respondents (4%) have worked with the bank between 7 and 10 years, and 3 respondents (1.1%) have worked for more than 10 years.

4.4.1. Staff training

The table below gives a summary of the response given by the bank employees. It gives a summary as to whether training determines the adoption of ICT in the bank.

SUMMARY OF THE RESPONDENTS RESPONSES ON STAFF TRAINING

Questions	N	Minimum	Maximum	Mean	Std. Deviation
I attend training on the new technology before accepting to use it	274	1.00	4.00	3.40	1.051
Without training on the new technology I may find it hard to use it.	274	1.00	4.00	3.47	1.028
If trained on a new technology no matter how complex it is I will not have a problem using it	267	1.00	4.00	3.45	.922
Overall Mean for staff Training	267	1.00	4.00	**3.4422**	**.61424**

Source: Authors Compilation (2010)

The table above reveals all the three variables had a mean greater than 3.00, but less than 3.50. The variable which was ranked the highest with the highest mean (3.47), verbally interpreted as tend to agree, indicated that the respondents may find it hard to use the new technology if they are not trained on how to use it. The second variable had a mean of 3.45, verbally interpreted as tend to agree, indicated that if the respondents are trained on the new technology, it does not matter if its hard or complex they will not have a problem using it. The third variable had a mean of 3.29, verbally interpreted as tend to agree, the respondents agree that they will only use the new technology if they are trained on how to use it.

The overall mean for staff training was 3.4422, which indicates that there exists a significant relationship between the adoption of ICT in the surveyed banks and staff training. This implies that training of staff largely influence the adoption of ICT in the surveyed banks. As stated by (Alam & Mohammad, 2009), lack of suitable technical and managerial staff with sufficient ICT expertise is a major barrier for adopting of ICT. They further agree that a skilled and knowlegeable work force is closely linked with the successful implementation of the technology. Sánchez, Martínez-Ruiz, & Jiménez-Zarco, (2007) in their research, they conclude that the adoption of continuous training solutions can play an important role in increasing the awareness of the huge potentialities of ICTs for concrete situations; in this way employees, managers, and entrepreneurs can acquire a learning culture, integrating the training in their work activities and understanding in depth the potentialities of communication and information tools. Amin, (2007) contends that banks must support the use of the system by providing in-group training in order to make them aware and believe about the usefulness of the system.

4.4.2. Cost of Adoption

Table 4.4.2 gives a summary of the response given by the bank employees. It gives a summary as to whether the cost of adopting the new technology plays a role in determining the adoption of ICT in the bank.

TABLE 4.4.2: SUMMARY OF THE RESPONDENTS RESPONSES ON THE COST OF ADOPTION

Questions	N	Minimum	Maximum	Mean	Std. Deviation
The organization does not encourage buying of new technologies if they seem expensive	259	1.00	4.00	2.53	.978
The organization will always look for the cheapest technology in the market when need arises to buy	259	1.00	4.00	2.59	1.259
The organization waits until the price of the required technology goes down before they purchase it	259	1.00	4.00	2.64	1.235
The organization does a lot of tendering so as to get the cheapest before they buy the technology	274	1.00	4.00	2.46	1.034
Overall Mean for Cost of Technology	**247**	**1.00**	**4.00**	**2.5450**	**.91811**

Table 4.4.2 above reveals that all the means for the cost of adoption are less than 3.00. The variable that scored the highest mean (2.64), verbally interpreted as tend to disagree. It indicates that the respondents do not agree that the organization waits until the price of the required technology goes down before they purchase it. The second variable has a mean of 2.59, verbally interpreted as tend to disagree. It means the respondents do not agree that the organization always looks for the cheapest technology in the market when they need to buy one. The third mean of 2.53 verbally interpreted as tend to agree. It means that the respondents do not agree that the organization encourages the buying of the new technologies if they seem expensive. The lowest mean was 2.46, verbally interpreted as tend to disagree. It means that the respondents do not agree that the organization waits until the price of the technology they want to acquire goes down before they buy it. The overall mean for the cost of adoption is 2.545, verbally interpreted as tend to disagree. This means that the employees do not agree that cost of adoption is a determinant in adopting the required technology.

4.4.3. Perceived Risk of Innovation

Table 4.4.4 below gives a summary of the response given by the bank employees. It gives a summary as to whether perceived risk of innovation is a determinant in the adoption of ICT in the bank.

TABLE 4.4.4: SUMMARY OF THE RESPONDENT'S RESPONSES ON THE PERCEIVED RISK OF INNOVATION

Questions	N	Minimum	Maximum	Mean	Std. Deviation
I am always cautious if the new innovation will actually work	271	1.00	4.00	3.45	1.006
I don't use the new technology if I perceived it to have or produce any errors	274	1.00	4.00	3.41	1.045
I always inquire if the new technology works well before I use it	274	1.00	4.00	3.41	1.045
The new technology must be tested first if I have to agree to use it	274	1.00	4.00	3.37	1.073
Perceived Risk	**274**	**1.00**	**4.00**	**3.4060**	**.53071**

Source: Authors Compilation (2010)

Table 4.4.4 above gives a summary of the respondent's responses on how they perceive the risk of innovation. All the questions scored a mean between 3.00 and 3.50, verbally interpreted as tend to agree. The respondents tend to agree that they always inquire if the new technology works well before they agree to use it. They tend to agree that they are always cautious if the new innovation will actually work, that they don't use the new technology if they perceive it to have or produce any errors and the new technology must be tested first before they agree to use it. The overall mean for the perceived risk of innovation was 3.4060 verbally interpreted as tend to agree.

		Cost of Adoption
ICT Adoption	Pearson Correlation	.417**
	Sig. (2-tailed)	.000
	N	272

From table 4.46, statistical evidence depicts a significance relationship between the cost of adoption and the adoption of ICT, in the surveyed banks. The Pearson relationship between ICT adoption and the perceived risk of innovation exhibits positivity (0.417), implying that, as the cost of new technology increases the respective surveyed banks will continue to adopt the new technologies.

This implies that cost is not an impediment to the adoption of the new technologies. If the cost of the new technologies increases the surveyed banks will continue to adopt them, majorly because they need to leapfroging the business organization from the present operational constraints to future organizational excellence, in providing better services to its customers. Adopting of ICT brings enormous benefits, advanced communication technologies such as email help firms communicate faster and cheaper with both its suppliers and clients.

		Perceived Risk
ICT Adoption	Pearson Correlation	292**
	Sig. (2-tailed)	.000
	N	272

From table 4.48, statistical evidence depicts a significant relationship between perceived risk of innovation and the adoption of ICT, in the surveyed banks. The Pearson relationship between ICT adoption and the perceived risk of innovation exhibits positivity (292), implying that, as the respondents perceive an innovation as not having risks, they will adopt the technology in question. Thus if there is an increase in the employees perception that the technology to be adopted has no risk, then the level of adoption of that particular technology will increase. It can then be concluded that perceived risk of innovation is a factor that determines the adoption of ICT, in the respondent banks.

Bakkabulindi, Nkata and Amin (2006), notes that, if the employees perceive the new technology to be having risks, they revert to the traditional system. The employees may perceive risk to be monetary or privacy. If the employees perceive risk as being monetary, they will have the fear of transactions errors, which they presume may result to monetary loss to be suffered by both the bank and the customers. The privacy risk is seen as potential loss due to fraud or hackers compromising the security of the online system, thus collecting personal information such as usernames, passwords and credit card details, thus violating the user's privacy.

		Staff Training
ICT Adoption	Pearson Correlation	.237**
	Sig. (2-tailed)	.000
	N	272

From table 4.45, statistical evidence depicts significant relationship, between the adoption of ICT and staff training in the surveyed banks. The Pearson correlation between ICT adoption and staff Training exhibits positivity (.237), implying that if the employees are trained on the new ICT technologies in the market they become more willing, eager and open to adopt the new ICT technologies in the market. This is ascertained by Walker (2005), who contends that ICT training is a primary organizational factor because it helps users to understand how to best adopt and use ICT. He further emphasizes that lack of training plays a key role as a barrier to the adoption of ICT. The same is echoed by Olshavsky and Spreng (1996), in their results from a research on ICT adoption in Malaysian SME's, where they indicate that 130 out of 180 companies that never developed formal ICT training for their employees, resulted to lack of trained personnel in ICT, which further hindered the adoption of ICT, in the organizations. Polatoglu (2001) further indicates that, firm- level evidence suggest that

effective diffusion and use of ICT are key factors in broad-based groweth when combined with effective human resource strategires involving education and trainning.

Ward (2005) in their research, they came to the conclusion that, ICT adoption requires training for the proper use of the technology. The education and training can either be simple or fairly detailed. They further identified staff training on ICT, as one of the factors that influence the use of internet in the United States. They drew to the conclusion that ICT adoption is expected to increase with better education and staff training on the various ICT technologies.

In his research on the survey of ICT adoption and diffusionin Makerere university Bakkabulindi, Nkata and Amin (2005) noted that the majority of participants admitted that if they have more knowledge about ICT they feel more confidnet in using and also they are more satisfied with the ICT usage because they can obtain more benefits from it. Also as their knowledge improves they are more willing to use it and apply it in their jobs and even in there daily life.

Based on the findings, it's there for imperative that for the banks to have high adoption rates of any new ICT technologies, the banks need to put in place policies that encourage and foster employee training on the new ICT technologies.

5. CONCLUSION

Based on the findings, of this research, it can be concluded that: staff training, cost of adoption, and perceived risk of innovation influence the adoption of ICT, in the Rwandan commercial banks.

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ICT, ELECTION AND DEVELOPMENT IN AFRICA

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ABSTRACT

The new age is the age of globalization, driven by information and communication technologies (ICTs). Technologies are changing the way we live and even work, our thoughts as well as actions. The challenge of Africa is development and in many cases how to conduct a credible election to usher in good and stable governance. This paper assesses and reviews the role and possible interaction between ICT and election for development in Africa. The paper argues that governance is a panacea for development in Africa; as such ICT must play a key role in the electoral process. The paper recommends an ICT policy framework as well as ICT implementation task force to boost ICT development in Africa.

KEYWORDS
Development, Election, Governance, Globalization, ICT, Technology.

BACKGROUND

During the early 1950's and 1960's, many African nations were liberated from the shackles of colonialism as they gained political independence. This was a moment of euphoria for everyone then, and the excitement that accompanied it was borne out of the hope of the future, a better Africa for Africans and by Africans. Thus, the task ahead was enormous, but it must work. Therefore nation building became the target cum goal of all the new African leaders. In the midst of jubilation and hope for the future, these new leaders were seen as saviours. They all embarked on ambitious and even gigantic programs of nation building to show their people that they were actually ready for progress, change and development. Thus, in the early years significant progress was made, as per capita GDP according to World Bank (1994) in Sub-Saharan Africa grew at 2.6 percent a year between 1965 and 1974, and striking advances were recorded in social indicators such as life expectancy, mortality rates and school enrolments. But this excitement was however transitory, as the dreams soon faded, and with a short period, multi-party states according to Adesida (2001:5) quickly became one party states. Hence, degeneration from here is that these nation States in quick succession began to fall as leaders became dictatorial and thus, military coups shepherded in tyrants. To crown all this, civil wars began to take shape and forms in Africa, and the attempt at developing Africa till date appears unlikely, if not impossible. This is so in that a steady and democratic system of governance, provided by a decent electoral process has been unfeasible. It is the age of globalization and the world has become a single village, where technology thrives and wrought wonders; yet Africa still lags behind in the scheme of things. Appropriate and constructive election process is difficult to put up, and access to information as regards the government is quite difficult. As such empowering people so as to extricate themselves from both natural and manmade obstacles for a better and more fulfilling life becomes quite a difficulty.

This paper therefore, will review the role and importance of information and communication technology (ICT) and election on development in Africa. The paper contends that good governance is the panacea to development. Hence the paper will discuss the interface and critical role of both information and communication technology (ICT) and election in improving governance for development in Africa.

AFRICA AND THE ROAD TO GOVERNANCE

The question is what is governance? The concept of governance is a keenly contested one. It's definition and application is however distraught. Ever since its introduction into the development discourse in the late 1980's, the concept has assumed a highly politicized nature. According to the 9th African Partnership Forum (2007), governance must be defined in a less prescriptive and technocratic manner. In other words, governance must be defined in terms of state-society relations and internal structures and processes within government as a principal organ of the state. Here we look at governance in a continuum, first, politically and second, in economic terms. Politically, governance is concerned with the way a nation is governed. It further *comprises how the citizens, institutions and business are able to express their interests and reconcile their differences* (Adesida, 2001:7). It expresses democratic principles of freedom and accountability. On the other hand, economic governance entails the management of the society's resources and the particular role the government plays in the process of socio-economic development. Therefore the economic dimension provides the framework in which corporate governance is practiced in any society. This understanding in many ways is lacking in Africa with regards to practicability.

Revolutionary pressures for change began to increase the demand for democratization in Africa in the 1980's. This demand was however given a boost with the collapse of the USSR, and of course since the early 1990's Africa has being experiencing a tremendous political change with the people of the continent taking definite steps in demanding political participation and democratic system of governance (Adesida, 2001:6). Good governance is central to development and constitutes the primary basis for social transformation. The understanding that good governance is quintessential to development in Africa has in many ways, provoked African leaders to make commitment on making a difference in the continent. Over the years, the continent has made concerted efforts to bring about transformation in variegated aspects of life, ranging from governance, human rights, etc. Thus, from the Lagos Plan of Action (LPA) of the 1980's, and now to NEPAD underscored by the transformation of the OAU to AU are clear instances. (Alence, 2002:12).

A quick glance at Africa today would definitely show that a great disparity exist between the Africa of the early 1960's and that of the 21st century. Improvements and changes have taken shape in various dimensions, especially in the area of governance. The military era has gone, democratic settings have taken shape, and elections are now prevalent in the continent. The political transition in Nigeria in May 1999 after years of military authoritarianism and the democratic changes of government in Benin, South Africa and Senegal, Sudan and even Cote d'voire are all positive instances. Additionally, it is no longer business as usual, that is; disrespect for the constitution. Now, that is changing as the African Union (AU) and other African regional organizations move more systematically and firmly to uphold democratic values (Harsch, 2010:10). This translates further into the condemnation and rejection of unconstitutional changes in government by the African Union, as enshrined in article 3 (10) and article 5 of the African Charter on Democracy, Elections and Governance. This Charter however provides the framework to enhance the capacity of AU to respond to potential threats to governance, such as the resurgence of coups and unconstitutional violations of democratic principles.

Despite the gains ushered in via social transformations in Africa, many of the problems that led to the pressures of participatory democracy are still unresolved and proper development has not being attained in Africa. (World Bank, 2000; Adesida 2001:13; Harsch; 2010:11).

ICT, ELECTION AND GOVERNANCE

As earlier stated, for development to be achieved, a good system of governance must be in place to usher in both political and economic development. A good system of governance is achieved therefore if the duo of ICT and election are appropriately strengthened. In this section, we give an exposé on the interaction between ICT and election for good governance and by so doing strengthening development in Africa. ICT's have changed lives, and are still changing lives in many ways that are unspeakable. The convergence of computers, according to Adesida (2001:8), telephony and communications is changing the way we live and work, and it is transforming many aspects of social and economic organization. Indeed, not only are ICTs affecting the way we do business, they have equally led to the creation of entirely new industries such as software, e-commerce and even e-government. According to Jean-Francois (1995:11), though ICT make possible information exchange, yet they are deepening the process, creating new modes of sharing ideas and reducing the cost of collecting and analyzing information. Thus, as it stands ICTs does not only present the best opportunity for accelerated development, they offer a more serious window of opportunity for developing countries to catch up with the rest of the world and even leapfrog as it were.

Election simply refers to the formal process of selecting a person or people for public office or accepting or rejecting a political profession by voting. Historically, elections were used in ancient Athens, in Rome and in the selection of Popes and Holy Roman Emperors. (Encyclopedia Britannica, 2010:1). The origin of elections in contemporary world is traceable to Europe and North America beginning from the 17th century. Thus the holistic characteristics notion of the Middle Ages was transformed into a more individualistic conception, which emphasized the individual as the critical unit to be counted.

From 1990 to 2001, forty-two African countries had organized both presidential and parliamentary elections; whereas in 2011 alone more than 18 African countries were set for elections (The Economist, 2011). Most of these had ended up in confusion. Nigeria had just concluded her 2011 elections; the outcome ushered in a new president, but with post elections violence. A key feature of well-functioning States all over the world, Africa inclusive is democracy. Strong elements of democracy are people's participation in governance through regular elections and a vivacious civil society (Decalo,1994). Democratic governance requires an open government and easy access by citizens to the government. In fact, 70% of rural dwellers in Africa cannot access government, Bhavya, et al (1999:) thus estranging government from the people.

ICTs, especially the internet and web can be used to develop a democratic culture in Africa through stimulating open and public debate, establishing open government, as such enhancing interactions between the governors and those being governed. According to Olise (2010:159), ICT can be used to influence Behavior Change Communication (BCC) in as much as the people can assess their rulers. This again can equally play out during voting. Historically, voting has always been through the utilization of the ballot box. But ever since the advent of the information revolution, the notion of election and voting has become quite dynamic in many parts of the world. ICT is now used to transform the election process in several ways, in political advocacy, in political debates, in conducting opinions polls, and in voting. Political parties in Africa can equally use the internet as a mechanism to access huge databases of likely voters and become dynamic with their political campaigns. Baran (2004:27) posits that ICT is a veritable instrument for political development. According to him, 'ICT impact on political campaigns and voting is instrumental to governance'.

A good number of developing countries, for example Mexico, Iran, Brazil and Chile have already started deploying ICT in monitoring their elections. Africa must not be left behind this time. For credible elections, it is important in this information age to employ ICT. Though some African countries have also started the deployment of ICT, but it is majorly for the registration of voters, as it is evident in Nigeria during the last voters registration exercise, but was not applicable during the election proper.

In many parts of Africa, elections have being very turbulent, especially after polls have ended. In many cases, people lost their lives and properties worth millions, if not billions are destroyed. This is owing to poor election monitoring processes. It is important at this juncture to say that the information age is not just here, but is here so that it can be accessed. African governments must make a sacrifice for progress and development, and this must come in the form of deploying ICT for election monitoring. This way, post-election violence can be curbed.

Abraham Lincoln defined democracy as the "government of the people, by the people and for the people". This means government is not at extreme from the people. Rather, the people are however the government as they are part and parcel of decision making. It is in this line that Essoungou (2010:3) posited that information must be democratized. This means that the people must be part of government, contributing to issues that affect their lives. Little wonder, Coates (1994:3) and Pitroda (1993:27) maintains that, ICTs are the most democratizing tool ever. The people, the electorates can use ICT to contribute to on-going debate about a bill in parliament. That is to say that citizens can be invited to send in comments via e-mail, Facebook, twitters etc., to government officials or parliamentarians. By so doing their view can be taken into consideration before laws are passed and policies made. This in turn, doubtless, makes the government more transparent, accessible, and accountable and even more responsible to its constituents and will likely reduce public suspicion, sentiments and in many cases, political apathy.

ICT IN AFRICA: A CHALLENGE

Okpaku (2002:7) identified various bold initiatives on-going in Africa to streamline the continent on the path of development. According to him, these initiatives are both continental and regional. For instance, the African Connection/Ministerial oversight Committee was created during the ITU African Regional Conference to serve as an institutional framework for the coordination of telecommunication development in Africa. There is the African Telecommunication Union, the African advisory group on ICT (AAG – ICT), as well as several regional infrastructure initiatives such as the RASCOM satellite project, the COMTEL Project – all to make affordable access to ICT resources for Africans anywhere in the continent. Though these initiatives are on ground, yet ICT are relatively new technologies in Africa, as such they require knowledge and expertise to use. More so, literacy rates are low in Africa, and this poses a grave challenge. This according to Adesida (2010:21) accounts for the low turnout of people for ICT training at the free ICT centers in various rural communities, where capacity building is supposed to establish the necessary skills to uplift men and women to engineer Africa to the next phase.

Again there is the low level of technology penetration in Africa. Danaan (2006:14) is of the view that "it will take Africa many decades to develop a systematic, efficient and reliable ICT enterprise that would promote the ideals of globalization and development". The certainty of this statement lies in the fact that Africa depends so much on technology transfer from the West. More so, per capita income is quite low in Africa and ICT technologies do not come cheap. Thus affordability becomes a challenge in many respects. For majority of Africans, Laptops constitute a luxury, and though there is a reduction or fall in prices, the cheapest computers still go for less than $1000. This of course, frankly is the equivalent of per capita income in most Africa countries. The option for many users is but a fairly used system that is relatively cheaper with shorter life span. In spite of the One Laptop Per Child (OLPC) initiative for school children, as well as the Catalyzing Access to ICT in Africa (CATIA) programme, which were basically meant to enable poor people gain maximum benefit from information and communication technology, the idea of inexpensive laptops in Africa is still far from reality.

There is also the challenge of a workable policy framework. Policies are necessarily course of action adopted to achieve certain objectives. They are meant to act as guidelines for the implementation of development plans and strategies. But most African countries are deficient and lagging in this aspect. In situations where these ICT policies are not available or properly implemented, a whole lot of things could be wrong. Yet, in spite of all these challenges there is a ray of hope for Africa. The launching of the Nigerian Communication Satellites (NIGCOMSAT-I) in 2007 and (NIGCOMAST-2) in 2011, as well as the launching of DAARSAT Communications by DAAR Communications Plc in 2008 is a clear indication that there is hope for Africa.

CONCLUSION

Development for Africa is no longer a myth, if only what must be done can be done to put Africa on the same pedestal with others. The world is changing fast, voting and elections are no longer problematic in many countries as a result of the deployment of new technologies. Therefore the first step in the successful

deployment of ICT in elections in Africa is for African governments to strive to achieve e-government. E-government brings the government closer to the people. Indeed, when the people are closer to the government, it is easier to m+ove to the next level of e-election. The creative deployment of ICT in the election process will definitely help curb rigging and get more people involved in the electoral process. Even Nigerians in Diaspora can equally participate in their electoral process.

Finally, though the interaction of ICT and election can effect development for Africa with a view to participatory governance. It is fundamental that a policy frame work must be on ground as to ICT operation and management. On the basis of this we strongly recommend that an ICT implementation committee/task force must equally be on ground in every country of Africa, as machinery to drive ICT into action in Africa. This must necessarily take the shape and form of existence in perhaps every ministry and parastatal of the government. Also, Government of African countries must strive to make computers (laptops, palmtops, PC's) cheaper and affordable for their citizens. We also recommend that African government should take advantage of ICT by creating functional websites, administered by specialists so that their citizens can reach them easily with their ideas/complaints, as well as them their citizens.

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MODERATING ROLE OF EMOTIONAL INTELLIGENCE TOWARDS STRESS AND EMPLOYEE PERFORMANCE IN THE INDIAN BANKING SECTOR

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ABSTRACT

Stress does not always result directly from the source of pressure itself, but rather from the perception of that pressure. In this context emotional intelligence that is related to perception might be considered. The effects of emotional intelligence on the relationship between job stress and job performance were investigated with a sample of employees in the Indian banking sector. The results indicated that emotional intelligence had a positive impact on job performance and it also played a dominant role in moderating this relationship. In this respect, highly emotionally intelligent employees are more likely to reduce or transform the potential negative effects of job stress on job performance than low emotional intelligence employees. The results of this study clarify knowledge of stress effects and, thus, the usefulness of stress management practices can be improved and enhanced.

KEYWORDS
job stress, emotional intelligence, job performance, banking sector.

INTRODUCTION

Job stress among employees at all levels need special attention in any organization as it has an influence on the organisational productivity. Over the decades stress is emerging as a growing dilemma. Stress is dynamic state in which a person is confronted with an opportunity, demand related to what the individual wishes and for which the conclusion is perceived to be both unclear and essential. Hans Selye was one of the founding fathers of stress research. He defined stress as the force, pressure, or tension subjected upon an individual who resists these forces and attempt to uphold its true state. His view in 1956 was that "stress is not necessarily something bad – it all depends on how it is viewed. The stress of exhilarating, creative successful work is beneficial, while that of failure, humiliation or infection is detrimental." Job stress is a condition in which job-related factors affect employees to the extent that their psychological state deviates from normal functioning (Richardson & Rothstein, 2008). Emotional intelligence (EI) refers to the ability to perceive, control and evaluate emotions. Some researchers suggest that emotional intelligence can be learned and strengthened, while others claim it is an inborn characteristic. This article demonstrates that EI competencies have the profound impact on stress. Very little research has examined the impact of EI competencies to prevent stress among employees in the banking sector. This study gives a special focus to assess the relationship of EI competencies and stress among the employees in the banking sector who work under stressful conditions.

Financial Sector of India is intrinsically strong, operationally sundry and exhibits competence and flexibility besides being sensitive to India's economic aims of developing a market oriented, industrious and viable economy. The finance sector in India which predominantly comprises of banks, insurance companies etc had under gone rapid and striking changes like policy changes due to globalisation and liberalisation, increased competition due to the entrance of more players in the private (corporate) sector , downsizing, introduction of new technologies, etc.

During the past decade, the banking sector had under gone rapid and striking changes like policy changes due to globalisation and liberalisation, increased competition due to the entrance of more private (corporate) sector banks, downsizing, introduction of new technologies, etc. Due to these changes, the employees in the banking sector are found to be experiencing a high level of stress. The advent of technological revolution in all walks of life coupled with globalisation, privatisation policies has drastically changed conventional patterns in all sectors. The banking sector is of no exemption. The 1990s saw radical policy changes with regarding to fiscal deficit and structural changes in India so as to get prepared to cope with the new economic world order. Globalisation and privatisation led policies are found to have compelled the banking sector to undergo reformation so as to have a competitive edge to cope with multinationals led environment. Although a lot of studies have been conducted on the psychosocial side of the new policy regime in many sectors, there are only few studies, as far as the banking sector is concerned, while the same sector has been drastically influenced by the new policies.

NEED AND IMPORTANCE OF THE STUDY

The advent of technological changes, especially extensive use of computers in the sector has changed the work patterns of the bank employees and has made it inevitable to downsize the work force in the sector. The implications of the above said transformations have affected the social, economical and psychological domains of the bank employees and their relations. Evidence from existing literature states that more than 60% of the bank employees have one or other problem directly or indirectly related to these drastic changes. All the factors discussed above are prospective attributes to cause occupational stress and related disorders among the employees. **It is in this context the need for the study arises to find out the moderating influence of emotional intelligence on the job stress and job performance of employees in the banking sector.**

OBJECTIVES OF THE STUDY

- To find out the relationship between job stress and job performance
- To identify the extent of positive relationship between emotional intelligence and job performance
- To study the influence of emotional intelligence in moderating the job stress and job performance among employees in the banking sector.

REVIEW OF LITERATURE

In line with the suggestion by Carmeli (2003) that researchers should investigate the effect of emotional intelligence on the relationship between job stress and performance, the purpose in this study was to examine whether or not emotional intelligence moderates the relationship between stress and performance. In addition, a better knowledge of stress effects may improve and enhance the usefulness of stress management practices. Employers' demands may affect

employee stress which is "an unpleasant emotional experience associated with elements of fear, dread, anxiety, irritation, annoyance, anger, sadness, grief, and depression" (Motowidlo, Packard, & Manning, 1986, p. 618). Job stress is a condition in which job-related factors affect employees to the extent that their psychological state deviates from normal functioning (Richardson & Rothstein, 2008).

Although some researchers have indicated that the relationship between stress and performance is either a positive linear or an inverted-U shape, most have found a negative stress-performance relationship (e.g., Gilboa, Shirom, Fried, & Cooper, 2008; Siu, 2003; Van Dyne et al., 2002). Job stress is often seen as dysfunctional in effect in that it decreases both the quality and quantity of job performance. Job stress also wastes the time and energy that an individual spends dealing with the stressor, limiting concentration on the task at hand and thereby affecting performance (Siu, 2003).

Goleman (1998) demonstrated that emotional intelligence is a required factor for job performance and is positively correlated to successful individual outcomes in an organization. Most researchers have focused on the effects of emotional intelligence on management leadership skills. Managers with a high level of emotional intelligence tend to display high levels of job satisfaction, job performance, and transformational leadership, as well as low levels of intention to leave their job (Mandell & Pherwani, 2003; Slaski & Cartwright, 2002).

Variation in stress-performance relationship research results is common. Jex (1998) argued that major factors may be ignored and suggested the use of a broader range of moderators to investigate the stress-performance relationship. For example, stress does not always result directly from the source of pressure itself, but rather from the individual's perception of that pressure. Therefore, individual difference variables that relate to perceptions should be considered.

Taking into account the following reviews of literature the hypotheses have been established as follows:

HYPOTHESES

***H1:* There will be a negative relationship between job stress and job performance**

***H2:* There will be a positive relationship between emotional intelligence and job performance.**

***H3:* Emotional intelligence will moderate the relationship between job stress and job performance.**

RESEARCH METHODOLOGY

Participants were selected from workplaces within the banking sector in India. It is reported that employees in the banking sector have heavy workloads and high job stress owing to competitive evaluations.

Around 800 questionnaires were distributed to employees from 20 banks – 8 banks in the public sector and 12 banks in the private sector. Snowball method of sampling was adopted and responses were collected. Out of the 800 questionnaires given 583 were returned out of which twelve were incomplete.Therefore, usable data were obtained from 571 respondents. The sample included managers (25%, *n* = 143) and non managers (75%, *n* = 428).

Job Stress: Job stress was measured using the questionnaire developed by Parker and DeCotiis (1983). Researchers have reported that this questionnaire has good psychometric properties, (Sample items include: "Too many people at my level in the organisation get burned out by job demands" and "I have too much work and too little time to do it in". Respondents are asked to rate each item using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

Emotional Intelligence: The Self-Report Emotional Intelligence Test (SREIT) developed by Schutte et al. (1998) was used in this study. SREIT is one of the three best-known emotional intelligence tests and is widely used in research (e.g., Carmeli, 2003; Ciarrochi, Deane, & Anderson, 2002). The SREIT scales are designed to suit the workplace (Brackett & Mayer, 2003). Sample items include: "I easily recognize my emotions as I experience them" (evaluation and expression of emotions); and "Some of the major events of my life have led me to reevaluate what is important" (utilization of emotions). Respondents are asked to rate each item using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

Job Performance*:* The questionnaire used to measure job performance was originally developed by Dubinsky and Mattson (1979), and was modified by Singh, Verbeke, and Rhoads (1996). This modified version, a self-appraisal instrument containing six items, is widely used in research (e.g., Fogarty, Singh, Rhoads, & Moore, 2000; Kalbers & Cenker, 2008). Sample items include: "How would you rate yourself in terms of the quantity of work (e.g., sales) you achieve?" and "How do you rate yourself in terms of your performance potential among coworkers in your company?" Respondents are asked to rate each item using a 5-point Likert scale (1 = *poor*, 5 = *excellent*).

Control Variables Individual and organizational features that may have had an effect on study variables were controlled, including job tenure (measured by the number of years an employee had worked for his/her company), and job level (i.e., managerial vs. nonmanagerial). Job tenure within an organization has a positive impact on job performance, because employees learn and enhance their skills as they gain experience (Schmidt & Hunter, 2004). Because length of job tenure is associated with developing skills and an understanding of products and customers, long tenure is seen as beneficial for employees to carry out their tasks well.

RESULTS AND DISCUSSION

The means, standard deviations, and bivariated correlations between the variables involved in this research are reported in Table 1. Job stress had a significant negative bivariated correlation (r = -0.100, $p < 0.05$) with job performance, while emotional intelligence had a significant positive bivariated correlation (r = 0.444, $p < 0.001$) with job performance.

Hypotheses 1 and 2 were tested using regression analyses as shown in Table 2. The control variables were added in Model 1, and the two main effect variables were added in Model 2. The negative relationship between job stress and job performance operated as expected (β = -0.076, $p < 0.05$). Likewise, a significant negative correlation (r = -0.100, $p < 0.05$) was found between job stress and job performance, and this provided further support for the predicted negative relationship between job stress and job performance. Thus, Hypothesis 1 was supported.

The relationship between emotional intelligence and job performance was positive and significant (β = 0.437, $p < 0.001$) as shown in Table 2. Likewise, a significant positive correlation (r = 0.444, $p < 0.001$) was found between emotional intelligence and job performance, and this provided further support for the predicted positive relationship between emotional intelligence and job performance. Thus, Hypothesis 2 was supported.

TABLE 1: MEANS, STANDARD DEVIATIONS, ALPHA COEFFICIENTS, AND CORRELATIONS AMONG STUDY VARIABLES

Variables	*M*	*SD*	1	2	3
1 Job performance	3.43	.56	(.86)		
2 Job stress	2.96	.57	-.100*	(.94)	
3 Emotional intelligence	3.75	.40	.444***	.034	(.88)

Note: Values on the diagonal represent alpha coefficients.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed tests); N = 571.

TABLE 2: REGRESSION RESULTS

Variables	Job performance	
	Model 1	Model 2
	β	β
Control variables		
Job tenure	0.138***	0.134***
Job level	0.136***	0.040
Main effect variables		
Job stress		-0.076*
Emotional intelligence		0.437***
*R*2	0.046	0.231
Δ*R*2	0.046***	0.185***

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The hypothesized interactions were also explored using hierarchical regression analysis (as shown in Table 3) based on the methodology of Cohen, Cohen, West, and Aiken (2003): The control variables were added in Model 1, the main effects were added in Model 2, and the interaction term was created by multiplying the two main effects was added in Model 3.

TABLE 3: HIERARCHICAL REGRESSION RESULTS

Variables	Job performance		
	Model 1	Model 2	Model 3
	β	β	β
Control variables			
Job tenure	0.138***	0.134***	0.120**
Job level	0.136***	0.040	0.057
Main effect variables			
Job stress (JS)		-0.076*	-0.878**
Emotional intelligence (EI)		0.437***	-0.009
Interaction variables			
JS *EI			0.939***
*R*2	0.046	0.231	0.249
Δ*R*2	0.046***	0.185***	0.018***

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In order to demonstrate moderation, the change in *R*-squared was analyzed in Model 3, where the interaction variable was added while controlling for the control and main effect variables. If a significant change in *R*-squared was found, the significance of each interaction variable was assessed (Cohen et al., 2003). The results of Model 3 in Table 3 show a significant change in *R*-squared ($\Delta R2 = 0.018$, $\Delta F = 13.57$, $p < 0.001$). The moderating effect of emotional intelligence on the relationship between job stress and job performance was also significant ($\beta = 0.939$, $p < 0.001$). Thus, Hypothesis 3 was supported.

As all the variables were obtained from the same source using self-reports, there was a potential common method variance (CMV) issue concerning whether a single factor would emerge from the factor analysis or if one general factor would account for the majority of variance in the variables. Harman's one-factor test (Harman, 1967) was applied to test for CMV. All the variables in this study were entered into a factor analysis. Two factors emerged with eigen values greater than 1.0 (1.45 and 1.01 respectively) as opposed to one general factor. Moreover, none of the factors accounted for the majority of variance in the variables. Therefore, the result suggested that CMV was not a potential issue in this study.

CONCLUSION

The positive relationship found in this study between emotional intelligence and job performance corroborates findings in previous studies with Western samples (e.g., Higgs, 2004). Therefore, recruiting highly emotionally intelligent employees may have a positive impact on organizational success. Further, as researchers have pointed out that emotional intelligence is not fixed and can be improved (Salovey & Mayer, 1990), the emotional intelligence of employees can be enhanced through coaching or other forms of training. The results of the present study also show that emotional intelligence moderates the relationship between job stress and job performance. As noted earlier, stress does not always directly result from the source of the pressure itself, but rather, from the individual's perception of that pressure and it was also suggested in this study that highly emotionally intelligent employees are more likely than are employees with low emotional intelligence to reduce or transform the potential negative effects of job stress on job performance, or at least to moderate them to an acceptable degree.

However, for employees with little emotional intelligence there was a negative relationship between job stress and job performance. This finding implies that, compared to high emotional intelligence employees, those with little emotional intelligence are less able to deal with stressful matters associated with their jobs. In addition, the current findings of the moderator role of emotional intelligence imply that organizations may add some degree of challenge-related stress (e.g., time pressure) to stimulate highly emotionally intelligent employees to be more productive and improve their performance. However, organizations may need to help their employees reduce the amount of stress in order for the employees with a low level of emotional intelligence to be productive. The findings of this study contribute to existing theories on job stress. The moderating effect of emotional intelligence on this relationship, as evidenced in the results of the study, provides support for the observation of Parker and DeCotiis (1983) that dispositional variables are associated with perceived stress, and that they moderate the effect of stress outcomes within an organization.

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FACTORS INFLUENCING CUSTOMER LOYALTY IN MOBILE PHONE SERVICE - A STUDY WITH REFERENCE TO COIMBATORE CITY

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ABSTRACT

Indian mobile market is one of the fastest growing markets and is forecasted to reach 868.47 million users by 2013. India has seen rapid increase in number of players which caused the tariff rates to hit an all time low income population thereby increasing the market share. The availability of a number of subscriber options for consumers and varied tariff of each player, lead the consumers to switch between service providers. Loyal customers provide firms a consistent source of revenue that leads to increased profit. Hence it is essential for the Service Providers to retain their existing customers. Therefore they need to understand what factors might influence on customer loyalty. Therefore the objective of this research is to study the relationships of Trust, Switching cost and Corporate image that will affect on customers loyalty. The research finds that all the independent variables Trust, Switching cost and Corporate image have relationship with the dependent variable, customer loyalty. The findings suggest that managers of these mobile operators are responsible to focus more on building trust and switching cost and it is their duty to analyze more carefully the reason for customers to switch brand in this industry in order to increase loyalty among these customers.

KEYWORDS

Corporate image, Customer loyalty, Mobile phone operators, Switching cost, Trust.

INTRODUCTION

According to Gartner, with a compound operator annual growth rate (CAGR) of 18% the country's cellular service market is projected to surpass $37 billion by 2012, while exceeding 737 million connections at the same time. Cellular market penetration is projected to increase from 19.8% in 2007 to 60.7% in 2012.

The factors such as local consumer durable and electronic companies entering the domestic mobile handset segment and lower handset process are some of reasons for the increased growth rate. The mobile phones are becoming cheaper and people are ready to buy it with the increase in disposable income that improves the quality of life in India. However mobile service providers are also adding new schemes offers and technology advancement in their services. This is the reasons why more customers are buying mobile phones and switching between different service providers.

REVIEW OF LITERATURE

TRUST

The concept trust has a wide range of use in many areas and has various definitions (Lewicki et. al., 1998). Trust has an impact on the vulnerability of the trustor (Bigley and Pearce, 1998; Singh and Sirdeshmukh, 2000), because trust becomes irrelevant if there is no vulnerability of the trust or upon the trustee. In business studies, trust has been found to be important for building and maintaining long-term relationships (Geyskens et. al., 1996; Rousseau et. al., 1998; Singh & Sirdeshmukh, 2000). Morgan and Hunt (1994) stated that trust exists only when one party has confidence in an exchange partner's reliability and integrity. While defining trust Moorman, Deshpande and Zaltman (1993) referred to the willingness to rely on an exchange partner in whom one has confidence. According to Lau and Lee (1999), if one party trusts another party that eventually engenders positive behavioral intentions towards the second party.

From Anderson and Narus (1990) it can be safely deduced that if one party believes that the actions of the other party will bring positive outcomes to the first party, trust can be developed. Donney and Cannon (1997) added that the concerned party also must have the ability to continue to meet its obligations towards its customers within the cost-benefits relationship; So, the customer should not foresee the positive outcomes but also believe that these positive outcomes but also believe that these positive outcomes will continue in the future.

SWITCHING COST

As defined by Jones et. al. (2002), a switching barrier is any factor that makes it difficult or costly for customers to change providers. Another brand loyalty determinant is known as switching costs which can be defined as the technical, financial or psychological factors which make it difficult or expensive for a customer to change brand (Shergillf Bing, 2006). According to Porter (1998) switching cost is the cost involved in changing from one service provider to another. In addition to measurable monetary costs, switching costs also include time and psychological effort involves in facing the uncertainty of dealing with a new service provider (Dick, Basu, 1994; Guitinan, 1989; Kim, Kiliger, fvale, 2003). Jackson (1985) defined that, switching cost is the sum of economic, psychological and physical costs. Usually switching cost varies from customer to customer (Shy, 2002). Aydin and Ozer (2005) tried to conceptualize perceived switching cost for mobile phone services by assimilating notions like perceived monetary costs, uncertainty costs, evaluation costs, learning costs, and set up costs from researchers like Burnham, Fvels and Mahajan (2003); Guiltinan (1989); and Jones, Beatty and Mothersbaugh (2002).

CORPORATE IMAGE

Barich and Kotler (1991) tried to define corporate image as the overall impression a firm has left on the minds of the people. According to Weller (1993) corporate image is 'the perception of a firm reflected in the associations held in consumer memory'. A firm's various attributes eventually settle in the minds of people or customers resulting in certain mental image(s) relatable to the firm intuitively (Nguyen f Leblanc, 2001). Corporate image germinates as customers or people actively and or passively receive and process information about a firm from various. Kennedy (1997) said corporate image has two dimensions; functional (tangible characteristics) and emotional (feelings and attitude towards a firm). Ngyyen and Leblan (2001) said that as people or customers get exposed to the realities created by a firm they tend to construct an image or form an attitude about the firm regardless of how little or abundant information they have. Aydin and Ozer (2005) borrowed several notions from Bayol, Lafoye, Tellier, and Tenenhaus (2001) in order to conceptualize corporate images.

CUSTOMER LOYALTY

As suggested by several researchers (Kumar and Shah, 2004; Blak and Parks, 2003; Bell et.al., 2005 and Dean, 2007) there are two types of loyalty; behavioral and attitudinal loyalty. The behavioral aspects of the customer loyalty were characterized in terms of repurchase intentions, word-of-mouth communication, and recommendations of the organization (Nadiri et. al., 2008; Karatepe and Ekiz, 2004; Yi, 1990; Zeithamal et. al., 1996). Liu-Thomkins, et. al., (2010) defined attitudinal loyalty as a favourable evaluation that is held with sufficient strength and stability to promote a repeatedly favourable response towards a product / brand or a store. Jones and Sasser (1995) state the customer loyalty is "a feeling of attachment to or affection for a company's people, products, or services". Customer loyalty is expressed as an intended behavior regarding the service or the company. The loyalty and repurchase intentions aspects of the taxonomy are most similar in nature. Oliver (1997), for example, operationalizes action loyalty as repeat usage. Furthermore, Delgado-Ballester and Munera-Aleman (2001) and Macintosh and Lockshin (1997) use repurchase intentions as an element of loyalty in brand and store contexts respectively.

NEED/IMPORTANCE OF THE STUDY

Customer loyalty is about retaining customers which means earning more. Most of the researchers have shown that companies need to focus on customer retention more than grabbing new customers. It is more difficult retaining a customer than getting a new one (Mayank, 2001). The number of mobile subscribers has been increased dramatically due to declining call rates, falling prices of handsets and rising competition among operators. So the companies must stay alive and win the market share by making the customers more loyal to their firms. For this reason, the objective of the study is set to establish frameworks which will identity the impact of customer loyalty of mobile phone operators through switching cost, corporate image and trust.

OBJECTIVES

1. To understand the role of Trust, Switching Cost and Corporate image on Customer loyalty of Mobile phone operators.
2. To know the opinion of Customers towards the major variables of Trust, Switching cost and Corporate image on Customer loyalty of Mobile phone operators.
3. To find out the impact of the major variables of Trust, Switching cost and Corporate image on Customer loyalty of Mobile phone operators.

HYPOTHESES AND STRUCTURAL MODEL

H1: Trust has positive impact on Customer loyalty.
H2: Switching cost has positive impact on Customer loyalty.
H3: Corporate image has positive impact on brand loyalty.

RESEARCH METHODOLOGY

This study involved a survey of users of Mobile phone service in Coimbatore city. Coimbatore is the second largest city of Tamil Nadu and one of the fastest growing cities in India. The research methodology consists of the topics such as research design; sample size and sample method, hypothesis of the research, questionnaire design, analysis method and result of reliability. The research focusing customer loyalty will also focus on three factors such as Trust, Switching cost and Corporate image. Hence three hypotheses have been considered to determine the relationship between those factors and customer loyalty, where the customer loyalty is dependent variable and other factors are independent variations. The sample size of this research is 150 users. The sample method used is convenience sampling. Convenience samples are the most common form of sampling design in social science research (Mohr, 1990) and provide researchers with an acceptable database to use statistical inference techniques. The questionnaires distributed consists of two main sections where first section – the demographic characteristics of the respondents. The second section of the questionnaires is the dependent variable – customer loyalty and three independent variables – Trust, Switching cost and corporate image. The total number of questions in this section is thirty five, eight questions for customer loyalty, eleven questions for trust, eight questions for switching cost and eight questions for corporate image. Five-point-Likert-type response format has been used to measure dependent and independent variable. The users recorded their assessment of the item on five-point-Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The descriptive analysis of the variables Customer loyalty, the Trust, Switching cost and corporate image in this research used three hypotheses for test to assess the relationship between the independent variables and dependent variables. A correlation is a single number that describes the relationship between all independent variables and dependent variables. Regression analysis is a statistical tool for the investigation of relationships between variables. In this research to determine the relationship between customer loyalty and trust, the relationship between customer loyalty and switching cost and also the relationship between customer loyalty and corporate image.

RELATIONSHIP RESULTS

The result of reliability is tabled below.

TABLE 1.1: RELIABILITY RESULTS

Variables	Number of Item	Alpha	Std.D	Mean
Independent Variable				
Trust	11	0.785	4.919	40.24
Switching cost	8	0.757	5.551	29.30
Corporate	8	0.810	4.505	28.00
Dependent Variable				
Customer Loyalty	8	0.778	5.210	27.47

The table above indicates that the Cronbach alpha values of the variables are above 0.7 Coefficient Cronbach's Alpha is a measure of reliability or internal consistency. A value of Cronbach's Alpha of .50 or above is consistent with the recommended minimum values stated by Nunnally (1967). Cronbach's Alpha indicator for each factor customer loyalty 0.778, Trust 0.785, switching cost 0.757, corporate image 0.810. Therefore the research results can be accepted as related by Nunnally (1978).

FINDINGS OF DEMOGRAPHIC VARIABLES

The respondents are male (53%) and female (47%), their age vary from 18-28 years (80%), 29-35 years (10%), 36-45 years (5%), 46 and above (5%). In terms of education level of the respondents were Diploma (13.3%), Degree (53.3%) and Post Graduate (33.3%) and in terms of occupation (27%) of respondents were Government employed (40%) of them were self-employed and (33%) of respondents were Housewives. All results are in the table below:

TABLE 1.2: DEMOGRAPHIC RESULTS

		Frequency	Percent (%)
Age	18-28	120	80
	29-35	15	10
	36-45	8	5
	46 and above	7	5
Gender	Male	80	53
	Female	70	47
Educational Level	Diploma	20	13.3
	Degree	80	53.3
	Post Graduate	50	33.3
Marital Status	Single	85	57
	Married	65	43
Occupation	Govt. employed	40	27
	Self Employed	60	40
	Housewives	50	33

CORRELATION ANALYSIS

TABLE 1.3: CORRELATION MATRIX

Variables	Customer Loyalty	Trust	Switching Cost	Corporate image
Customer Loyalty	1			
Trust	0.561**	1		
Switching Cost	0.516**	0.718**	1	
Corporate Image	0.382**	0.610**	0.599**	1

**** Significant at the 0.01 level (2-tailed)**

Table 1.3 shows the correlation coefficients between all variables. All independent variables are correlated significantly to customer loyalty. The correlation is significant at the 01.01 level (2-tailed). The criterion used for the level of significance was set a priori. The relationship must be at least significant at **P ≤ 0.01. Table 1.3 shows that there is significant correlation between customer loyalty and trust, (r=0.561, P= 0.000 < 0.01). Therefore, there is a strong positive significant correlation between customer loyalty and trust. There is a significant correlation between customer loyalty and switching cost (r=0.516, P= 0.000 < 0.01). Therefore there is a strong positive significant correlation between customer loyalty and switching cost. There is significant correlation between customer loyalty and corporate image ((r=0.382, P= 0.000 < 0.01). Therefore there is a moderate positive significant correlation between customer loyalty and corporate image.

REGRESSION ANALYSIS

The linear regression procedure examines the relationship between a dependent variable and a set of independent variable. This research also analyses the relationship between customer loyalty and trust, switching cost and corporate image using regression analysis and the result is given is Table 1.4.

TABLE 1.4: REGRESSION MATRIX

Independent Variables	β (t-Value)	Sig
Trust	0.396 (3.843)	0.000
Switching Cost	0.232 (2.301)	0.023
Corporate Image	0.004 (0.044)	0.965
R.Square	0.341	
Adjust R.Square	0.327	

Finally, as expected from the Table 1.4, the results out that all independent variables are positively correlated with customer loyalty. However, the coefficient on corporate image is not statistically significant. This implies that customer loyalty and corporate image is unrelated. But the coefficient on trust and switching cost are statistically significant. This implies that customer loyalty and trust and switching cost are related; by using values of Table 1.4 the researcher investigate the influence of trust, switching cost and corporate image. As expected, Trust (β=0.392, t-value = 3.843, P<0.01) and switching cost (β=0.232, t-value = 2.301, P<0.01) had a significant and strong positive influence on customer loyalty. However corporate image had no significant influence on customer loyalty (β=0.004, t-value = 0.044, P=0.965) at the 0.05 level. Thus hypotheses (H1),(H2) were supported, while (H3) was rejected. The researcher found that the proposed model explained a significant percentage of variance in loyalty (R Square = 34%).

In Hypotheses (H1), (H2) and (H3) the researcher investigates the influence of trust, switching cost and corporate image on loyalty. The Pearson Coefficient for the relationship between customer loyalty and trust is 0.561, so there is a relationship between customer loyalty and trust and it is moderate and positive. Thus the hypothesis (H1) is accepted. The positive explanation behind these findings is that trust in the company plays a vital role in building loyalty among mobile phone operator customers in Coimbatore. As there are many more mobile operators currently operating in Coimbatore with very competitive prices and services, customers have a natural tendency of choosing that operator that provides trustworthy services without any unfair practices. It means they have to trust the company first to become loyal.

The Pearson Coefficient for the relationship between customer loyalty and switching cost is 0.516. So the relationship between customer loyalty and switching cost is moderate and positive. Thus switching cost is positively related to customer loyalty. Hence the hypothesis (H2) is accepted. The positive explanation behind these finding is that the customers of mobile phone operators in Coimbatore city do have concern regarding the switching cost in showing their loyalty towards the company. The low price of the SIM Card influences the customer to switch easily and try all different brands. As a result, erecting high switching cost to retain the customer is an effective tool in mobile phone operating business in Coimbatore.

The Pearson Coefficient for the relationship between customer loyalty and corporate image is 0.382, so there is relationship between customer loyalty and corporate image, and it is low and positive. Although the correlation is weak, it still showed a positive relationship between customer loyalty and corporate image. Corporate image is not statistically significant (P=0.965>0.01) and based on the results of previous studies as (Avdin and Ozer, 2004), the hypothesis (H3) is rejected. Although it is not significant, the analysis results indicate corporate image affects positively customer loyalty. Corporate image is the factor that is least concerned among the customers of mobile phone operators in Coimbatore are unaware of the company's perceived image. Whether the company has stable condition or whether they have social contribution are given least priority. Rather customers prefer other objective criteria such as price, service, network coverage etc in choosing brands.

RECOMMENDATIONS

The findings of this paper have implications for the manger of service firms. The managers can use these results to make better marketing strategies in order to attract more customers to buy the services. The managers should consider factors that influence repeat purchase that eventually lead to customer loyalty. In the context of Coimbatore, it is important to build trust among the consumers regarding the service provider. Consumer loyalty in Coimbatore depends strongly on trust, it means if consumers trust the service provider, they become loyal to the brand and to the company. In addition, switching cost is another factor that can lead to customer loyalty. The managers should increase the level of switching cost so that consumer cannot switch easily to other brands and eventually become loyal to company. Corporate image should also be put into consideration in an attempt to make marketing strategies more competitive. It is seen that consumer prefer certain service provider for its reputed image. So the managers should try to enhance the image of the company, which will guide to company. To enhance image, companies should apply different promotional programs along with corporate social responsibility. As a consequence, the customers perceive the company as a good company in the society.

CONCLUSION

In this research, the relationship between customer's loyalty and trust, switching cost and corporate image is examined. To this end, the data was analyzed by correlation and regression analysis. The results of the regression analysis show that all of the factors have positive effects on customer loyalty. The relationship between corporate image and customer loyalty is low and positive. Customer loyalty is the dependent variable in the regression analysis. The objective of regression analysis was to determine which of the three factors would have the most important influence on customer loyalty. The three relations were hypothesized to influence customer loyalty, there are two significantly and positively trust and switching cost, but corporate image is not significant. The Pearson Coefficient for the relationship between customer loyalty and trust is 0.561 and it is positive. This tells us that, as trust increases customer loyalty increases. The Pearson Coefficient for the relationship between customer loyalty and switching cost is 0.516 and it is positive. Therefore as switching cost increases, customer loyalty increases. On conclusion trust and switching cost are important predictor of customer loyalty.

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A STUDY ON OCCUPATIONAL STRESS AMONG GRADE I POLICE CONSTABLES

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ABSTRACT

This research required determining the amount of stress that police constables face and what are the most stressful events and also it determining the relationship between demographic factors and stressful events. This study was conducted on 200 police constables (grade I) working in 52 police stations within Tuticorin district. Police constables felt that Stress due to doing disagreeable duties, Stress due to increased responsibility and Stress due to lack of admin policy do vary with demographic factors like age, gender, religion, service of the years, marital status, income and the place of residence. The results and their interpretation relate only Grade I police constables. This present study also suggested that perception about the work and practice must be changed. Police department must offer counseling for the police constables and giving chance to them for future scope. This study suggests well defined training and developed departmental policies reduce the stress level. Responsibility of the police constables must consider based on their capacity, Police departments, with their tense organizational structures, and offer both opportunities and challenges for stress prevention programs. In Tamil Nadu this kind of research has not been conducted particularly in police department which is measured the most demanding and stressful police district in Tamil Nadu, India.

KEYWORDS
Counseling, Occupational stress, opportunities, Organizational structure, police constables.

INTRODUCTION

Occupational stress among police is often viewed as an unlucky, but expected part of police work. Police are like a real heroes, but most of people are unaware the amount of stress that police face every day. Police work involves protection of life, safeguarding property through vital patrol techniques, enforcement of laws and ordinances in the place for which the Police station is responsible. Police who are out in the street, every day during their duty are struggle police. They are the first's line of protection between the criminals and the society. During their duty, unexpectedly they may encounter situations involving major crisis without any warning. There are several factors like 24 hours availability, administration problem were involved and make police as a most stressful job. This study basically deals with Tamil Nadu police department and the Tamil Nadu has a Police population ratio of 1: 632. Police Constable is the lowest police grade in India. This study explores the major causes of stress and amount of stress faced by police constables.

LITERATURE REVIEW

According to Spielberger, Vagg & Wasala (2003), stress is recognised as a complex process that consist of three major mechanisms: sources of stress that are encountered in the work environment, the perception and appraisal of a particular stressor by an employee, and the emotional reactions that are a response to perceiving a stressor as threatening. Spielberger.s State-Trait (ST) model of occupational stress focuses on the perceived severity and frequency of occurrence of two major categories of stressors, i.e. job pressures and lack of support

Gulle et al. (1998) conducted a study that explored inherent and organisational stress in the South African Police Service. It included 91 Police members ranging in ages fro 21 to 53 years with the sample consisting of 85 males and 6 females. This study indicated that in comparison to American stressors, which were all inherent in the nature of the job, South African police stressors were among the more organisationally-oriented. Violanti & Aron (1994) found the South African sample displaying a greater degree of stress than the USA sample. The way in which the SAPS operates creates stress in addition to the inherent pressure already existing as a result of the nature of police work. The study also found that excessive paperwork, insufficient person power, fellow officers not doing their job, inadequate or poor quality equipment and inadequate salaries were cited among the stressors which occurred most frequently within the police.

Basson (2005) reported that police units involved with family violence, child abuse and sexual offences had 254 vacancies (20% of total number of jobs). The average number of criminal cases managed by each detective vary from 32 (Northern Cape) to 52 (Eastern Cape), with a national average of 43, whereas the ideal is that each detective should not investigate more than 18 cases. Therefore police member.s (detectives in particular) experience high job demands (Pienaar & Rothmann, 2006).

Martocchio and O.Leary (1989) conducted a meta-analysis of studies investigating the relationship between gender and occupational stress and concluded that there were no differences in experienced stress between males and females. International studies showed that police officers report varying amounts of work stressors on the basis of rank (Brown & Campbell, 1990; Brown, Cooper & Kirkcaldy, 1996; Kaufmann & Beehr, 1989), race and ethnicity (Violanti & Aron, 1995), and gender (Wexler & Logan, 1983). Cooper & Bramwell (1992) indicated that potential sources of stress varied between different sub-cultures and status groups within the same organisation. Terry & Calan (1997) showed that those higher in the organisational hierarchy experience higher levels of perceived stress.

The nature of police work is acknowledged as highly stressful and particularly hazardous (Selye 1978; Alexander, 1999; Anshel, 2000; Paton & Violanti, 1999). According to Mostert and Joubert (2005), the negative effects of job stress on employees and their work are such that it is necessary to explore the processes involved when job stress is studied.

McCafferty (1992) attributes suicide of police members to stressors at work. Factors that may contribute to distress include authoritarian structure, lack of participation in decision-making, poor inter-personal relationships with supervisors, lack of administrative support, unfair discipline, unfair promotion and the nature of police work. The irregularity of working hours, poor working conditions and the experience of constant fear and trauma contribute to making police members more susceptible to suicide (Maynard, Maynard, Mccubin & Shao, 1980; Rothmann and Strijdom, 2002). Working in shifts, low salaries and the dangers involved in police work seem to be related to stress and suicidal tendencies (Kruger, 1996; Lott, 1995). According to Rothmann and van Rensburg (2002) suicidal behaviour may be considered a domain of psychological disturbance and is associated with potentially severe mental and/or physical health outcomes. Suicidal behaviour varies in severity from ideation through intent and attempt to actual completion.

The productiveness, motivation and health of a police service are regarded as important factors contributing to a country's stability, economic growth and development (Rothmann & Van Rensburg, 2002). Healthy police officers that are engaged in their work are therefore imperative to furthering these goals.

However, police work has been identified as an exceptionally stressful occupation (Alexander, 1999; Anshel, 2000; Paton & Violanti, 1999). Physical assault, the violent death or suicide of an officer who is a close friend, a response to the death of a child, overt violence, work overload, time pressure and inadequate resources are among the frequently occurring stressors that confront police officers (Carlier & Gersons, 1992; Kirkcaldy, Cooper & Ruffalo, 1995).

STATEMENT OF PROBLEM

Four or five stressed-out policemen commit suicide every year. Stress-related ailments have killed more serving policemen in the past three years. Several inspectors and constables have died of heart attacks while on duty. Constables are feeling that they work under great pressure and their job is demanding and uncertain, also, public expectations from the police are high. During festivals timings, constables often work for more than 36 hours at a stretch. This may take a heavy charge on their health. Stress can cause hypertension, joint pains, high blood pressure, diabetes as well as paralytic strokes and heart attacks. They also experience lack of concentration, resulting in their making errors while passing orders or taking important decisions. Besides the routine work, constables often face stressful situations because of harassment from superiors.

OBJECTIVE OF THE STUDY

The following are the objectives of this study:

- The study the socio-demographic factors of the respondents;
- Identify the most stressful job activities of police constables;
- To study the relationship between demographic factors and level of stress among the grade I police constables;

RESEARCH METHODOLOGY

The research design chosen is descriptive as the study reveals the existing facts. Descriptive research is the study which describes the characteristics of a particular individual, or a group. This study is about selected variable of stress. This study is based on the police constables in Tuticorin district. The research concentrated on eight sub divisions comprising 52 police stations and the researcher collected 200 samples from grade I police constables. The researcher used convenience sampling for the study. The researcher prepared structured questionnaires for data collection for this study. The questionnaires included questions on demographic profile and causes of stress. Primary data were collected through the questionnaire directly from the respondents and the secondary data were collected from government records, books, journals and the Internet. The researcher used descriptive analysis, factor analysis and ANVOA for data analysis.

ANALYSIS AND INTERPRETATION

DEMOGRAPHICAL FINDINGS

AGE OF THE RESPONDENTS

The table below shows the classification of police constables based on their age. 65 constables forming 32.5% of the total constables were in ages 20-29 years, 121 constables forming 60.5% of the total constables were in ages 30-39 years.

GENDER OF THE RESPONDENTS

The table below shows the classification of police constables based on their gender. 103 constables forming 51.5 % of the total constables were Male gender and the rest of 97 constables forming 48.5 % of the total constables were female gender.

EDUCATIONAL QUALIFICATION OF THE RESPONDENTS

The table below shows the classification of police constables based on their educational qualification. 32 constables forming 16% of the total constables were having school level education, 148 constables forming 74% of the total constables were having under graduate level education.

RELIGION OF THE RESPONDENTS

The table below shows the classification of police constables based on their religion. 136 constables forming 68 % of the total constables were following Hinduism religion, 48 constables forming 24.7% of the total constables were following Islam religion.

COMMUNITY OF THE RESPONDENTS

The table below shows the classification of police constables based on their community. 100 constables forming 50 % of the total constables were belonging to other castes and 47 constables forming 23.5% of the total constables were belonging to Scheduled castes.

PLACE OF THE RESIDENCE OF THE RESPONDENTS

The table below shows the classification of police constables based on their Place of the residence. 148 constables forming 74% of the total constables were belonging to rural areas.

MARITAL STATUS OF THE RESPONDENTS

The table below shows the classification of police constables based on their marital status. 126 constables forming 63% of the total constables were married, 63 constables forming 31.5% of the total constables were unmarried.

YEARS OF SERVICE OF THE RESPONDENTS

The table below shows the classification of police constables based on their Years of service. 57 constables forming 28.5% of the total constables were having a service of 6 years to 10 years, 96 constables forming 48% of the total constables were having a service of 11 years to 15 years,.

NUMBER OF DEPENDENTS OF THE RESPONDENTS

The table below shows the Number of dependents of the respondents. 119 constables forming 59.5% of the total constables were having two dependent members in their family, 57 constables forming 28.5% of the total constables were having three dependent members in their family.

SALARY RECEIVED BY THE RESPONDENTS

The table below shows the classification of the respondents based on salary received. The above table shows that out of the total 600 police constables of the study, 95 Police constables forming 47.5% were Grade I and had a salary slab of Rs.8000-10000, 97 Police constables forming 48.5% were Grade I and had a salary slab of Rs.10000 -15000,

MEAN OPINION ABOUT THE AMOUNT OF STRESS

The table below shows the mean opinion about the amount of stress they face with regard to some 44 stressful activities in due course of their jobs. As the stress levels were measured from a low stress value of 0 and a high stress value of 9 the mean value lies between 0-9.

The first ranked stressful job activity is *handling large crowd/ mass demonstration* with a mean stress value of 5.9350, the second ranked stressful job activity is *Seeing criminals go free (for example because of lack of evidence, court leniency)* with a mean stress value of 5.8950, and third ranked stressful job activity is *having great deal with media* with a mean stress value of 5.8800.

The last ranked stressful job activity is *Assignment of disagreeable duties* with a mean stress value of 4.1550, the second last ranked stressful job activity is *Frequent interruptions* with a mean stress value of 4.3250, and third last ranked stressful job activity is *Assignment of new or unfamiliar duties* with a mean stress value of 4.6550.

FACTOR ANALYSIS OF OPINION ABOUT THE AMOUNT OF STRESS WITH REGARD TO VARIOUS STRESSFUL ACTIVITIES

The opinion about the 44 job related activities were subjected to factor analysis to ascertain the important job related factors that create stress. As a first step Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were conducted and the results are shown in the table below.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.884
Bartlett's Test of Sphericity	Approx. Chi-Square	3901.508
	df	946
	Sig.	0.000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is .884. This means the sample size is adequate. Bartlett test of Sphericity is a statistical test for the presence of correlations among the variables and it clearly shows that the test static chi-square is significant as it is less than 0.05.

VARIABLES LOADED ON FACTOR 1

Variables	Loading
1. Lack of participation in policy-making decisions	**0.671**
2. Racial conflict	**0.601**
3. Personal insult from customer/consumer/colleague	**0.533**
4. Seeing criminals go free	**0.519**
5. Shift work	**0.495**
6. Noisy work area	**0.485**
7. Delivering a death message or bad news to someone	**0.361**

Seven variables are loaded on factor one. Factor is named as '*stress due to lack of admin policy*'.

VARIABLE LOADED ON FACTOR 2

Variables	Loadings
1. Assignment of disagreeable duties	**0.715**
2. Working overtime	**0.686**
3. Frequent interruptions	**0.584**
4. Frequent changes from boring to demanding activities	**0.538**
5. Lack of opportunity for advancement	**0.462**
6. Too much supervision Stressful Job-Related Events	**0.334**

Six variables are loaded on factor two. Factor is named as '*stress due to doing disagreeable duties*'.

VARIABLE LOADED ON FACTOR 3

Variables	Loadings
1. Assignment of increased responsibility	**0.712**
2. Dealing with crisis situations	**0.531**
3. Inadequate or poor quality equipment	**0.502**
4. Making critical on-the-spot decisions	**0.491**
5. Lack of recognition for good work	**0.465**
6. Insufficient personnel to handle an assignment	**0.440**

Six variables are loaded on factor three. Factor is named as '*stress due to increased responsibility*'.

VARIABLE LOADED ON FACTOR 4

Variables	Loadings
1. Performing tasks not in job description	**0.679**
2. Having to deal with the media	**0.640**
3. Having to go to court	**0.619**
4. Insufficient personal time	**0.507**
5. Attending to incidences of domestic violence	**0.323**

Five variables are loaded on factor four. Factor is named as '*stress due to performing tasks not in job description*'.

VARIABLE LOADED ON FACTOR 5

Variables	Loadings
1. A forced arrest or being physically attacked	**0.714**
2. A fellow officer killed in the line of duty	**0.517**
3. Experiencing negative attitudes toward the organization	**0.510**
4. Having to handle a large crowd/mass demonstration	**0.509**

Four variables are loaded on factor five. Factor is named as '*stress due to being physically attacked*'.

VARIABLE LOADED ON FACTOR 6

Variables	Loadings
1. Excessive paperwork	**0.639**
2. Meeting deadlines	**0.631**
3. Staff shortages	**0.480**
4. Reorganization and transformation within the organization	**0.457**
5. Conflicts with other departments	**0.331**

Five variables are loaded on factor six. Factor is named as '*stress due to excessive paper work*'.

VARIABLE LOADED ON FACTOR 7

Variables	Loadings
1. Competition for advancement	**0.742**
2. Assignment of new or unfamiliar duties	**0.642**
3. Inadequate salary	**0.412**

Three variables are loaded on factor seven. Factor is named as '*stress due to competition for advancement*'.

VARIABLE LOADED ON FACTOR 8

Variables	Loadings
Fellow workers not doing their job	**0.688**
Poor or inadequate supervision	**0.422**

Two variables are loaded on factor eight. Factor is named as '*stress due to fellow workers not doing their work*'.

VARIABLE LOADED ON FACTOR 9

Variables	Loadings
Periods of inactivity	**0.757**
Difficulty getting along with supervisor	**0.737**

Two variables are loaded on factor nine. Factor is named as '*stress due to periods of inactivity*'.

VARIABLE LOADED ON FACTOR 10

Variables	Loadings
Covering work for another employee	**0.724**
Poorly motivated co-workers	**0.383**

Two variables are loaded on factor ten. Factor is named as '*covering work for another employee'.*

VARIABLE LOADED ON FACTOR 11

Variables	Loadings
Killing someone in the line of duty	**0.648**
Inadequate support by supervisor	**-0.398**

Two variables are loaded on factor eleven. Factor is named as '*stress due to killing some one in the line of duty'.*

FINDINGS

DEMOGRAPHIC CHARACTERISTICS OF POLICE CONSTABLES

1. Out of 200 constables 65 constables forming 32.5% of the total constables were in ages 20-29 years, 121 constables forming 60.5% of the total constables were in ages 30-39 years, and 14 constables forming 7% of the total constables were in ages 40-49 years.
2. 103 constables forming 51.5 % of the total constables were Male gender and the rest of 97 constables forming 48.5 % of the total constables were female gender.
3. 32 constables forming 16% of the total constables were having school level education, 148 constables forming 74% of the total constables were having under graduate level education, 18 constables forming 9% of the total constables were having post graduate level education, and the rest of 2 constables forming 1% of the total constables were having professional education.
4. 136 constables forming 68 % of the total constables were following Hinduism religion, 48 constables forming 24.7% of the total constables were following Islam religion, and 16 constables forming 8% of the total constables were following Christianity religion.
5. 100 constables forming 50 % of the total constables were belonging to other castes, 39 constables forming 19.5% of the total constables were belonging to backward castes, 14 constables forming 7% of the total constables were belonging to most backward castes, and 47 constables forming 23.5% of the total constables were belonging to Scheduled castes.
6. 148 constables forming 74% of the total constables were belonging to rural areas, and 52 constables forming 26% of the total constables were belonging to urban areas.
7. 126 constables forming 63% of the total constables were married, 63 constables forming 31.5% of the total constables were unmarried, 9 constables forming 4.5% of the total constables were divorced, and 2 constables forming 1% of the total constables were separated.
8. 37 constables forming 18.5% of the total constables were having a service less than 5 years, 57 constables forming 28.5% of the total constables were having a service of 6 years to 10 years, 96 constables forming 48% of the total constables were having a service of 11 years to 15 years, 10 constables forming 5% of the total constables were having a service of 16 years to 20 years.
9. 21 constables forming 10.5% of the total constables were having one dependent member in their family, 119 constables forming 59.5% of the total constables were having two dependent members in their family, 57 constables forming 28.5% of the total constables were having three dependent members in their family, 2 constables forming 1% of the total constables were having four dependent members in their family, 1 constables forming .5% of the total constables were having six dependent members in their family.
10. The above table shows that out of the total 600 police constables of the study, 95 Police constables forming 47.5% were Grade I and had a salary slab of Rs.8000-10000, 97 Police constables forming 48.5% were Grade I and had a salary slab of Rs.10000 -15000, and the rest of the 8 Police constables forming 25% were Grade I and had a salary slab of above Rs.15000.

JOB RELATED STRESSFUL ACTIVITIES OF POLICE CONSTABLES

1. The first ranked stressful job activity is *handling large crowd/ mass demonstration* with a mean stress value of 5.9350, the second ranked stressful job activity is *Seeing criminals go free (for example because of lack of evidence, court leniency)* with a mean stress value of 5.8950, and third ranked stressful job activity is *having great deal with media* with a mean stress value of 5.8800.
2. The last ranked stressful job activity is *Assignment of disagreeable duties* with a mean stress value of 4.1550, the second last ranked stressful job activity is *Frequent interruptions* with a mean stress value of 4.3250, and third last ranked stressful job activity is *Assignment of new or unfamiliar duties* with a mean stress value of 4.6550.

RESULTS OF ANOVA

The 11 stress factors extracted were as follows

- Stress due to lack of admin policy
- Stress due to doing disagreeable duties
- Stress due to increased responsibility
- Stress due to performing tasks not in job description
- Stress due to being physically attacked
- Stress due to excessive paper work
- Stress due to competition for advancement
- Stress due to fellow workers not doing their work
- Stress due to periods of inactivity
- Covering work for another employee
- Stress due to killing someone in the line of duty

1. It is concluded that the factors "Stress due to lack of admin policy, Stress due to doing disagreeable duties, Stress due to increased responsibility" do vary with the age of the respondents at 5%.
2. It is concluded that the factors "Stress due to periods of inactivity, Stress due to excessive paper work, Stress due to being physically attacked, Stress due to doing disagreeable duties, Stress due to lack of admin policy" do vary with the gender of the respondents at 5%.
3. All factors extracted from Stressful Job Related Events do not vary with the educational qualification of the respondents at 5%.
4. It is concluded that the factors "Stress due to doing disagreeable duties" do vary with the religion of the respondents at 5%.
5. The various factors extracted from Stressful Job Related Events do not vary with the community of the respondents at 5%.
6. It is concluded that the factors "Stress due to periods of inactivity" do vary with the place of residence of the respondents at 5%.
7. It is concluded that the factors "Stress due to increased responsibility" do vary with the marital status of the respondents at 5%.
8. It is concluded that the factors "Stress due to killing someone in the line of duty, Stress due to periods of inactivity, Stress due to fellow workers not doing their work, Stress due to competition for advancement, Stress due to being physically attacked, Stress due to increased responsibility and Stress due to doing disagreeable duties" do vary with the service of the respondents at 5%.
9. It is concluded that the factors "Covering work for another employee, Stress due to periods of inactivity, Stress due to being physically attacked, Stress due to doing disagreeable duties, Stress due to lack of admin policy " do vary with the Income of the respondents at 5%.

DISCUSSIONS

This study set out to examine following hypothesis. The first was various factor extracted from Stressful Job Related Events do not vary with the demographic factors of the respondents. Findings from this study shows that grade 1 constable's stressful job related events like Stress due to doing disagreeable duties, Stress due to increased responsibility and Stress due to lack of admin policy do vary with demographic factors like age, gender, religion, service of the years, marital status, income and the place of residence. This present study also suggested that perception about the work and practice must be changed by providing good work climate and developed departmental policy that will reduce the stress level. And police department must offer counseling for the police constables and giving chance to them for future scope. The researcher suggested that during the recruitment personality dimensions also examined. Decreasing working hours, role overload and work load, flexi working time will lead to maintain their personal time. Responsibility of the police constables must considered based on their capacity, because Tamil Nadu has a Police population ratio of 1: 632, Police departments, with their tense organizational structures, offer both opportunities and challenges for stress prevention programs. Although it is difficult to evaluate the effectiveness of intervention programs, we believe that these programs may be effective if started early during police training and delivered regularly throughout a police's career to keep the rate of stress among police as low as possible.

CONCLUSION

The study explained Stress due to doing disagreeable duties, Stress due to increased responsibility and Stress due to lack of admin policy are the primary causes of stress among police constables. Further, it empirically investigated that age, gender, religion, service of the years, marital status, income and the place of residence in the same field has significant association with stress level among police constables. The study suggests to regularly organizing the training programs, counseling and medical checkups for stress management of police constables.

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A STUDY ON THE IMPACT OF SPIRITUALITY ON ORGANISATIONAL PERFORMANCE WITH SPECIAL REFERENCE TO ORGANIISATIONS IN SALEM CITY

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ABSTRACT

In 21th century, matters of God in organization, ethics and employee's spirituality in organizations are very important issues in the area of management and organizations. It is obvious spirituality in organizations has some points for organizations. Years ago people were wanted to put their spiritual existence behind the door before entering the workplace, but nowadays, separating work life from spiritual life reduces employees' morale and these two cannot be separate and people like being with their whole (physical, mental and spiritual) at their workplace. That is why; nowadays spirituality is being identified as an element in organization by researches. The available evidence from research shows that the employee's perception of spiritual elements increases organizational performance. This research aims at examining various spiritual beliefs and faiths of employees at work place. Considering this work as a basic research, this study has followed descriptive research design and adopted random sampling method to conduct personal interviews with the employees with a structured questionnaire prepared by the researcher. Various statistical tools like Chi-square, ANOVA, Frequency Analysis and Bivariate Correlation are applied to find out much more sensational results of the study.

KEYWORDS

Meaningful job profession – Organizational performance - Workplace Spirituality.

INTORODUCTION & REVIEW OF LITERATURE

Spirituality can refer to an ultimate or an alleged immaterial reality; an inner path enabling a person to discover the essence of his/her being; or the "deepest values and meanings by which people live." Spiritual practices, including meditation, prayer and contemplation, are intended to develop an individual's inner life; spiritual experience includes that of connectedness with a larger reality, yielding a more comprehensive self; with other individuals or the human community; with nature or the cosmos; or with the divine realm. Spirituality is often experienced as a source of inspiration or orientation in life. It can encompass belief in immaterial realities or experiences of the immanent or transcendent nature of the world.

Traditionally, many religions have regarded spirituality as an integral aspect of religious experience. Among other factors, declining membership of organized religions and the growth of secularism in the western world have given rise to a broader view of spirituality.

The term "spiritual" is now frequently used in contexts in which the term "religious" was formerly employed; compare James' 1902 lectures on the "Varieties of Religious Experience".

Secular spirituality emphasizes humanistic ideas on qualities such as love, compassion, patience, tolerance, forgiveness, contentment, responsibility, harmony, and a concern for others, aspects of life and human experience which go beyond a purely materialist view of the world, without necessarily accepting belief in a supernatural reality or divine being.

Spiritual practices such as mindfulness and meditation can be experienced as beneficial or even necessary for human fulfillment without any supernatural interpretation or explanation. Spirituality in this context may be a matter of nurturing thoughts, emotions, words and actions that are in harmony with a belief that everything in the universe is mutually dependent; this stance has much in common with some versions of Buddhist spirituality.

A modern definition is as follows: "Spirituality exists wherever we struggle with the issues of how our lives fit into the greater scheme of things. This is true when our questions never give way to specific answers or give rise to specific practices such as prayer or meditation.

We encounter spiritual issues every time we wonder where the universe comes from, why we are here, or what happens when we die. We also become spiritual when we become moved by values such as beauty, love, or creativity that seem to reveal a meaning or power beyond our visible world.

An idea or practice is "spiritual" when it reveals our personal desire to establish a felt-relationship with the deepest meanings or powers governing life. The psychology of religion uses a variety of metrics to measure spirituality.

In the late 19th century a Pakistani scholar Khwaja Shamsuddin Azeemi wrote of and taught about the science of Islamic spirituality, of which the best known form remains the Sufi tradition (famous through Rumi and Hafiz) in which a spiritual master or pir transmits spiritual discipline to students.

Building on both the Western esoteric tradition and theosophy, Rudolf Steiner and others in the anthroposophy tradition have attempted to apply systematic methodology to the study of spiritual phenomena, building upon ontological and epistemological questions that arose out of transcendental philosophy. This enterprise does not attempt to redefine natural science, but to explore inner experience – especially our thinking – with the same rigor that we apply to outer (sensory) experience.

OBJECTIVES OF THE STUDY

- To examine various spiritual beliefs and faiths of employees at work place.
- To analyze the applications of spirituality in workplace.
- To cite out the individual changes that happen within an employee via practicing spirituality at workplace.
- To understand the inter-relationship between spirituality and organizational results.
- To evaluate the values that spirituality gives to an employee and to an organization.

SCOPE OF THE STUDY

In the Current Scenario, Business has become modernized and the people have no time to do their religious duties. So, they prefer practicing the concept of spirituality in the workplace.

By doing so, every individual employee undergoes a series of internal changes that gets converted into a positive energy at the Organization. This benefits the Organization also.

METHODOLOGY OF THE STUDY

RESEARCH DESIGN

Considering this work as a basic research, this study has followed **Descriptive Research Design.**

METHODS OF DATA COLLECTION

- The researcher had used a **STRUCTURED QUESTIONNAIRE** for obtaining the primary data for analysis.
- A questionnaire is a form prepared and distributed to secure responses to certain questions.
- It is a device for securing answers to questions by using a form, which the respondent fills by himselfherself.
- It is a systematic compilation of questions that are submitted to a sample of population from which information is desired.

SAMPLING METHOD

- **Random sampling** method is used in the research.
- The sample drawn will be typical of the whole, as it will represent all the different segments.
- The respondents are chosen purely on random basis.
- The researcher met the respondents individually at their work place and collected the primary data.

SOURCES OF DATA

- Primary data was collected by personal interviews with executives and workers, and the questionnaires prepared by the researcher.
- Secondary data were collected from books, journals and previous research studies.

LIMITATIONS OF THE STUDY

- Since the research was based only on the Salem city, the same results may not be generalized over the whole universe.
- As the topic is very vast and so does its constraints that make the report tough one to cover all area.
- Collection of data from the employees could be done only when they are in their workplace.

ANALYSIS & DISCUSSION

TABLE 1: SOCIO DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Socio Demographic Profile	Categories	No. of Respondents	Percentage
Gender	Male	96	64
	Female	54	36
Age	25 years and below	27	18
	26 - 35 years	32	22
	36 - 45 years	38	25
	Above 45 years	53	35
Marital Status	Married	119	80
	Single	29	19
	Divorced	2	1
Qualification	Diploma	14	9
	Under Graduate	93	62
	Post Graduate	40	27
	Doctorate	3	2
Designation	Entry Level	67	45
	Executive Level	45	30
	Manager Level	26	17
	Senior Level	12	8
Work Experience	2 years and below	67	45
	2 – 5 years	45	30
	5 – 10 years	26	17
	More than 10 years	12	8
Religious Faith	Hinduism	112	75
	Christianity	26	17
	Islamism	10	7
	Others	2	1

Source: Primary data

Inference

When the survey was conducted from the respondents out of which 64% were Male and only 36% were female. Most of the respondents were from the age above 45 and the least respondents were from the age 25 years and below. The respondents from whom the data was collected 80% were married, 19% were single and 1% was divorced. The respondents who were selected out of which 62% were under graduates and others were diploma, post graduates and the least among all with 2 % were doctorates.

The designation levels of the respondents were different out of which 45% were of entry level and the least respondents were from the senior level with only 8 %. The work experience of the respondents who respondent towards the survey out of which 45% had an experience for 2 years and below and the least respondents were with the experience for more than 10 years with only 8% and Among the respondents, most of the respondents were Hindu with 75 % and the least no. of respondents was from other religion with 1 % apart from Christianity and Islamism.

TABLE 2

FACTORS	HIGHLY IMPORTANT	IMPORTANT	NEUTRAL	UNIMPORTANT	HIGHLY UNIMPORTANT	TOTAL
ROLE OF SPIRITUALITY IN PERSONAL LIFE	19 (13%)	91 (61%)	26 (17%)	10 (6%)	4 (3%)	150 (100%)
ROLE OF SPIRITUALITY IN WORK LIFE	42 (28%)	68 (45%)	17 (11%)	21 (14%)	2 (1%)	150 (100%)

Source: Primary data

Inference

From all the respondents 61% of them said that spirituality plays an important role in their Personal life and for 45% of them in their work life. In both the cases, very few of them cite out that spirituality is unimportant for their entire life.

TABLE 3

SPIRITUAL REMINDERS	FREQUENCY	PERCENTAGE
ART/PICTURES	63	42%
RELIGIOUS JEWELRY	9	6%
COMPUTER SCREENSAVER	62	42%
SPIRITUAL BOOKS	14	9%
OTHERS	2	1%
TOTAL	150	100%

Source: Primary data

Inference

Among the respondents 42 % of them thought that the spirituality can be depicted or reminded through art/pictures and many others view were through jewelry, computer screen saver, books and only 1 % view was it can be reminded through other ways.

TABLE 4

STATEMENTS	YES	NO	TOTAL
I PRAY / MEDITATE IN YOUR WORKPLACE	126 (84%)	24 (16%)	150 (100%)
I USED TO DISCUSS SPIRITUAL ISSUES WITH YOUR CO-WORKERS	140 (93%)	10 (7%)	150 (100%)
RELIGIOUS MUSIC INSPIRES / CALMS ME WHEN I AM AT JOB STRESS	90 (60%)	60 (40%)	150 (100%)

Source: Primary data

Inference

From the above table, we infer that 84 % of the respondents said that they pray / meditate at their work place and 16% disagreed with the same. 93% of the employees agree that they discuss spiritual issues at their work place while only 7% prefer not to do so. It can also be inferred that for 60% of the employees are inspired by the religious music while 40% of the employees are not inspired by it at the workplace.

TABLE 5

REASON	FREQUENCY	PERCENTAGE
TO BE ETHICAL	21	14%
TO ACHIEVE INTEGRITY	10	7%
TO PRACTICE ACTIVE LISTENING	12	8%
TO GET A POSITIVE ENERGY	74	49%
TO BE FAITHFUL TO WORK	33	22%
TOTAL	150	100%

Source: Primary data

Inference

From the above table we infer that 49% of the respondents feel that spirituality can bring a positive energy to the job while 7 % of them felt that it can help them achieve integrity.

TABLE 6

REASON	FREQUENCY	PERCENTAGE
IN SEARCHING OF TRUE NON VIOLENCE	58	39%
IN BEING FAITHFUL TO THE CONSCIENCE	23	15%
IN LIVING A PEACEFUL LIFE	31	21%
IN MAKING ETHICAL DECISIONS	22	15%
IN EMPHASIZING INTEGRITY	16	11%
TOTAL	150	100%

Source: Primary data

Inference

From the above table we infer that 39% of respondents are in search of true non violence while 11% are emphasizing integrity.

TABLE 7

FACTORS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	TOTAL
SPIRITUALITY HELPS IN MAINTAINING WORK LIFE BALANCE	49 (33%)	38 (25%)	23 (15%)	24 (16%)	16 (11%)	150 (100%)
WORKLIFE SPIRITUALITY INCREASES WORK ENGAGEMENT	53 (35)%	34 (23%)	21 (14%)	28 (19%)	14 (9%)	150 (100%)
SPIRITUAL INTERCONNECTIONS WITH JOB LEADS TO SELF ACTUALIZATION	64 (43%)	32 (21%)	12 (8%)	18 (12%)	24 (16%)	150 (100%)
WORKLIFE SPIRITUALITY IS ESSENTIAL FOR TAKING ETHICAL DECISIONS	62 (41%)	35 (23%)	24 (16%)	18 (12%)	11 (7%)	150 (100%)
SPIRITUALITY IN WORKPLACE HELPS FIRMS IN RETENTION OF EMPLOYEES	54 (36%)	43 (29%)	23 (15%)	24 (16%)	6 (4%)	150 (100%)
WORKLIFE SPIRITUALITY INCREASES FLEXIBILTY AND SELF RESPECT	44 (29%)	39 (26%)	36 (24%)	20 (13%)	11 (7%)	150 (100%)

Source: Primary data

Inference

From the above chart, we infer that 33% of the employees strongly agree that spirituality helps in maintaining a perfect work-life whereas 11% of the employees do not agree the concept. 35% of the employees agree that spirituality increases the work engagement and only 9% disagree with the saying.

The maximum of 43% of employees strongly agree that spiritual interconnections with job increase self actualization whereas 16% of them strongly disagree with the concept. 41% of the employees strongly agree that spirituality enables them to take their decisions ethically whereas 7% of the employees strongly deny the same.

It can also be inferred that maximum no. of the employees accept that supporting spirituality in workplace helps the firm to retain its employees while only 4% of the employees strongly disagree with the query. 29% of the employees strongly accept that spiritual work life increases flexibility and self respect; whereas only 7% of the employees strongly disagree.

TABLE 8

ORGANIZATIONAL PERFORMANCE	FREQUENCY	PERCENTAGE
INCREASE IN SALES	16	11%
INCREASE IN PRODUCTIVITY	62	41%
INCREASE IN JOB SATISFACTION	43	29%
INCREASE IN CREATIVITY	20	13%
OTHERS	9	6%
TOTAL	150	100%

Source: Primary data

Inference

From the above table, we infer that 41% of the respondents prefer that increase in productivity can be considered as an index for measuring organizational performance and only 13 % of the employees prefer increase in creativity to be the index.

TABLE 9

ORGANIZATIONAL PERFORMANCE	FREQUENCY	PERCENTAGE
INCREASE IN SALES	16	11%
INCREASE IN PRODUCTIVITY	62	41%
INCREASE IN JOB SATISFACTION	43	29%
INCREASE IN CREATIVITY	20	13%
OTHERS	9	6%
TOTAL	150	100%

Source: Primary data

Inference

From the above table, we infer that 41% of the respondents prefer that increase in productivity can be considered as an index for measuring organizational performance and only 13 % of the employees prefer increase in creativity to be the index.

TABLE 10

REASONS	FREQUENCY	PERCENTAGE
Can realize one's full potential as a person	30	20%
Can give good quality service to others	34	23%
Can bring whole self to work	26	17%
Can do one's job in a satisfactory way	40	27%
Can drive the career towards life objective	20	13%
Total	150	100%

Source: Primary data

Inference

From the above table, it is inferred that Maximum 23% of the employees cited spirituality enables them to do their job in a satisfactory way whereas Minimum 13% of the employees feel that spirituality can drive their career towards life objective.

TABLE 11

REASONS	FREQUENCY	PERCENTAGE
Emphasizes sustainability	40	28%
Values contribution	29	19%
Cultivates inclusion	26	17%
Develops principles	29	19%
Promotes Vocation	26	17%
Total	150	100%

Source: Primary data

Inference

From the above table 28% of the respondents believe that work-life spirituality emphasizes sustainability and only 17% of them believe that it promotes vocation and cultivates inclusion.

FINDINGS

1. There is a significant relationship between the age of employees and their habitual manner of praying in the work place. (Chi – Square)
2. There is no significant relationship between the work experience of the employees and the application of spiritual practices to increase self work engagement. (ANOVA)
3. A spiritual practice at an organization highly increases flexibility and self respect among employees. (Bivariate Correlation)
4. Organizational performance gets boosted by practicing spirituality in work place. (Frequency Analysis).

SUGGESTIONS

Organizations can encourage or support spiritual practices at workplace to retain the employees. Worship halls can be separately built. Meditation exercises can be motivated. Related programmes can be organized.

CONCLUSION

The way 'spirituality' is often used suggests that we exist solely as a collection of individuals, not as members of a religious community, and that religious life is merely a private journey. It is the religious expression of the ideology of free-market economics and of the radical 'disencumbered' individualism that idolized the choice-making individual as the prime reality in the world. The spirituality debate extends beyond business schools and cutting-edge corporate managers. Complications in clarifying the meaning of spirituality at work have arisen more recently with the blurring of religious beliefs and political leanings worldwide. Thus, every organization must consider and also differentiate religion and spirituality to encourage integrity and to achieve increased performance.

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A COMPARATIVE STUDY OF SELF- EFFICACY AND SUBJECTIVE WELL- BEING AMONG EMPLOYED WOMEN AND UNEMPLOYED WOMEN

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ABSTRACT

This study examines the relationship of self-efficacy with subjective well-being among employed women working in different organizational set up. The sample consists of 325 employed women working in five different organizational sectors. They were administered Personal Efficacy scale, Affectometer, Satisfaction with Life scale and General happiness scale. The study used statistical measure of one way ANOVA and Pearson's product moment correlation. The findings revealed that there is significant difference in self efficacy and Subjective well- being among women working in different sectors. The findings also revealed that there is a significant relationship between self-efficacy and Subjective well-being among unemployed women. These findings have important practical implications in an organizational set up.

KEYWORDS

Employed Women, Unemployed Women, Self Efficacy, Subjective Well-being.

INTRODUCTION

The concept of self-efficacy has received increasing empirical attention in the Organizational Behaviour literature. Variable self efficacy has been studied in more than 10,000 investigations in the past twenty-five years. In organizational research, the most focal variable to which self efficacy has been related to is work related performance. It is likely that individuals bring with them to the work situation certain characteristics that are related to self-efficacy (Judge, 2007). Self-efficacy can have impact on everything from psychological states to behaviour to motivation. An individual's self-efficacy plays a major role in how goals, tasks and challenges are approached. According to Albert Bandura (1995) self-efficacy is the belief in one's capabilities to organize and to execute the course of action required to manage prospective situations. In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura (1994) described these beliefs as determinants of how people think, behave and feel. It is concerned not with the skills one has, but with judgments of what one can do with whatever skills one possesses. Self-efficacy refers to an individual's conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources and courses of action needed to successfully execute specific tasks within a given context (Luthans, 2005). Bandura (1997) suggested that those with high self-efficacy expectancies are healthier, more effective and generally more successful than those with low self-efficacy expectancies. People who think they can perform well on a task do better than those who think they will fail (Marilyn & Terence, 1992).

Most of us would hope first for a long life, one that does not end prematurely. Most people would hope for a happy and satisfying life in which good things and pleasant experiences outnumber bad ones. Defining good life in terms of personal happiness is the general thrust of the hedonic view of well- being. This view of well-being is expressed in terms of subjective well- being (Baumgartner & Crothers, 2009).

Some researchers are of the idea that what comprises a happy and good life depends on the individual's own mental or cognitive framework and perception. From this perspective, experience of happiness and satisfaction in one's life is a subjective phenomenon and it depends on an individual's subjective evaluation of one's life. This subjective perception of happiness and life satisfaction has been referred to as Subjective Well-being (SWB). Sell and Nagpal (1992) observed that all indicators of psychological well-being have both objective and subjective components. The objective components relate to concerns that are generally known by the term 'standard of living.' However, individual satisfaction or happiness with objective reality depends not only on the access to goods and services that are available to the community but also on his expectations and perceived reality. It is the subjective component which links the concept of life to subjective well being. From this perspective, subjective well-being is considered to be a function of the degree of congruence between individual's wishes, needs and his environmental demands and opportunities. The component of subjective well- being has three distinct features. First it is subjective. According to Campbell (1976), it resides within the experience of the individual. Secondly, it includes positive measures. It is not just the absence of negative factors. Thirdly, subjective well-being measures typically include a global assessment of all aspects of a person's life. Although effect of satisfaction within a certain domain may be assessed, the emphasis is usually placed on an integrated judgment of the person's life. Diener, Euncook and Shigehiro (1997) define subjective well-being as "how people evaluate their lives". SWB is "a judgement, an evaluation and an appraisal." (Argyle & Crossland, 1997: Diener, 2000).

SWB represents people's evaluation of their lives and includes happiness, pleasant emotions, life satisfaction and a relative absence of unpleasant moods and emotions (Diener & Diener 2000). Happiness is a state of mind or feeling such as contentment, satisfaction, pleasure or joy. A variety of philosophical, religious, psychological and biological approaches have been taken to defining happiness and identifying its sources. Positive affect is a summary term for pleasant emotions such as laughter and love. Life satisfaction is a subjective assessment of the quality of one's life and has conceptualized as a key indicator of well being. It is a cognitively oriented subjective judgement of one's current life situation in relation to one's own expectations. Satisfaction with one's life implies contentment with or acceptance of one's life circumstances or the fulfilment of one's wants and needs for one's life as a whole (Jan & Masood, 2007).

A widely accepted view about subjective well being is that it consists of three primary components: prevalence of positive affect, relative absence of negative affect and life satisfaction (Andrews & Withey, 1976; Diener, 1984). These components are both cognitive and affective in nature. SWB is structured such that these three components form a global factor of interrelated variables. Each of these faces of SWB can in turn be broken into sub-divisions. Global satisfaction can be divided into satisfaction with various domains of life such as recreation, love, marriage, friendship and so forth. Pleasant affect can be divided into specific emotions such as joy, affection and pride. Finally unpleasant affect can be separated into specific emotions and moods such as shame, guilt, sadness, anger and anxiety. Sahoo and Bidyadhar (1998) stated that at least four dominant dimensions influence the way people evaluate their own subjective well-being: 'evaluation of positive affective experience', 'evaluation of negative affective experience', 'feeling of personal competence on handling negative experience' and 'feeling of personal competence in driving positive experience'. However, subjective well-being can be assessed at the most global level, or at progressively narrower level depending on one's purpose.

DETERMINANTS OF SWB

People experience subjective well-being when they feel many pleasant and few unpleasant emotions, when they are engaged in interesting activities, when they experience many pleasures and few pains and when they are satisfied with their lives. People who are successful at attaining frequent positive affect will be happy (Diener et al 1989). A number of demographic variables such as income (Diener & Oshi 2000), age (Diener & Suh 1997), marriage (Diener et.al 1999) and religion (Myers & Diener 1995) influence the subjective well- being. A strong sense of self efficacy enhances SWB in many ways. High level of self efficacy contributes to high levels of engagement and life satisfaction (Levi 1987). Gender and Religion also influence SWB (Singh & Udainia 1999). Culture influences SWB in two ways. First, culture has direct effects on SWB. People living in individualistic, rich and democratic cultures have higher levels of SWB than do those living in collectivistic poor and totalitarian culture (Diener & Suh, 1999; Veenhoven, 1993). Second, culture moderates the relation between hedonic balance and

life satisfaction (Suh et.al.1998). Personality research on SWB suggests that neuroticism and extraversion influence life satisfaction indirectly through their influence on hedonic balance (Lucas, Diener & Suh, 1996). Clearly, interventions to increase subjective well- being are important not only because it feels good to be happy but also because happy people tend to have more positive work behaviour and exhibit other desirable characteristics.

EMPLOYED WOMEN/WORKING WOMEN

Employment is viewed by policy makers as both a human right and as a means of changing the marginalized status of people. "Employed woman is a woman who is gainfully employed often specifically as distinct from a housewife-a woman who specifically works for wages in organized sectors" (http://www.your dictionary.com/workingwoman). Working woman is a woman who has a job or a woman who is in job-a woman who is employed (hired, job holding, retained, working). A woman involved in activity or work (busy, engaged, and occupied) is an employed woman. A woman who works and labours is also an employed woman. Women employed means having women services engaged for or having a job especially one that pays wages or salary. Employed woman is having woman services engaged for or utilized. Women employees normally receive holidays and pay. A Woman employee while she is employed, for the period of such employment is protected by 'Women and Women rights.'

The present study uses the terms Employed women, Working women interchangeably.

Women entered the labour force in the organized sector in the late nineteenth century (Reddy 1985). Women constitute a growing proportion of labour force in India. Women employment has been investigated as either beneficial (role enhancement hypothesis) or detrimental (role strain hypothesis) to women's psychological well-being. Due to longer life span of women and the tendency of men to marry younger women it is likely that women would encounter retirement and widowhood within a relatively short span of time, which may affect their psychological and physical well- being. This effect may be mediated by the over-absorption of one's time and resources within a particular identity role (Elgar, Karen, Chester Andra, 2007).

In this period of economic liberalization and globalization, the quality of women's employment will depend upon several factors. The foremost among these are access to education and opportunities for skill development. Employed women, though encounter role conflict, have learnt to become firm and assertive. They know the pressures of balancing work and family, the difficulties or making ends meet and the challenges of getting ahead. Employment, in addition to their roles and changes in their life experiences, does lead to increased perceptions of control among women (Thakar & Mishra, 1999). Gainful employment is likely to bring a change in the quality of life and is characterized by the following eight benefits: 1. Varieties in duties performed. 2. A safe working environment. 3. Income for the family and oneself. 4. A purpose derived from providing a product or service. 5. Happiness and satisfaction. 6. Positive engagement and involvement. 7. A sense of performing well and meeting goals. 8. The companionship of/and loyalty to co-workers, bosses and organizations. However, in general, women employment may be associated with better psychological functioning.

Women's access to employment is to a significant extent related to their education and skill upgradation. Increase in women's labour force participation rates, over the past few decades; have led to increased interest in the effect of employment on women's work efficiency and their well- being. The present study is an attempt to nurture this interest.

METHODOLOGY

The aim of the present study is to understand the relationship between self efficacy and Subjective well-being among employed women across different organizations. This investigation is a gender- based study. The research adopts constructs from different disciplines like Positive Psychology, Organizational Psychology, Career Psychology and Women Psychology. The study was carried out to test the hypotheses A) that there will be a significant difference in self efficacy and in subjective well being among employed women. B) There will be a significant relationship between aspects of subjective well- being and self efficacy among employed women.

SAMPLE

The sample consisted of 325 employed women who comprised the subjects of this study. These 325 employed women were working in five different organizational sectors of Bangalore city - Industries (N=64), Hospitals (N=68), Banks (N=61), Educational institutions (N=71) and in Call Centres / BPO (N=61). Age range of the sample was 25-52 years. The mean age and SD of the sample is 34.06 and 8.06 respectively.

Distribution of the sample selected sector-wise and age-wise is given in the table.

TOOLS

The following tools were used in the study:

1. Self Efficacy Scale by Singh and Kumar (1997)

The questionnaire on personal efficacy was developed by Singh and Kumar in the year 1997. (Appendix) The questionnaire consists of 28 items followed by a five point rating scale. There are two types of items in this scale positively worded items and negatively worded items. Negatively worded items are reverse scored. Positively worded items are 2, 3, 4, 5, 7, 11, 12, 13, 14, 15, 16, 17, 18, 21, 24, 26, and 28. Negatively worded items are 1, 6, 8, 9, 10, 19, 20, 22, 23, 25 and 27. The total of both positive and negative worded items is the score of the subject on self efficacy scale.

2. Affectometer

This scale was developed by Kammann and Flett (1983) to measure quality of life as experienced on an affective level. This inventory consists of 20 items which measure the positive and negative affect in relation to different life aspects.

3. Satisfaction with Life Scale

This scale developed by Diener et.al (1985) is a measure of cognitive evaluation of one's well-being. The scale consists of 5 items which measure person's well - being according to his/her own criteria. This is a seven-point scale measured on a cognitive judgement level.

4. General Happiness scale by Lyubomirsky and Lepper (1999):

This scale measures the subjective happiness. It is 4-item scale out of which two items ask respondents to characterize themselves using both absolute ratings and ratings relative to peers, while other two items offer brief description of happy and unhappy individuals, ask respondents as to how they characterized themselves.

RESULTS & DISCUSSION

TABLE 1: MEAN SELF EFFICACY SCORES OF EMPLOYEES WORKING IN DIFFERENT SECTORS AND RESULTS OF ONE-WAY ANOVA.

Sectors	Mean	S.D	F value	P value
Teachers	105.97	10.04	82.063	
Banking employees	114.20	16.16		
Health organizations	85.60	12.32		
Industry	82.98	12.12		0.000
Call centers/BPOs	120.61	21.87		

Employees working in different sectors differed significantly in their mean scores on self efficacy (F=82.063; P= .000). Further, Scheffe's post hoc test revealed that employees working in industry and health sectors had least self efficacy (means 82.98 and 85.60 respectively and employees working in CC/BPOs sector had higher scores (mean score 120.61) and others in between (teachers 105.97; banking 114.20).

TABLE 2: MEAN TOTAL SWB SCORES OF EMPLOYEES WORKING IN DIFFERENT SECTORS AND RESULTS OF ONE-WAY ANOVA

Professions	Mean	S.D	F value	P value
Teachers	103.75	24.14	23.022	.000
Banking employees	107.30	11.72		
Health organizations	102.91	12.56		
Industry	92.89	13.90		
Call centers/BPOs	120.44	15.19		

As far as total subjective well-being scores are considered, women working in CC/BPO sector had highest SWB scores (mean 120.44) followed by banking employees (mean 107.29) teachers (mean 103.75), health organizations (mean 102.91) and employees working in industries had least SWB scores (mean 92.89). Further, Scheffe's post hoc test revealed that the mean SWB scores of employees working in health organizations, teachers, and banking were statistically same, employees in industrial sector had least SWB and employees in CC/BPO had highest SWB scores.

TABLE 3: CORRELATION COEFFICIENTS BETWEEN DIMENSIONS OF SWB AND SELF EFFICACY SCORES FOR THE ENTIRE SAMPLE

Variable 1 (Aspects of SWB)	Variable 2	Correlation coefficient	Significance
Life satisfaction	Self efficacy	.291	.000
Happiness	Self efficacy	.450	.000
Positive affect	Self efficacy	.428	.000
Negative affect	Self efficacy	.017	.761

Between various aspects of SWB and self efficacy, highly significant correlations were observed, where all the obtained correlations were found to be significant at .000 level except for negative affect. Dispositional happiness as measured by Lumomirsky's scale and positive affect correlated highly than life satisfaction with self efficacy. In other words, negative affect and self efficacy were independent of each other and self efficacy has a significant relation with positive affect state.

The hypotheses that there will be a significant difference in self efficacy are accepted. Analysis of table 1 revealed that employees working in different sectors differ significantly in their mean scores on self efficacy. Further analysis revealed that employees working in industry had least self efficacy (mean score=82.98) and employees in CC/BPO sectors had highest scores (mean score=120.61). Women employees in industries are involved in risky and highly stress prone jobs. This may lead to lowering their self efficacy. It may be speculated that the variability of call centre work and job satisfaction arising from interaction with customers may result in increased self efficacy. The attractive perks and available infrastructure facilities in CC/BPOs may help to boost self efficacy of its employees. The employees in CC/BPOs will have high cognitive skills and aptitudes even before the entry level. Further, this has to be maintained throughout due to the fear of job threat.Susan (1993) explored a study on ninety-six women in non traditional occupations and hundred women in traditional occupations. These women completed self efficacy measure. The results showed that employed women do have higher self efficacy for working with people than with things. Among the difference between the two groups, women in traditional occupations scored higher on self efficacy in comparison with women in non traditional occupations. This finding partially confirms the results of the present study.

A study by Zeldin and Pajarel (2000) explored the personal stories of women who selected and continued to excel in career in areas of Mathematics, Science and technology to better understand the ways in which their self efficacy beliefs influence their academic and career choices. Analysis of fifteen narratives revealed that verbal persuasion and vicarious experiences were critical sources of women's self efficacy beliefs. These findings also suggest that the perceived importance of these sources of self efficacy beliefs is stronger for women in male oriented domains than in traditional settings.

The hypothesis that there will be significant difference in subjective well-being is accepted since women differed significantly in terms of well- being scores. One-Way ANOVA revealed that women employees working in different sectors differ significantly in their mean scores on subjective well being. Analysis also revealed that on SWB employees in Call centers/BPOs scored highest (mean score= 120.44) and employees working in industry scored least (mean score=92.89). This finding can be explained in the light of the nature of activities associated with the job settings. Teachers derive intrinsic satisfaction in their noble profession and employees in call centres/BPOs are happy due to the attractive perks and facilities they get in their settings. Call Centre/BPO employees get quick promotions with multiple increments. Frenkel et.al (1998) points to a greater diversity in call centre work revealing environments where jobs provide challenge and where the skills of the workers are valued. Employees in industry work for longer duration (8-12 hours) with heavy work load and role demands resulting in least satisfaction.

The findings of the present investigation are in consistence with the study by Sahu and Mohapatra (2009). The purpose of their study was to examine the role of professional settings on PWB. Subjects were chosen from five different professions: executives, teachers, administrators, doctors and engineers. The dependent variables in the study were overall satisfaction, satisfaction with general area of life functioning, positive affect experience and negative affect experience. All these variables were measured using Life Orientation Questionnaire. Findings indicated that doctors and teachers experience maximum happiness whereas administrators experience the least. Engineers and executives were placed in the intermediate positions. The findings of the study were explained in the light of professional specific role demands and expectations.

Occupational setting may be considered as a 'mini-culture'. Each occupation has its own norms, expectations and corresponding value systems. Accordingly, the happiness and satisfaction in different occupational sectors may be expressed differently. It is suggested that different professional groups undergo different forms of work socialization. Their work settings, reward systems, colleagues and higher authorities place different kinds of demands on their response systems. For instance, the nature of experience encountered by teachers is qualitatively different from the experience faced by administrators. Teachers get too many holidays with salary. On the other hand employees in industries get limited holidays and also have the disadvantage of economic affluence and power positions. Such possibilities of difference in experience may induce varied type of cognitive and affective states in employees working in different sectors. Accordingly, the comparison of groups with respect to satisfaction and happiness in several domains of life may result in significant difference.

The hypothesis that there is a significant relationship between aspects of Subjective Well- Being and self efficacy is accepted. Analysis (table no 3) reveals that there is a significant relationship between aspects of subjective well-being and self efficacy except for negative affect (r=0.291; P=0.000, r=0.450; P=0.000, r=0.428; P=0.000). Negative affect and self efficacy were independent of each other.

A recent study (Yuchua & Schanggui 2004) examined the characteristics of general self efficacy and subjective well-being and their relation in college students of low socio-economic status in China. Individuals with stronger general self efficacy reported higher levels of SWB. General self efficacy was positively related to subjective well being

IMPLICATIONS

The study contains several policy implications. The results of the study have implication in organizational setting. The fact that self efficacy is related to subjective well-being, demands that organizations should begin to develop programmes to foster self efficacy among employed women. Management consultants, counsellors and psychologists should also develop self efficacy programmes and use them to enhance SWB of employees. This may be incorporated as a part of the organizational training programme. The study also promotes awareness among working women to develop and utilize their full potential as resource for organizational development. The findings of the study may help in developing appropriate personnel policies for women employees. Thus the findings may have numerical implications for research and practice in organizational setup.

In terms of practical implications, the findings of the study suggest that training programmes aimed at changing employees' efficacy beliefs should be conducted which in turn will enhance their subjective well-being and performance at the work place. Meanwhile organization should focus on both employees' self efficacy and subjective well being in order to achieve productive and healthy work lives in the long term.

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NETWORK SECURITY THREATS AND SOLUTIONS IN A VIRTUAL MARKETPLACE

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ABSTRACT

Network security problems are assorted and can variously affect the assets in a Virtual Marketplace. The solution to these problems has to be based on both technology and legislation. In this paper, in this paper we focus on those security threats with partial or full technological solution. We look at some of the new technologies that can change or have already changed the level of security in the global network, and some prospects for the future. This paper discusses our view of the assets that require protection in a Virtual Marketplace, the potential sources of threat, and the likely methods of attack. We then examine various types of security threats, including some "cutting edge" technology solutions, and explore how digital enterprises can be managed (and are being managed) more securely using these technology solutions.

KEYWORDS

E-Commerce Security, Network Security, Internet Security, Security Solutions.

INTRODUCTION

In order for virtual marketing to succeed, customers must have confidence in the transmission of sensitive financial and personal information across networks to designated business organizations; digital enterprises must be certain in the knowledge that information collected over web storefront s is indeed valid; and furthermore, businesses must undertake additional precautions to ensure that databases with confidential information from their customers are not compromised by hackers or malicious employees. The solution to these problems has to be based on both technology and legislation. In this paper, we focus on the new technologies that can change or have already changed the level of security in the global network.

NETWORK ASSETS

The following are assets of e-commerce and other network based services, which require protection in a Virtual Marketplace:-

- The personal data supplied by consumers need to be protected while in transit, while stored in company files and databases, and in future use. They must be protected against loss, damage, unwarranted changes and unwarranted third party disclosures.
- The corporate databases of the organization offering goods and services by e-commerce must be protected as in a.
- The applications and delivery platforms of the organization offering goods and services by e-commerce must be protected against all threats to its availability and integrity of its services.
- Payment-related records and other records of value must be protected at a higher level than other customer data against fraud and privacy abuses.

POTENTIAL SOURCES OF THREAT

We can broadly classify sources of threat into the following two categories.

1) **Outside Individuals and Organizations:** This includes competitors in the market place, individuals and groups with a strong motivation to disrupt the services or gather intelligence, either for personal gain or other reasons. Competing organizations may be also lured by information about customers, debtors and suppliers besides strategic plans of the company. Certain outside organizations and individuals may be criminal or terrorist organizations or their representatives looking for opportunities to create fraud or disrupt or bring down e-commerce services.
2) **Legitimate Users, Business Associates and Employees:** These individuals may unintentionally damage e-commerce services or cause disruption to them sometimes as a result of mistakes, other times due to poor training, yet other times due to security breaches caused by them. In most of these cases, violations may be traced to the individual concerned and corrective actions such as sanctions and additional training are possible.

METHODS OF ATTACK

The following are the major types of attacks.

- **Unauthorized Access:** This means accessing or misusing a computer system to intercept transmissions and steal sensitive information. This may be from an external source or by an insider acting on behalf of a hostile organization or for self- interest.
- **Service Denial:** This means that an attacker shuts down your site or denies access to visitors. This is done by overloading the system with excessive numbers of requests for service. This may also be done by the use of malicious software such as a virus.
- **Repudiation:** A party to an online purchase denies that the transaction occurred or was authorized.
- **Forgery, Deception, Theft and Data Alteration:** These may result in theft or alteration of the content of a transaction -- user names, credit card numbers, and dollar amounts, for example- during transmission or in stored files.
- **Malicious Software:** This may also threaten the confidentiality and privacy of stored information.
- **Spoofing:** A fake site pretends to be the legitimate organization's and steals data from unsuspecting customers or just disrupt business.
- **Repudiation:** A party to an online purchase denies that the transaction occurred or was authorized.

Increased automation, sophistication of attack tools, faster discovery of vulnerabilities and increasing permeability of firewalls are among the key trends in computer attacks in the past few years, according to a recent report by CERT (Computer Emergency Response Team) Coordination Center, a federally funded research organization operated by Carnegie Mellon University. CERT-CC identified four types of infrastructure attacks, namely:

1) **Distributed Denial of Service:** This type of attack uses multiple systems to attack one or more victim systems. The main intent of the attack is to deny service to legitimate users of the victim systems.
2) **Worms:** A self-propagating malicious code that could attack a large number of systems globally in a matter of hours.

3) **Attacks on the Internet Domain Name System (DNS):** which include Cache-Poisoning, Compromised-Data, Denial of Service, and Domain-Hijacking.
4) **Attacks against/using Routers:** According to CERT-CC, intruders can use poorly secured routers as platforms to redirect traffic to other sites under their control.

According to the CERT-CC report, the level of automation and sophistication in attack tools continues to increase. "Today, scanning tools are using more advanced scanning patterns to maximize impact and speed," the CERT-CC report says. The report also notes that new attack tools allow attackers to devise attacks that can self-propagate at an incredible pace. "We have seen tools like Code Red and Nimda self-propagate to a point of global saturation in less than 18 hours." Attackers are also taking advantage of public communications protocols such as the Internet Relay Chat (IRC) and instant messaging to launch more coordinated attacks. Also, attackers' common use of the IRC or Internet protocol to send data or commands to victims' hosts makes it more difficult to differentiate it from normal network traffic.

It is interesting to note that according to CERT-CC, the number of newly discovered vulnerabilities more than doubles each year. This situation makes it more difficult for system administrators to keep up-to-date with software patches, hence, compromising the ability of their computer systems to counter attacks that exploit such vulnerabilities.

SECURITY PROBLEMS WITH SOLUTIONS

In this section we discuss some aspects of network security in the context of virtual marketing or e-commerce that have been partially or wholly solved with technology.

SECURE WEB CONNECTION

SSL (Secure Sockets Layer) is the security technology that is used most frequently to provide an encrypted link between a point in one computer system to a point in another computer system. SSL was developed by Netscape. It uses public key cryptography to secure messages from web browsers (clients) to Internet transaction servers (merchants). Information that flows between those two points is encrypted using a symmetric algorithm; 128 bit SSL uses a good algorithm to securely protect information traveling between two points in computer systems. SSL also uses digital certificates to verify the identity of the server. However, SSL does not offer a means to confirm the customer, merchant or financial institution involved in a given transaction.

SECURE PAYMENT

According to surveys conducted by CommerceNet, Inc. secure payments was listed in the “Top Ten Barriers for Retailing” and in the “Top Ten Consumer Barriers”. According to Burns, an ideal secure payment system should have the following characteristics:

- **Ease of Automated Processing:** Automate the generation and processing of multiple payments with minimal effort.
- **Immediacy of Result:** The ability for the intermediate systems and providers to process payments in real- time.
- **Openness and Accessibility of Payment Processes:** Provide a range of payment services that were previously only available to large organizations via dedicated networks
- **Loss of Collateral Information:** The new technology dispenses with, or alters, collateral information (which is not essential) accompanying transactions
- **Globalization:** Minimization of geographical factors

Most e-businesses rely on established Internet transaction providers for their payment systems, which use debit and credit cards. The two most common security protocols used for this purpose are secure sockets layer (SSL) and secure electronic transaction (SET).

SET was developed by Visa International in conjunction with several other companies, and is widely used for debit and credit card transactions. SET uses digital certificates to identify the client (buyer), server (merchant), and merchant bank. SET employs public key cryptography to secure the messages between the three entities as they are transmitted over the Internet. SET allows the parties to confirm each other’s identity. It uses digital certificates to allow a purchaser to confirm that the merchant is legitimate and allows the merchant to verify that the credit/debit card is being used by its owner. Lastly, it uses digital signature to identify the card holder to the retailer. These provide a certain level of trust, as well as protection from repudiation and unauthorized payments. It may be said of SET that it comes close to satisfying the five characteristics of a good payment system, as specified by Burns.

AUTHENTICATION – DIGITAL CERTIFICATES

As we saw, SET provides authentication by the use of digital signatures, which is the common means to provide authentication in e-commerce transactions. In general, customers and merchants generate these certificates through the mutual use of secret keys that shows the legitimacy of each party to the other. Most of these digital certificates conform to the X.509 standard, widely accepted as the best choice for digital certificates. X.509 compliant digital certificates are thought to strengthen simplicity and interoperability.

But, certificates do not completely solve the authentication problem, because the result is only as reliable as the process that created it.

IDENTITY

Identity is often mistaken for authentication. Establishing a physical identity requires a manual process. One of the most frequently used identity schemes is a token or a smart card, a small device carried by the remote user; based on a challenge-response system, the user is allowed or denied access to the remote system.

It is worth remembering that many e-commerce transactions do not require the knowledge of a physical identity, but some do. What is often needed is authorization, which is the granting of a privilege, and is also sometimes confused with authentication.

OTHER VULNERABILITIES

In October 2001 SANS and FBI, in combination with dozens of leading security experts from the government, industry and the two leading university-based security programs, CERT/CC and the SANS Institute, came up with a “Top twenty” list of vulnerabilities. The report also includes advice on how to correct this vulnerability. This list proved very valuable, especially to small and medium size organizations with Internet exposure and individuals. Subsequently, the Center for Internet Security has come up with an automated scanning tool to help check a system to see if it has each of the listed vulnerabilities. According to the Center for Internet Security, the majority of successful attacks against computer systems via the Internet can be traced to exploitation of un-patched vulnerabilities on this list.

INCREASED EMPHASIS ON QUALITY IN SOFTWARE AND SYSTEM DESIGN

The prevalent approach to network security has been one of “patchwork,” a race against perpetrators and often one step behind. This is not the best way to operate and is enormously expensive and inefficient in the long term. Security has to be part of the design of the software. New standards of software quality need to take into account effective methods built into the software that would reduce or avoid the impact of current vulnerabilities. Newly developed information systems should be robust enough to withstand present and potentially new cyber attacks. It is a national challenge that needs to be addressed by the industry.

INTEROPERABILITY - LACK OF COORDINATED EFFORT IN SECURITY STANDARDS, TOOLS AND SOLUTIONS

There is a host of tools, solutions and standards addressing various aspects of network security promoted and supported by different standard bodies, vendors and groups. Some of the most popular security tools in use today, according to SANS are the following:

- **Host based Auditing Tools:** COPS, NCARP, Crack, Tiger, Tripwire, LogCheck, TKLogger, SafeSuite, NetSonar.
- **Network Traffic Analysis & Intrusion Detection Tools:** TCPDump, SynSniff, NetRanger, NOCOL, NFR, RealSecure, Shadow.
- **Security Management and Improvement Tools:** Crack, LocalMail, Smrsh, LogDaemon, NPasswd, OP, Passwd+, S4-kit, SFingerd, Sudo, Swatch, Watcher, Wuftpd, LPRng.
- **Firewall, Proxy and Filtering Tools:** FWTK, IPFilter, IPFirewall, PortMap V3, SOCKS, TCP_Wrappers, SMAPD.
- **Network based Auditing Tools:** NMap, Nessus, SATAN, SafeSuite.
- **Encryption Tools:** MD5, MD5Check, PGP, Rpem, UFC-Crypt.
- **One-Time Password Tools:** OPIE, S/Key.
- **Secure Remote Access and Authorization Tools:** RADIUS, TACACS+, SSL, SSH, Kerberos.

As this list would show, there are many diverging viewpoints, approaches, and methodologies that have given rise to a diverse set of solutions to some of the most pressing security problems. It is reasonable to assume that the best course of action would be for the government, industry and other security experts to work together to develop industry standard security solutions.

Interoperability is not limited to security issues alone. It is a pervasive problem, and undoubtedly the single most pressing issue that needs to be addressed if electronic commerce is to live up to its full potential. For electronic commerce to really succeed, interoperability must exist:-

- Between Technologies.
- Between Applications.
- Between Companies (especially between the e-commerce sites of complementary companies).
- Between Markets.
- Between Countries.

Furthermore, interoperability must exist with legacy systems. As Galvin points out interoperability is not just about technology and is one of the most critical barriers facing electronic commerce.

TRUST AND RISK

In all the surveys done by CommerceNet, there is not one issue that appears more often than trust and risk. “Trust is the grease in the wheel s of commerce,” says Professor Michael Rappa. Customers new to e-commerce worry about the integrity of seller organizations, merchants new to virtual marketing worry about the legitimacy of buyers and the validity of the payment of the goods and services, and so on and so forth. Yet, millions have come together in electronic market places such as eBay and successfully conduct business. EBay’s Safe Harbor site is a very good example of enforcing trust.

Trusted third parties are often used to provide the “seal of approval.” These include TRUSTe and WebTrust. Another approach, especially in large transactions, is the use of an escrow service. Yet another approach to solving this problem is the architecture for Public-Key Infrastructure (PKI) by the Open Group, one of whose required services is the “establishment of domains of trust and governance.”

CONCLUSION

Digital enterprises can be managed more securely, and are being managed more securely than at any time in its short history. The magnitude of network security threats is large but it has not shunted the growth of virtual markets. With interoperability, a coordinated effort on the part of the key solution providers, and better overall security awareness in the design, implementation and operation of the computer systems, businesses ought to be able to more than keep pace with the criminals, terrorists, unethical businesses and customers.

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A STUDY OF SUPPLIERS CERTIFICATION AT DIFFERENT LAYERS AND ITS IMPACT ON QUALITY IN AUTO COMPONENT INDUSTRY

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ABSTRACT

Vendor evaluation and development has an immense importance in today's competitive world. Especially after globalization for Indian Manufacturing companies' vendor development becomes the important priority in order to cope up with global completion. The automobile industry has seen phenomenal growth during last two decades or so. It was observed that there was a tremendous pressure on the giants in this field to produce vehicles and fulfill the production processes carried out by these companies. This gave rise to outsourcing. This outsourcing has led to increase in SSI units supplying material to these giants. Even the giants have shown interest in starting such a venture. The work load was such heavy that these vendors have further processed for sub- vendor ship. This has led to the creation of multi-layer production process. The objective of the study is to check whether this multi layer, hierarchical process has really benefited the auto industry by reducing the cost and increasing the quality of the product or has lead to increased rework and rejection. Collection of data was done through a structured questionnaire, from records and individual interviews. The sample size was 46 tier-I , 114 tier-II and 300 tier –III suppliers. The researcher can conclude that the hypothesis "Rejection is higher in case of companies whose proportion of non certified supplier is more than that of certified supplier" is validated and rejected and the null hypothesis: "There is no difference in overall rejection in case of companies whose proportion of non certified vendors is more than that of certified vendors" is accepted.

KEYWORDS
Certification, Multilayer, Quality.

INRODUCTION & REVIEW OF LITERATURE

1) Vijaya Perumalla[1]

In India technological modernization is difficult as there are a huge number of small industrial units manufacturing variety of products. As industries are small in size the entrepreneurs themselves are engaged in day-to-day activities of production and managing the business and they hardly find time for keeping themselves update with the technological development, making these units fall behind in modernization.

Various policies proclaimed and implemented by Indian governments before 1990s were aiming at protection the small scale units rather than making them competitive. Some of the issues which were left unaddressed were problems of obtaining credit from banks. The SSIs was always short of their internal financial resources and have no surplus money for bad times in the business. As due to unstable profits banks were reluctant for issuing unsecured loan to the SSIs, this left these industries with no option than depending for funds on money-lenders at higher interest rates. And those who have tried to obtain loans from the various financial institutes have only faced corruption associated with grant of loans and long delays in delivery.

Large numbers of SSIs were close down due to financial and marketing problems. As the owner himself used to manage all the business activities, poor management was also a major cause of sickness of these units

It was also seen that government reservation policy played a negative role. It is observed that the policy is actually counterproductive as those producing non-reserved items have performed better than those in reserved areas. Hence the reservation policy tends to become large redundant.

2) T.A.Bhavani[2]

Small units in developing economics are known for technologically backwardness and India is not an exception. In majority of Indian SSIs there is lack of competitive strength which is due to use of outdated technology. It is observed that Indian industries are almost the last imitator when it comes to adaptation of technology.

SSI (small scale industries) sector in India constitutes 95 percent of units, 40 percent of value added, 80 percent of employment of the manufacturing sector and 35 percent of total exports of India.

Small enterprises in India has a very simple structure one man strategic apex and is called as owner manager who is responsible for all the decisions regarding expansion of production facilities and hence, expected to possess the investment capabilities to search, identify, evaluate, select, negotiate and commission new production facilities.

These technological capabilities depend on the formal education and training, on-the-job experience, and attitudes of the concerned individuals. It is also that 50 percent of these units are managed by non professionals. It was also revealed that around 50 percent of the units have not employed even a single person with a formal degree and in the remaining 50 percent units only 33 percent people employed were having some professional qualification. It is also seen that larger percentage of small scale units still use manual machines and at times second hand machinery for production purpose and result of all this is that there is no quality control system in the small manufacturing sector at large.

3) Richardson[3]

Major evolution in business environment for parts has become apparent. Development of parallel spare part market has emerged and OEMs are facing competition from their own suppliers. As the volume of business is increasing along with the competition, these OEMs have no alternative than to rely on outsourcing the components. Inevitably, this means increasing amounts of "genuine" spare parts are also produced by third parties. The OEMs does not have any control over these suppliers as they would have over in-house suppliers.

Now the OEM's monopoly has been taken over by rising competition and also possibility of loosing of the grip on the major distribution channels in the market.

As due to intense competition margins on vehicles is decreasing now, these OEM's industries have to concentrate more on after sales revenue for their financial health.

The OEM's can differentiate themselves through the "genuine parts" stamp; the OEM cannot justify a large price gap between his "genuine parts" and the price of alternative suppliers for two reasons. Firstly, some of the largest alternative suppliers have a strong brand name themselves, either reducing or completely

[1] Problems In Modernization Of SSI's Seminar on industrial modernization June 2,1997 (http://www.cherry.gatech.edu/sim/students/paper97S/perumalla.html)

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eliminating consumer and dealer quality concerns. Secondly, the consumer mostly leaves the choice of the spare parts up to his / her dealer, who is in a much better position to judge the value proposition of the spare parts.

Automotive companies in the west are in danger of being left behind by competitors in Asia because of the resistance to new technology

4) V. Sumantran, Tata Motors[4]

Indian vendors lack on quality standards. Out of 480 companies only about 10 companies managed to produce as per international standards. It is the question how we are going to bring the rest of the companies upto the similar level.

"It is found that Indian vendors are very good at meeting the quality and quantity expectations for India. But look outside, and their ability to come out with a product for the international market might be missing." Indeed. Leave out Suzuki and Hyundai, and you will find that the component industry is still a fragmented, unfamiliar place. The long-awaited consolidation still has not happened. The second reason: infrastructure and logistics affect all three companies equally. Maruti's Khattar gets worked up as he talks about how his vehicles are handled on the way to the ports. When the company decided to start using the railways to transport its cars to Vapi, and route to JNPT, the Railways told him to construct his own sidings at the Gurgaon railway station. Scowls Khattar: "Most of the wagons are in such bad shape that they have to be repaired before we use them."

5) Haritha Saranga[5]

In this paper, the performance analysis of the Indian auto component industry is carried out from the perspectives of an original equipment manufacturer and a component supplier. Various efficiency measures are estimated using Data Envelopment Analysis with publicly available financial data on a representative sample of 50 firms. The first stage analysis reveals various operational inefficiencies in the auto component industry which are subsequently decomposed into *technical*, *input mix* and *scale* efficiencies. The study finds evidence that a majority of the inefficient firms are operating in the diminishing returns to scale region and demonstrates potential savings through benchmark input targets. A second stage analysis aimed at exploring root causes of inefficiencies finds that substitution of labour for capital could be causing a variety of inefficiencies including the *input mix* inefficiency in the Indian component industry. The empirical results also suggest that, unlike the global auto supply chain, higher average inventories are required for higher operational efficiencies in the Indian context. Contrary to the popular expectations, the technology licensing does not show significant influence on efficiency, at least in the short term, whereas efficient working capital management does result in higher operational efficiencies. The study also unearths the need to reform labour laws which are significantly contributing to various inefficiencies in the Indian component industry.

INDUSTRY STRUCTURE MAKING INDIA A GLOBAL AUTO COMPONENT HUB

TATA CONSULTANCY SERVICES

Even though the Indian auto component industry is relatively small by global standards, there are close to 400 players in the organised sector and over 5,000 in the unorganised sector competing against each other for market share. However, the share of the organised sector has increased over time. Players in the organized sector supply to vehicle manufacturers directly. The unorganized sector, on the other hand, mostly has small units, producing low-technology components and predominantly competing in after-market space.

The automotive components industry is a combination of different product segments, with each segment having a different market structure. However, the number of companies present in each segment differs because of the difference in the level of technology requirement. No single company is a prominent player in more than one product segment.

6) G.V. Prabhushankar, S.R. Devadasan, P.R. Shalij[6]

Developing countries such as India, Mexico and Brazil are turning out be hub for global automobile manufacturing companies. Hence, researchers are required to examine the developments that occur in these countries. The research reported in this article, has brought out certain findings from Indian automobile components manufacturing scenario. During this research, the practitioners of automobile components manufacturing companies located in Bangalore city of India were interviewed. The aim was to assess the trend in implementing Quality Management System (QMS) standards, Six Sigma programme and innovation practice in Indian automobile components manufacturing sector. The overall assessment was that the conglomeration of these three strategies to bring out synergy out of them is missing. This prompts the need for exclusive model of QMS which would link the standards, innovation practices and Six Sigma for enabling the automobile manufacturing sector of not only India, but also of other developing countries to achieve world class competitiveness.

7) Analyzing supplier development criteria for an automobile industry: Kannan Govindan, Devika Kannan and A.Noorul Haq[7]

Purpose of the research article is to present an approach to identify and rank the criteria used for supplier development using interpretative structural modeling(ISM).

The paper develops a framework to analyze the interactions among the criteria such as competitive pressure, evaluation and certification system, incenytives, supplier development programs, inter-organisational communication, buyer-supplier relationship, supplier commitment, supplier performance, asset specificity, joint action, trust, long term strategic goal, top management support, purchasing performance, and supplier strategic objective for the development using ISM.

Findings: Research in the area of SCM has intensified in recent years for number of reasons. Managers have now realized that actions taken by one member of the chain can influence the responsiveness, efficiency and profitability of the complete supply chain. Firms are increasingly thinking in terms of competing as part of a supply chain against other supply chains, rather than as a single firm against other individual firms.

IDEA GENERATION

The automobile industry has seen phenomenal growth during last two decades or so. It was observed that there was a tremendous pressure on the giants in this field to produce vehicles and fulfill the production processes carried out by these companies. These changes are distinct from the changes forced by the technological development. Further, these changes have added different dimensions to the traditional approaches in almost every function of the business. Certain new concepts have emerged, such as, Vendor Development, Supply Chain Management, forward and backward Integration of the production processes, outsourcing etc. While introducing each of such new concepts, it has been stated that these concepts will lead to reduction of cost with high quality and greater speed in the production processes.

On this background, the researcher has decided to probe into the claims made (as mentioned above) in the context of automobile industry. The focus of this study, however, is not on the giants in automobile sector, though initially they were manufacturing 100% of the parts and the products on their own. But the researcher has concentrated on the Small Scale Industries (hereafter referred to as SSI) supplying materials to these giants these days. This is because practically the production takes place at these SSI's and also because, the aspect of quality is crucial in this context.

[4] "So far, Tata Motors' passenger car project has cost the company $550 million. That is significantly cheaper than it would cost anybody in any other country in the world "http://www.businessworldindia. com/jan1904/coverstory01.asp

[5] The Indian auto component industry – Estimation of operational efficiency and its determinants using DEA Indian Institute of Management Bangalore, Production and Operations Management Area, Bannerghatta Road, Bangalore 560076, India. http://www.sciencedirect.com/ science? _ob = Article URL&_udi=B6VCT4S790674&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=991154080&_rerunOrigin=google&_acct=C000050221&_ version = 1&_ urlVersion=0&_userid=10&md5=8ec91206a8cc580c3756294e4b3c2e87

[6] Journey of Indian automobile components sector: from Quality Management System certification to innovation via Six Sigma http://www.inderscience.com/search/ index.php? action=basic&wf= author&year1=1995&year2= 2007&o =2&q=G.V.%20Prabhushankar

[7] Research paper: Industrial Management and Data System Vol.110 No.1,2010

THE RESEARCH QUESTION

The question that appeared in the mind of the researcher was that:

Due to phenomenal growth of the automobile sector it has increased the strength of the giants. This has led to an increase in the number of SSI units supplying materials to these giants. Even the giants have shown interest in starting such a venture. The work load was so heavy that these vendors (i.e. SSI units) have further proceeded for sub-vendor ship. This has led to the creation of multi-layer production process for the production of one unit/part of the unit. The multi-layer, hierarchical process leads to decrease in margin of profit at each such level of process as also reduction in quality, delay in supply and increase in the number of rejections. This resulted in the framework of the present study entitled "Technical Impediments to vendor development: A Study of some selected industrial units in Pune region".

STATEMENT OF PROBLEM

The multi-layer, hierarchical process leads to increase in rejection level and reduction in quality.

CORE CONCEPT

The phenomenal growth of the automobile sector has increased the strength of the giants. This has led to increase in the number of SSI units supplying materials to these giants. Even the giants have shown interest in starting such a venture. The work load was such heavy that these vendors (i.e. SSI units) have further proceeded for sub-vendor ship. This has led to the creation of multi-layer production process for the production of one unit/part of the unit. The multi-layer, hierarchical process thus had leads to increase in rejection level and reduction in quality.

IDENTIFICATION OF THE PROBLEM

After discussion with the authorities from vendor development and purchase department from various auto component industries and after collecting the data with the help of questionnaire following technical impediments (hurdles) were identified:

1) Many vendors or suppliers further outsource the processes due to insufficient in-house facility, capacity, expertise, specific operations, access to better technology, better efficiency; firm want to focus on core competency etc. which may leads to increase in rejection levels at further stages.
2) As number of levels increase in a supply chain the proportion of non certified vendors to certified vendor increases.
3) As number of tiers or levels increases there is increase in rejection rate which is incremental.

Hence the researcher has decided to study the impact of 'multi-operations" and "multi-vendor outsourcing" on the level of rejection and thus the following objectives were set.

OBJECTIVE OF THE STUDY

1. To study the impact of certification of vendors on quality.
2. To study the proportion of certified to non certified suppliers at tier-II and their rejection.
3. To study the rejection by certified and non certified suppliers.
4. To study the percentage of operation outsourced by certified and non certified suppliers.

METHODOLOGY

UNIVERSE

There are close to **400** players in the organized sector i.e. tier-I and over **5,000** in the unorganized sector i.e. tier-II and tier-III. Players in organized sector supply to organized vehicle manufacturers directly. The unorganized sector, on the other hand, mostly has small units, producing low-technology components and supply to tier-I organized supplier and predominantly competing in after-market spare.

SAMPLE SIZE

1) **46** number of tier-I manufacturer who falls in organized sector and who supplies to vehicle manufacturer directly.
2) **114** number of tier-II manufacturer who falls under unorganized sector and who are suppliers to tier –I manufacturer.
3) Approximately **300** tier-III vendors the information of whom was taken from tier-II suppliers

Total sample size organized and unorganized is **46+114+300=460**

SAMPLING TECHNIQUE USED

The research is about Automobile Sector in Pune region. Pune region has been selected as there are plenty of SSI's in this sector and secondly, the researcher found it convenient to focus on the region on the grounds of vicinity. In the context of the topic, vendors were identified at three different levels.

Tier-I- who are direct vendors to the giant's vehicles manufacturer.

Tier-II- Suppliers to Tier –I vendors

Tier-III- Supplier to Tier-II vendors

It was desirable on the part of the researcher to gather relevant information from all the three categories.

Though multi stage sampling is a part of random sampling the researcher has used multistage sampling for non random sampling for Tier-I and Tier-II vendors.

Sampling design for Tier-I vendors.

- N= 200 approximate
- n=46
- Sampling ratio 25%
- Method of sampling- Non random- Combination of convenience and Judgmental sampling. Judgmental on the basis of possibility of getting data.

Sampling design for Tier-II vendors

- N=1000 approximate
- n=114
- sampling ratio 11.4%
- Sampling technique- Non random- Combination of convenience and Judgmental sampling.

Stage I –selection of Tier –I vendors was Non random- Combination of convenience and Judgmental sampling.

Stage II – Selection of 114 vendors was done on the basis of recommended by 46 Tier –I vendors.

Selection of 2 or 3 vendors was done from each Tier-I vendor.

Tier –III vendors around 300

The required information was provided by 114 (Tier-II vendors). As per the availability and convenience

DATA COLLECTION

Taking into consideration all the facts the researcher has used.

1) Questionnaire: A structured questionnaire was prepared.
2) Records: Information, data specifically related to the rejection rate and outsourcing tendency was taken from the records.
3) Individual interviews: Individual's responses, opinions and views were considered.

Important note: The range of quality, as measured by defects found in incoming components – expressed in 'parts per million' defective. International best practice for car makers in the U.S., Japan and Europe predominantly competing in after-market spare currently aims to bring the large majority of suppliers under 100 PPM. The 'parts per million' defective allowed by the Indian companies studied ranges between 200 to 500 PPM and in some cases it's up to 1000 PPM.

ANALYSIS AND INTERPRETATION

The data so collected was analyzed according to the alternatives of the closed ended questionnaire and interpreted as per the graphical representations provided.

HYPOTHESIS TESTING

OBJECTIVE

To study the impact of certification of vendors on quality.

The researcher has collected the data for tier-1, tier 2 where it is found that all tier -1 suppliers are certified suppliers hence the researcher has concentrated on tier -2 suppliers where there were both certified and non certified suppliers and tried to compare the rejection separately for both the groups.

The researcher has collected data on average rejection per process for tier –I supplier and for tier-II and tier-III suppliers. The researcher has the data for total rejection along with number of operations carried out on that component by the supplier. To bring the whole sample on equal platform and to be more realistic the researcher has converted total rejection into rejection per process by dividing total rejection for that supplier by number of operations carried out at that suppliers end. Hence the data for certified and non certified suppliers is the average rejection for that particular supplier divided by number of operations carried out for that particular component.

Hypothesis: "Rejection is higher in case of companies whose proportion of non certified vendors is more than that of certified vendors"

H0: "There is no difference in overall rejection in case of companies whose proportion of non certified vendors is more than that of certified vendors"

H1: "Rejection is higher in case of companies whose proportion of non certified vendors is more than that of certified vendors"

t-Test

The researcher wanted to explore whether there is any difference between the certified and non-certified vendors in terms of the rejection rate. The researcher has divided total number of companies in two groups 1 and 2. Here group 1 is of certified vendors and group 2 is of non-certified vendors. In group 1 there are 58 vendors and in group 2 there are 54 vendors.

Here the researcher has taken the average rejection for number of operations for both the groups.

The mean of overall rejection for group1 is 3393.8and the mean of overall rejection for group 2 is 5114.1

GROUP STATISTICS

	Groups	Mean
Overall rejection	1	3393.8
	2	5114.1

To check the hypothesis: "Rejection is higher in case of companies whose proportion of non certified vendors is more than that of certified vendors" the researcher has applied independent sample t-test.

It is observed that there is difference between the overall rejection in certified and non-certified supplier (t score= -1.889) which is not statistically significant (p-value=0.062).

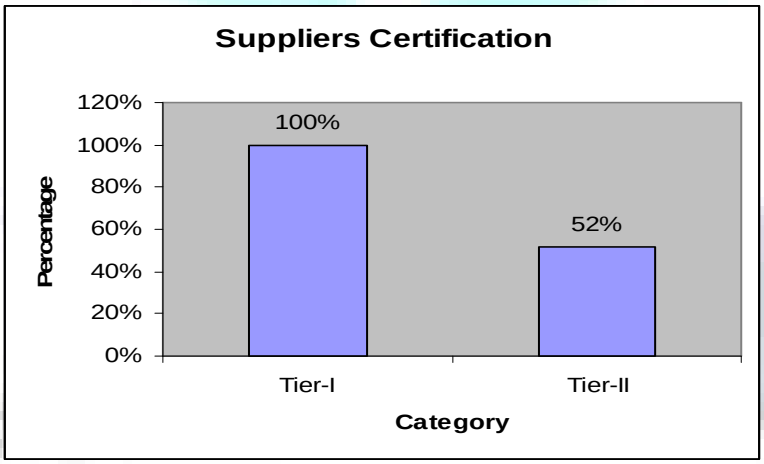
The researcher can conclude that the hypothesis "Rejection is higher in case of companies whose proportion of non certified supplier is more than that of certified supplier" is validated and rejected and the null hypothesis: "There is no difference in overall rejection in case of companies whose proportion of non certified vendors is more than that of certified vendors" is accepted.

INDEPENDENT SAMPLES TEST

		t-test for Equality of Means			
		t	Df	Sig. (2-tailed)	Mean Difference
Overall rejection	Equal variances assumed	-1.889	110	0.062	-1720.37

DATA ANALYSIS

1) Certification of the suppliers: The researcher wanted to find out the percentage of certified suppliers and non certified suppliers. Hence researcher collected data for certification of supplier from both the groups i.e. tier–I and tier-II suppliers.



After analyzing the data for tier-I and tier-II suppliers it if observed that 100% suppliers from tier-I are certified whereas only 52% suppliers from tier-II are certified. This means tier –II suppliers consists of 52% certified and 48% non certified supplier.

Data regarding tier-III suppliers was not available with tier-II suppliers.

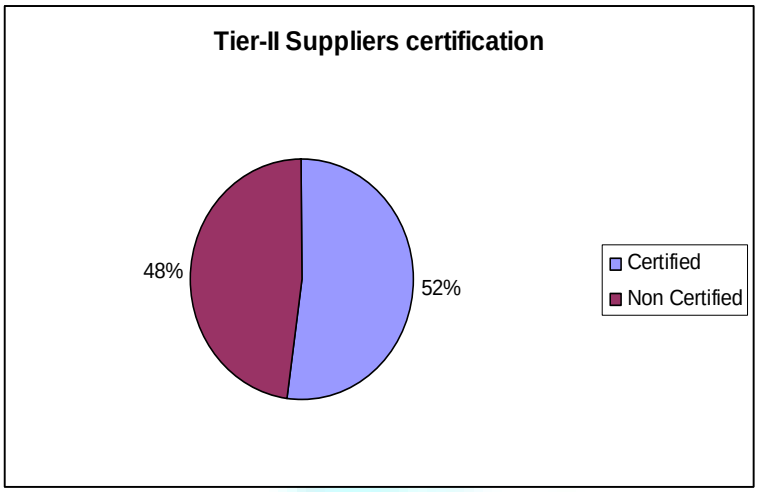
Observation: It is observed that as we go on outsourcing further from tier- I to tier-II and tier-III proportion of non certified to certified supplier increases.

Comment:

- Multi-level sourcing leads to larger number of non certified suppliers.

2) Certification of Tier –II Supplier:

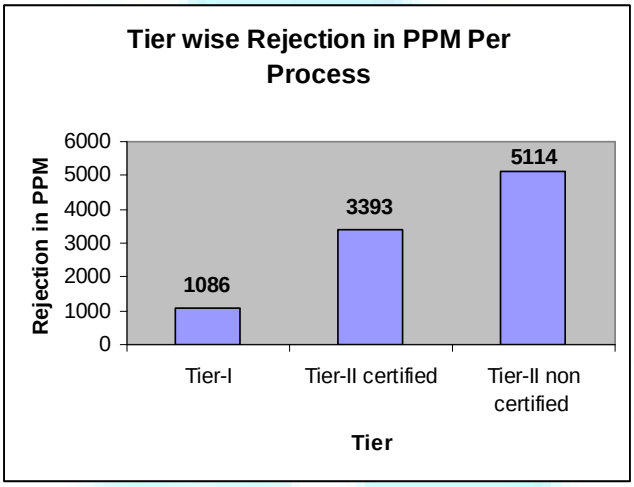
From the above analysis it is observed that as number of tiers increases the proportion of certified supplier to non certified supplier falls. Thus researcher also wanted to find out what is the proportion of certified suppliers to non certified suppliers at tier-II.



From the data analysis it is observed that 52% of tier-II suppliers are certified where as 48% of tier-II supplier are not certified.

Observation: After analyzing and comparing the data for tier-I, tier-II suppliers it is found that as number of tiers increases the percentage of certified suppliers falls.

3) Certification and rejection: From the above analysis it is found that multi sourcing leads to less number of certified suppliers hence it becomes necessary to find out whether certification has any impact on quality of the product.



After comparing the data for certification, the researcher wanted to test whether certification has any impact on the rejection level. Hence researcher felt it necessary to compare the data with the rejection level for all the groups.

After comparing the data with the rejection level in PPM per process it is found that as percentage of non certified supplier increases, rejection increases but which is not statistically significant.

Observation: It is observed from data analysis that as number of tier increases percentage of non certified supplier to certified supplier at every incremental level increases. It is also observed that higher number of certified suppliers leads to better quality and lesser rejection and vice-versa.

Comments:

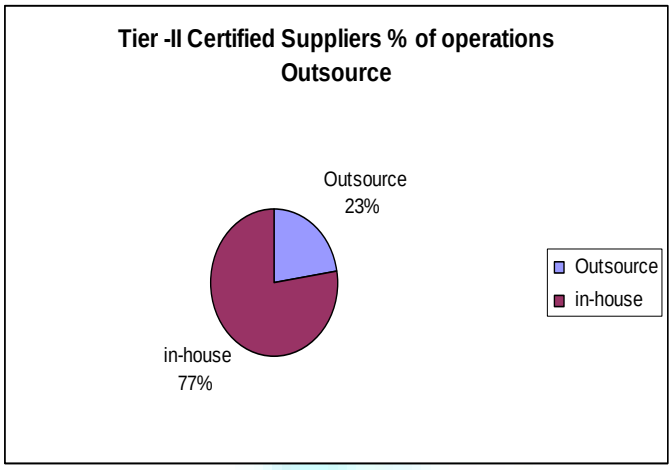
- Tier –I suppliers are 100% certified suppliers this is because OEMs while selecting their supplier it is obligatory and mandatory for the suppliers to be certified and hence rejection is less at tier-I. When it comes to selection of tier-II supplier tier- I supplier gives more importance to cost than certification and hence it can be seen from the data analysis that proportion of certified suppliers fall down drastically at tier –II level.

4) **Operations outsourcing:** Average numbers of operation on a component to be carried out at tier-II supplier are 7.59.

Operations outsourced by Tier-II certified suppliers:

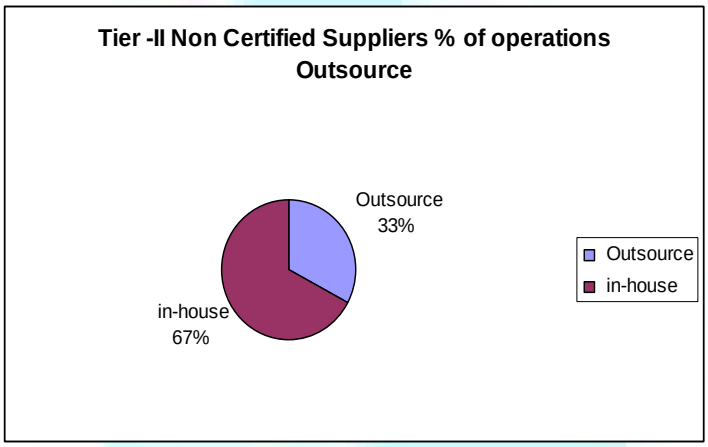
Earlier we have seen the tendency of outsourcing by tier-I, tier-II certified and tier-II non certified suppliers. It has also been analyzed the proportion of suppliers carrying out all the operations in house and suppliers outsourcing the part or the whole operation to the next tier.

Now the researcher wanted to check the percentage of operation outsourced by these suppliers and the objective was to find out the trend of operation outsourcing by these suppliers.



Observation: From the data analysis it is observed that out of total operations 23% operations are further outsourced by tier-II certified suppliers to tier-III suppliers whereas 77% operations have been performed in house by the suppliers.

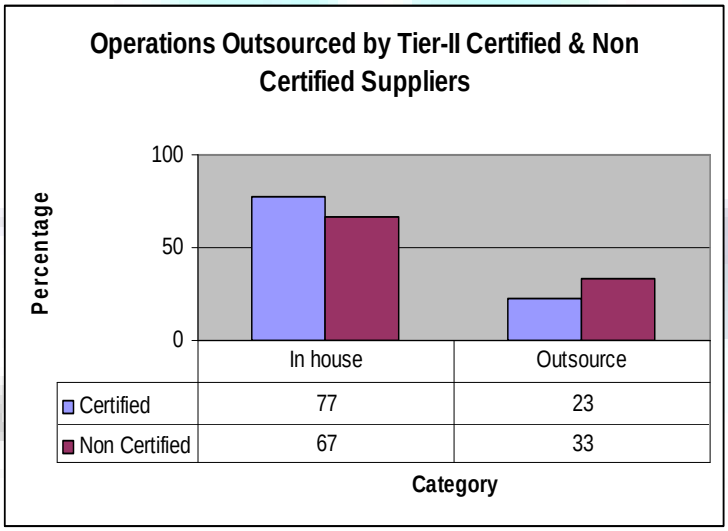
5) Operations outsourced by Tier-II non certified suppliers:



Observation: From the data analysis it is observed that out of total operations 33% operations are further outsourced by tier-II non certified suppliers to tier-III suppliers whereas 67% operations have been performed in house by the suppliers.

6) Comparison of operations outsourced by Tier-II certified and non certified suppliers:

The comparison between certified and non certified suppliers has been done to find out whether there is any correlation between the certification and the percentage of outsourcing of tier-II supplier.



After comparing the data for percentage operations out sourced by certified and non certified suppliers it is observed that outsourcing is greater in case of tier – II non certified suppliers than that of certified suppliers.

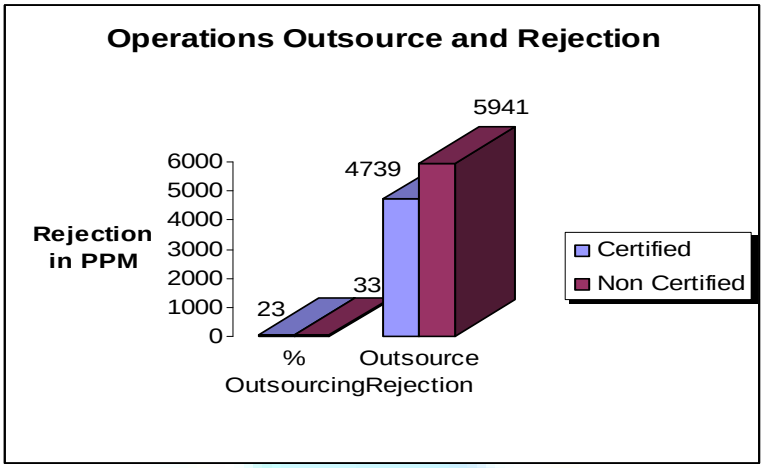
Observation: It is observed that non certified suppliers outsource more number of operations than certified suppliers

Comments:

- From the data analysis it is observed that non certified suppliers outsource more number of operations than certified supplier. As non certified supplier do not have the range of machines required to carry out all the operations required for a particular component. It is also seen that these suppliers are not the preferred suppliers by tier-I suppliers and tier-I gives preference to tier-II certified supplier and if anything is left out then tier-II non certified supplier is given chance. Hence these supplier do not have sufficient load which can satisfy their capacity requirements and also these supplier are given those components which has non similar operations, non uniform requirements of machines and facility and the volume of which is also very less.

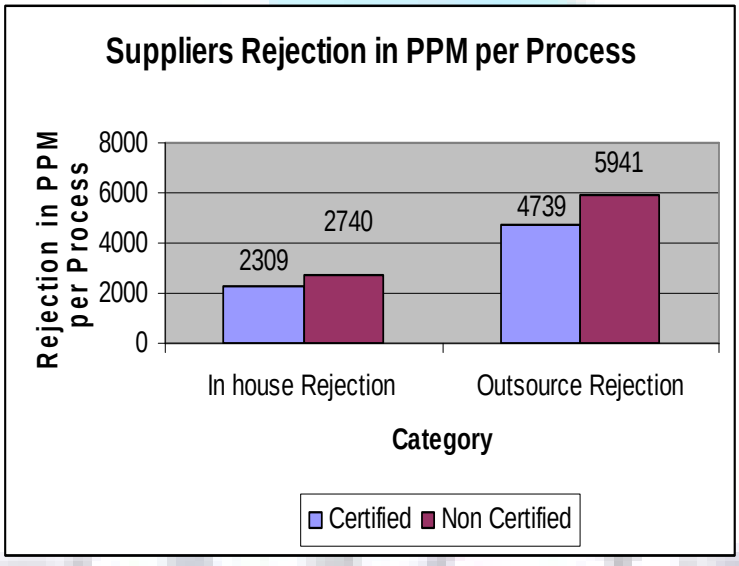
- It is also seen that non certified suppliers tap different sources at the same time due to instability of orders as they are also not assured of constant flow of business as they don't have vendor code and hence it is observed that these supplier take work from different companies. Due to more number of sources from whom they take the work load it is observed that their order is in excess of their capacity and at times their own facility is ideal. As non certified suppliers not supplier for limited numbers of companies the components which they get for operations are non uniform this requires different operation on different machines and also requires different skill set which they do not have and hence their outsourcing is more as compared to certified suppliers.

7) Percentage of operations outsourced and rejection: The researcher wanted to find out the relation between the percentage of outsourcing done by the suppliers and the rejection.



Observation: After analyzing the data it is observed that percentage of operations outsourced increases with an increase in level (tiers). Further from the analysis it is observed that tier –II non certified suppliers outsource more number of operations than certified suppliers.
It is also observed that there is an increase in rejection in case of operation outsourced for both the groups. It is observed that rejection is comparatively higher in case of operations which are outsourced by non certified suppliers.

8) Tier-II in house and outsource rejection for certified and non certified supplier:



Observation: From the data analysis it is observed that rejection is greater in case of non certified supplier for both in house and outsource operation.
Comments:

- The reason for higher in-house rejection by non certified suppliers is due to non standard component which requires different skill sets and learning which leads to higher rejection. It is also observed that these orders are non uniform and in less volume and many times non repetitive in nature and hence it is not possible for these suppliers to design a standard process and go for special purpose machines which is designed for carrying out a specific operation with higher productivity, less chances of rejection and at lower cost. It is also not possible to do any modification on the machines and also design a measuring instrument to measure the performance which will reduce rejection and save inspection time if required by that particular job because the order is not of repetitive nature i.e. assured business and volume is also not that high.

FINDINGS

1) It is observed that there is difference between the overall rejection in certified and non-certified supplier (t score= -1.889) which is not statistically significant (p-value=0.062).
2) It is observed from data analysis that as number of tier increases percentage of non certified supplier to certified supplier at every incremental level increases. It is also observed that higher number of certified suppliers leads to better quality and lesser rejection and vice-versa.
3) It is found that number of suppliers outsourcing their processes/ part of the process is more in case of non certified suppliers than that of certified suppliers. And it is found from the data analysis that rejection is higher in case of components which are further outsourced.
4) Percentage operations outsourced by non certified suppliers are more than that of certified suppliers. And it is found that rejection is higher in case of operations which are outsourced than the operations which are carried out in-house.
5) It is observed that rejection for the processes outsourced by non certified suppliers is more than that of certified suppliers. (It is observed that variation in rejection levels at certified vendors and non certified vendors is statistically insignificant).

CONCLUSION

Hypothesis Specific:

"Rejection is higher in case of companies whose proportion of non certified vendors is more than that of certified vendors"

The hypothesis has been tested and elaborated. There is a difference between the overall rejection in certified and non-certified supplier (t score= -1.889) which is not statistically significant (p-value=0.062). This hypothesis has been disproved and hence rejected.

SUGGESTION

It is evident from the analysis that non certified vendors have rejection to the tune of 5114 PPM whereas, certified units has rejection of 3393 PPM per process. Whereas per process rejection of 100 PPM which ordinarily permissible with reference to international standards. Indian Companies are permitting 200 to 1000 PPM depending upon the job.

The point here is that it is shown insignificant in the findings with reference to hypothesis that certified vendors have lower proportion of rejection as compared to non certified but which is not significant. However, it should not be construed that certification is not as important or invalid. Considering other benefits of certification it is insisted that vendor selection should be on the basis of certification only.

AREA FOR FURTHER RESEARCH

1. This research is location specific hence further research should be carried out to check the applicability of the research at different locations.
2. Total impact study is required as in this study implication of cost of poor quality is not accessed.
3. This study is carried out for all the sectors which form a part of automobile. Further study specific to different sector is required to have better idea and it performance.
4. A study should be conducted for classifying the components in a way that it is suggested in respect of ABC analysis of inventory. In a similar way, the components should have ABC analysis on the basis of Quality Criticality.

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GLOBAL LIFE INSURANCE PENETRATION AND DENSITY

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ABSTRACT

Insurance industry is a growth oriented industry globally. It has also been facilitating economic development with an objective to build an efficient, effective, and a stable insurance business in India as well as a strong base to cater the needs of both the real economy and socio economic objectives of the country. The global insurance scenario has undergone profound changes during the last few years, accentuated by the terrorist attack on the World Trade Center on 9th September 2001. Coincidentally, the major world stock markets suffered a steep decline in value towards the end of the last century, following the dot Com bubble burst and the unprecedented corporate scandals led by Enron and WorldCom. Hurricanes like the Katrina, the Wilma and the others, in addition, have bankrupted a substantial capitalization of insurers and reinsurers built up over decades. These financial blows have resulted in a large number of insurers/reinsurers going bankrupt and several others suffering lowered ratings by reputed rating agencies. In this aspect an attempt is made to study the penetration and density of various countries and India's place in the world.

KEYWORDS

Insurance penetration, Insurance density.

INTRODUCTION

Insurance industry is a growth oriented industry globally. It has also been facilitating economic development with an objective to build an efficient, effective, and a stable insurance business in India as well as a strong base to cater the needs of both the real economy and socio economic objectives of the country. The insurance mainly classified into two major types 1. Life insurance 2. Non-life insurance.(Raghu Veer.K, and M. Satya Sudha). With globalization, the insurance community in each country is becoming an integral part of the international insurance community. What happens in the developed markets has an impact on the domestic markets. There is a greater need to examine, study and understand how the developed markets have dealt with the problems that are likely to recur in our national markets. Understanding global scenario helps us to understand our markets with more clarity. Against this background, an attempt is made to study and examine the trends in the growth and performance of the global insurance business measured in terms of direct insurance premiums secured, insurance penetration and insurance density by regions and individual countries.

OBJECTIVE

1. To study the growth of insurance industry.
2. To study the insurance penetration in various countries and their position in the world .
3. To study the insurance density in various countries and their position in the world.

METHODOLOGY

The data is taken for seven years from 2001 to 2007. The data is presented on the basis of highest to lowest descending order i.e. values taking 2007 as the base year. Analysis is also prepared for insurance business as a whole and life insurance separately. The place of India was also examined in the world ranking both in terms of insurance penetration and insurance density for total insurance business as a whole and also separately for the life insurance business for the period under reference.

TRENDS IN GROWTH OF GLOBAL INSURANCE PREMIUMS

An attempt is made to examine the trends in the growth and performance of global insurance premiums from 1990 to 2008. The details of data relating to premiums in respect of total insurance business and also life insurance and non-life insurance are shown in Table 1. Annual average real growth rates for successive years for all the categories of data are calculated and presented in the same table. The share of life and non-life insurance in the total insurance for each year is also calculated and presented in the same table. Further, the global real premium growth rates for the entire period of 1980 to 2008 are also obtained from the publications of Swiss Re Sigma and presented in Table 1.

It is observed from Table 1 that some spectacular growth has been recorded from 1981 to 1986 in respect of the total premium and also for life insurance and non-life insurance separately. However, since then the growth is slowed down accompanied by gradual increase in its growth. This growth in total insurance business can be attributed largely to the growth of life insurance business which is clearly evident from Table 1 compared to non-insurance business. More or less similar situation is emerged from the graphical representation of data which given in Fig. 1.

Wide fluctuations have been noticed in the annual real growth rate of insurance premiums which resulted in uneven growth (Table 1). It can be seen from the table that although, the rate of growth from 1981 to 1986 showed an upward trend, thereafter a gradual fall with a deceleration tendency is noticed not only in respect of total insurance premium but also separately for life and non-life insurance premiums. Negative growth is also observed in certain years. Fluctuations are more pronounced in case of non-life insurance business.

TABLE 1: GLOBAL PREMIUM GROWTH 1980 – 2008

Year	Real Premium Growth Rates (%)		
	Non-Life	Life	Total
1	2	3	4
1980	-3.3	2.5	-1.0
1981	-0.6	4.3	1.4
1982	1.4	5.4	3.1
1983	3.7	3.4	3.6
1984	4.5	12.0	7.7
1985	10.5	13.5	11.8
1986	13.8	21.7	17.4
1987	4.4	12.4	8.3
1988	5.6	13.0	9.4
1989	2.3	4.7	3.6
1990	1.8	1.3	1.5
1991	1.5	2.9	2.3
1992	3.0	5.8	4.5
1993	4.2	6.4	5.4
1994	1.9	4.2	3.2
1995	2.2	4.9	3.8
1996	1.3	3.7	2.7
1997	0.9	8.0	4.9
1998	-0.2	5.5	3.1
1999	1.7	7.8	5.3
2000	3.8	9.6	7.4
2001	5.6	-1.4	1.3
2002	9.3	2.9	5.5
2003	6.3	-0.2	2.5
2004	2.4	3.3	2.9
2005	-0.3	4.5	2.5
2006	4.0	4.3	4.2
2007	1.5	5.1	3.6
2008	-0.8	-3.5	-2.0

Source: Swiss Re Sigma, No. 3/2009, Facts and Figures.

FIG. 1: GLOBAL PREMIUM GROWTH 1980 - 2008

Source: Swiss Re Sigma, No. 3/2009, Facts and Figures.

Several factors contributed for the large scale increase in global insurance business especially after 2000. However, the reasons for the fluctuating growth are many and diverse.

The global insurance scenario has undergone profound changes during the last few years, accentuated by the terrorist attack on the World Trade Center on 9th September 2001. Coincidentally, the major world stock markets suffered a steep decline in value towards the end of the last century, following the dot Com bubble burst and the unprecedented corporate scandals led by Enron and WorldCom. Hurricanes like the Katrina, the Wilma and the others, in addition, have bankrupted a substantial capitalization of insurers and reinsurers built up over decades. One estimate has put it that out of a total capitalization of $ 750 billion, the WTC attack and the stock market failures due to the burst of dot com bubble alone wiped out a capital of $ 250 billion of the industry in one stroke. These financial blows have resulted in a large number of insurers/reinsurers going bankrupt and several others suffering lowered ratings by reputed rating agencies. Despite these set backs the industry has recovered from such serious and unexpected financial losses and the industry has begun to look as solid and resilient as ever[8].

[8]. Rao, G.V., Emerging Trends in the Asian Insurance Scene: Impact of Global Trends, *Insurance Chronicle*, May – June 2005, pp.13-19.

INSURANCE PENETRATION

The term "Insurance Penetration" broadly measures the contribution of the insurance industry in relation to a nation's entire economic productivity (ratio of premium to GDP)

INSURANCE DENSITY

The term "Insurance Density" reflects the insurance purchasing power (ratio of premium paid to total population)

GLOBAL INSURANCE PENETRATION: COUNTRY-WISE ANALYSIS

An attempt is made to examine the country-wise analysis of insurance penetration. The data collected for all the top 25 countries of the world covering the period from 2001 to 2007 and analysis is prepared, countries are arranged on the basis of descending order from highest to lowest penetration. The data is taken for seven years from 2001 to 2007. The data is presented on the basis of highest to lowest descending order i.e. values taking 2007 as the base year. Analysis is also prepared for insurance business as a whole and life insurance and non-life insurance separately. Table 2 presents the aggregate data relating to insurance penetration for the top 25 countries of the world for insurance business as a whole as already indicated above.

The place of India was also examined in the world ranking both in terms of insurance penetration and insurance density for total insurance business as a whole and also separately for the life and non-life insurance business for the period under reference.

The table shows that UK and Taiwan ranked the first position in terms of insurance penetration with 15.7 per cent. South Africa secured the second position with 15.3 per cent followed by Netherlands (15.3 per cent), South Korea and Hong Kong (11.8 per cent each), Ireland (11.6 per cent) on the other hand Israel secured the lowest rank of 19 among 25 countries with 5.5 per cent. India has secured 28th position in the total order of countries and was placed in 22nd rank with 4.7 per cent in 2007. Algeria is the last country in the world, which accounted for 0.5 per cent, which is lowest among all the countries.

TABLE 2: TOP 25 COUNTRIES OF THE WORLD IN TOTAL INSURANCE PENETRATION

Name of the Country	Years (2001 – 2007)							Rank
	2001	2002	2003	2004	2005	2006	2007	
1	2	3	4	5	6	7	8	9
United Kingdom	14.18	14.75	13.37	12.6	12.45	16.50	15.70	1
Taiwan	8.62	10.16	11.31	14.13	14.11	14.50	15.70	1
South Africa	17.97	18.78	15.88	14.38	13.87	16.00	15.30	2
Netherlands	9.79	9.51	9.77	10.10	9.79	9.40	13.40	3
South Korea	12.07	11.61	9.63	9.52	10.25	11.10	11.80	4
Hong Kong	6.34	6.65	7.88	9.27	9.93	10.50	11.80	4
Ireland	9.14	8.55	9.59	8.97	8.56	10.40	11.60	5
Switzerland	12.71	13.36	12.74	11.75	11.19	11.00	10.30	6
France	8.58	8.58	9.15	9.52	10.21	11.00	10.30	6
Belgium	7.92	8.42	9.77	9.62	11.15	9.20	9.60	7
Japan	11.07	10.86	10.81	10.51	10.54	10.50	9.60	7
United States	8.97	9.58	9.61	9.36	9.15	8.80	8.90	8
Denmark	6.93	7.52	7.92	8.07	8.07	8.50	8.90	8
Portugal	5.37	6.60	7.31	7.85	9.07	9.00	8.50	9
Finland	8.93	8.98	8.69	8.77	9.18	9.10	8.40	10
Singapore	4.58	4.91	7.59	7.50	7.47	6.50	7.60	11
Sweden	7.71	6.62	6.97	6.96	7.82	7.60	7.40	12
Canada	6.42	6.69	6.82	7.02	6.97	7.00	7.00	13
Australia	9.15	8.48	7.99	8.02	6.6	7.00	6.80	14
Germany	6.59	6.76	6.99	6.97	6.79	6.70	6.60	15
Trinidad and Tobago	5.28	5.02	5.11	7.85	7.63	7.60	6.40	16
Italy	6.27	6.97	7.45	7.60	7.59	7.20	6.40	16
Austria	5.87	5.84	5.89	5.95	6.17	6.10	5.80	17
Slovenia	5.04	5.05	5.23	5.61	5.65	5.80	5.70	18
Israel	5.93	6.28	6.54	6.16	5.96	5.50	5.50	19
India	**2.71**	**3.26**	**2.88**	**3.17**	**3.14**	**4.80**	**4.70**	**28**
Algeria	0.51	0.65	0.64	0.58	0.56	0.50	0.50	80
World	**7.83**	**8.14**	**8.06**	**7.99**	**7.52**	**7.50**	7.50	

Source: Swiss Re, Sigma Reports, Various Issues & IRDA Annual Reports.

A close examination of data for each country for different years from 2001 to 2007 reveals that UK was in second position in 2001, 2002 and 2003, slipped to third position in 2004 and 2005. It secured the first position in 2006 with 16.5 percent and retained the same rank in 2007 but with slightly lower percentage. Between 2002 and 2005 the penetration showed a declining trend. Taiwan was in 11th place during 2001. It steadily improved its penetration rate gradually and reached the top position along with UK in 2007. As regards Netherlands, it was placed in 6th position in 2001, but encountered with fluctuations in subsequent years and however, in 2007 it secured the third position.

South Korea was in 4th position in 2001 with 12.07 per cent and showed deceleration tendency until 2004 and again slowly improved but could not secure the original percentage and however retained its fourth position. On the other hand, Hong Kong showed a remarkable progress in its journey of total insurance penetration. Originally it was placed in far lower position of 17th rank in 2001 and with its continuous progress attained the 4th position along with South Korea. Ireland recorded 7th position in 2001 and subsequently it was encountered with fluctuations but secured the 5th position.

Besides, other countries like France, Belgium, Denmark, Portugal, Singapore, Canada and other countries have improved their positions over 2001. However, in respect of some countries either declining or fluctuating tendencies are noticed. For example, Japan, which recorded 11.07 per cent in 2001 gradually slipped to 9.6 per cent in 2007. Similarly, United States showed an increase from 2001 to 2003 but slowly faced deceleration and remained at 8.9 per cent in 2007. Other countries like Finland, Sweden, Australia, Germany, and other showed slightly declining or fluctuating tendencies.

The disaggregate data for insurance penetration is also collected separately for life insurance and non-insurance separately. The penetration rates are calculated and presented in table 3 for life insurance sectors.

Table 3 shows that in case of life insurance penetration, Taiwan secured the top position with 12.90 per cent in 2007. In fact, Taiwan was in 8th position in the ranking order in 2001 and accounted for 6.03 per cent of life insurance penetration. However, it achieved rapid progress continuously and secured the premium position in 2007 as shown above. U.K occupied the second position after Taiwan with 12.60 per cent. A close perusal of year-wise data indicates that UK was also ranked second place in 2001 to 2003 but slipped to third position in 2004 and 2005 and achieved first place in 2006 and however, ended with its original second place in 2007. However, fluctuations are noticed in its penetration rates for different years. As regards South Africa, it secured third position in 2007

with 12.5 per cent. As a matter of fact, South Africa accounted for first place for a period of four years continuously from 2001 to 2004 although the rate of penetration has declined gradually, slipped to second position in the next two years and ended with third position as explained above.

TABLE 3: TOP 25 COUNTRIES OF THE WORLD IN LIFE INSURANCE PENETRATION

Name of the Country	Years (2001 – 2007)							Rank
	2001	2002	2003	2004	2005	2006	2007	
1	2	3	4	5	6	7	8	9
Taiwan	6.03	7.35	8.28	11.06	11.17	11.60	12.90	1
United Kingdom	10.73	10.19	8.62	8.92	8.90	13.10	12.60	2
South Africa	15.19	15.92	12.96	11.43	10.84	13.00	12.50	3
Hong Kong	5.13	5.20	6.38	7.88	8.63	9.20	10.60	4
Ireland	6.30	5.42	6.04	5.74	5.65	7.90	9.30	5
South Korea	8.69	8.23	6.77	6.75	7.27	7.90	8.20	6
Japan	8.85	8.64	8.61	8.26	8.32	8.30	7.50	7
France	5.73	5.61	5.99	6.38	7.08	7.90	7.30	8
Belgium	5.18	5.57	6.81	6.73	8.36	6.50	6.90	9
Finland	6.99	6.98	6.81	6.89	7.33	7.20	6.70	10
Singapore	3.40	3.48	6.09	6.02	6.00	5.40	6.20	11
Denmark	4.51	4.84	5.18	5.15	5.19	5.60	5.90	12
Portugal	2.76	3.46	4.14	4.66	6.20	6.10	5.80	13
Switzerland	7.95	8.41	7.72	6.73	6.20	6.20	5.70	14
Sweden	5.74	4.55	4.74	4.56	5.32	5.20	5.30	15
Netherlands	5.66	4.98	4.93	5.43	5.12	5.10	4.70	16
Trinidad and Tobago	3.78	3.42	3.49	5.77	5.61	5.60	4.30	17
United States	4.40	4.60	4.38	4.22	4.14	4.00	4.20	18
Italy	3.81	4.39	4.82	4.86	4.86	4.70	4.00	19
India	**2.15**	**2.59**	**2.26**	**2.53**	**2.53**	**4.10**	**4.00**	**20**
Australia	5.70	5.02	4.42	4.17	3.51	3.80	3.80	21
Canada	2.97	2.81	2.63	2.97	3.05	3.10	3.20	22
Germany	3.00	3.06	3.17	3.11	3.06	3.10	3.10	23
Malaysia	3.38	2.94	3.29	3.52	3.60	3.20	3.10	24
Norway	2.32	2.57	2.79	3.14	3.28	2.80	3.00	25
Algeria	0.02	0.03	0.02	0.03	0.03	0.00	0.00	78
World	**4.68**	**4.76**	**4.59**	**4.55**	**4.34**	**4.50**	**4.40**	

Source: Swiss Re, Sigma Reports, Various Issues & IRDA Annual Reports.

Hong Kong exhibited remarkable progress in life insurance penetration as in the case of total insurance business and registered 4th place in 2007 with 10.6 per cent. It recorded continuous increase during the period under reference although it was in 14th place in 2001. Next comes in the order are Ireland (9.3 per cent), South Korea (8.2 per cent), Japan (7.5 per cent) so on.

Further examination of data reveals that countries like Ireland, France, Belgium, Singapore, Denmark and others have ascended to higher ranks through their increased penetration rates. On the other hand, South Korea slipped from 4th to 6th position, Japan from 3rd to 7th position, Switzerland from 5th to 14th position and Finland from 6th to 10th position. The United States, which was in 16th position in 2001 further gone down to 18th position in 2007 accompanied with heavy fluctuations over the period. The penetration of USA is also lower than that of world life insurance penetration.

As regards India, it ranked 25th in 2001 in life insurance penetration and ascended to 20th position in 2007. It recorded a penetration rate of 2.15 per cent in 2001 and suddenly jumped to 2.59 per cent in 2002 but declined to 2.26 per cent in 2003. But it recorded an increase of 2.53 per cent in 2004, which continued even in 2005. But there was huge increase in 2006 (4.1 per cent) and ended with 4 per cent in 2007. Algeria was the last country in the world with negligible penetration rates.

GLOBAL INSURANCE DENSITY: COUNTRY-WISE ANALYSIS

An attempt is also made to examine insurance densities for different countries in the world. Here also countries are arranged on the descending order from highest to lowest density. Basing on this, the top 25 countries are identified and ranked on the basis of per capita premium. Data is collected covering the period 2001 to 2007 and the insurance density for insurance business as a whole is presented in Table 4.

TABLE 4 TOP 25 COUNTRIES OF THE WORLD IN TOTAL INSURANCE DENSITY

Name of the Country	Years (2001 – 2007)							Rank
	2001	2002	2003	2004	2005	2006	2007	
1	2	3	4	5	6	7	8	9
Ireland	2465.7	2703.0	3669.5	4091.2	4177.0	5564.7	7171.4	1
United Kingdom	3393.8	3879.1	4058.5	4508.4	4599.0	6466.7	7113.7	2
Netherlands	2324.0	2472.4	3094	3599.6	3739.7	3828.8	6262.9	3
Switzerland	4342.8	4922.4	5660.3	5716.4	5558.4	5561.9	5740.7	4
Denmark	2094.2	2448.3	3116	3620.4	3876.2	4271.4	5103.1	5
France	1898.8	2064.2	2698.3	3207.9	3568.5	4075.4	4147.6	6
Belgium	1767.9	2002.9	2875.7	3275.6	3985.6	3442.5	4131.5	7
United States	3266.0	3461.6	3637.7	3755.1	3875.2	3923.7	4086.5	8
Finland	2097.9	2272.1	2714.5	3134.1	3389.3	3681.2	3905.8	9
Norway	1657.0	1939.0	2321.3	2842.2	3302.3	3229.0	3770.2	10
Sweden	1823.6	1792.7	2357.9	2690.0	3092.1	3226.2	3705.1	11
Luxembourg	1563.2	1934.3	2496.0	2562.9	2756.3	3366.3	3423.4	12
Hong Kong	1545.2	1583.0	1832.6	2217.2	2544.9	2787.6	3373.2	13
Japan	3507.5	3498.6	3770.9	3874.8	3746.7	3589.6	3319.9	14
Canada	1460.4	1563.2	1871.8	2188.7	2449.0	2708.3	3053.8	15
Australia	1668.3	1705.9	2041.4	2471.4	2569.9	2580.8	3000.2	16
Singapore	959.0	1030.7	1620.5	1849.3	1983.4	1957.7	2776.0	17
Germany	1484.2	1627.7	2051.2	2286.6	2310.5	2436.8	2662.1	18
Taiwan	1088.5	1279.2	1433.3	1909.0	2145.5	2250.2	2628.0	19
Austria	1348.8	1452.1	1846.8	2159.7	2342.8	2396.7	2620.5	20
South Korea	1060.1	1159.8	1243.0	1419.3	1706.1	2071.3	2384.0	21
Italy	1186.4	1435.4	1913.1	2217.9	2263.9	2302.2	2322.0	22
Iceland	851.6	978.7	1205.6	1310.2	1438.1	1360.0	1871.5	23
Portugal	588.9	799.4	1079.6	1293.5	1628.0	1663.8	1775.6	24
Spain	923.9	1091.5	1146.1	1355.2	1454.5	1514.6	1699.9	25
India	**11.5**	**14.7**	**16.4**	**19.7**	**22.7**	**34.4**	**46.6**	**68**
Bangladesh	1.6	1.6	2.1	2.3	2.5	2.6	2.9	79
World	**393.3**	**422.9**	**469.6**	**511.5**	**518.5**	**554.8**	**607.7**	

Source: Swiss Re, Sigma Reports, Various Issues & IRDA Annual Reports.

The table reveals that Ireland recorded the highest density of $ 7174.4 for the total insurance business in 2007 by registering almost three-fold and continuous increase against $ 2465.7 in 2001 and ranked 5th position. This was followed by UK with $ 7113.7, Netherlands, $ 6262.9, Switzerland with $ 5740.7 and Denmark with $ 5103.1. These countries have accounted for third, sixth, first and eight ranks respectively. Japan secured 2nd rank in 2001 with a density of $ 3507.5 but it is low in 2007 with $ 3319.9 and secured 14th rank. Similarly United States, which recorded 4th rank in 2001 with $ 3266 showed an increase in 2007 with $ 4086.5, however secured only 8th rank.

Unfortunately, India was placed in 68th position as its density level is far lower which is $ 46.6 in 2007 but it was only $ 11.5 in 2001 and thereafter it showed a progressive increase in the per capita premium and reached the present level. Bangladesh showed the least density of $ 2.9 in 2007 against $ 1.6 in 2001 and which is negligible.

Further efforts are also made to present the densities separately for life insurance for the period 2001 to 2007 which is already specified. Data for these are provided in Table 5.

Table 5 shows that UK secured the first place in respect of life insurance density, followed by Ireland, Denmark, Switzerland, Finland, Hong Kong, Belgium, France and so on. UK accounted for life insurance density of $ 5730.5 in 2007, which increased from $ 2567.9 and ranked third in 2001. Ireland, which comes next in order in 2007 secured fourth place in 2001 and life insurance density, increased more than three times. Denmark accounted for 6th rank in 2001, but its progress is very impressive. On the other hand, Japan which recorded first position with life insurance density of $ 2806.4 in 2001 encountered setback in 2007 and thus fall down to 10th place. As regards United States, it is observed that the density is gradually increased but its rank has fallen from 11th to 16th position. South Africa secured 24th rank in 2007 with life insurance density of $ 719.

TABLE 5: TOP 25 COUNTRIES OF THE WORLD IN LIFE INSURANCE DENSITY

Name of the Country	Years (2001 – 2007)							Rank
	2001	2002	2003	2004	2005	2006	2007	
1	2	3	4	5	6	7	8	7
United Kingdom	2567.9	2679.4	2617.1	3190.4	3287.1	5139.6	5730.5	1
Ireland	1700.4	1712.2	2312.5	2617.4	2759.7	4203.8	5715.1	2
Denmark	1364.4	1574.9	2037.5	2310.5	2489.9	2840.8	3381.0	3
Switzerland	2715.7	3099.7	3431.8	3275.1	3078.1	3111.8	3159.1	4
Finland	1641.2	1765.3	2126.8	2461.0	2707.8	2903.1	3093.1	5
Hong Kong	1249.7	1237.9	1483.9	1884.3	2213.2	2456.0	3031.9	6
Belgium	1155.0	1323.6	2004.8	2291.2	2988.7	2427.7	2972.6	7
France	1268.2	1349.5	1767.9	2150.2	2474.6	2922.5	2928.3	8
Sweden	1356.0	1232.2	1602.3	1764.3	2105.2	2214.6	2639.5	9
Japan	2806.4	2783.9	3002.9	3044	2956.3	2829.3	2583.9	10
Norway	879.3	1101.0	1322.5	1714.4	2043.1	2016.0	2438.5	11
Singapore	713.2	730.1	1300.2	1483.9	1591.4	1616.5	2244.7	12
Netherlands	1345.0	1296.1	1561.7	1936.5	1954.2	2071.6	2192.4	13
Taiwan	760.9	925.1	1050.1	1494.6	1699.1	1800.0	2165.7	14
United States	1602.0	1662.6	1657.5	1692.5	1753.2	1789.5	1922.0	15
Australia	1040.3	1010.4	1129.3	1285.1	1366.7	1389.0	1674.1	16
South Korea	763.4	821.9	873.6	1006.8	1210.6	1480.0	1656.6	17
Italy	720.8	904.9	1238.3	1417.2	1449.8	1492.8	1439.4	18
Luxembourg	555.2	840.0	1161.1	1007.1	1112.5	1548.4	1414.5	19
Canada	675.9	657.3	722.9	926.1	1071.9	1204.1	1386.8	20
Germany	674.3	736.7	930.4	1021.3	1042.1	1136.1	1234.1	21
Portugal	302.9	418.6	611.4	768.1	1113.7	1131.5	1210.0	22
Austria	632.0	648.7	811.0	955.3	1095.1	1104.6	1189.6	23
South Africa	377.2	360.5	476.5	545.5	558.3	695.6	719.0	24
Spain	491.0	588.0	488.6	571.9	615.8	651	709.3	25
India	**9.1**	**11.7**	**12.9**	**15.7**	**18.3**	**33.2**	**40.4**	**51**
Nigeria	0.5	0.5	0.6	0.7	0.5	0.8	0.9	79
World	**235.0**	**247.3**	**267.1**	**291.5**	**299.5**	**330.6**	**358.1**	

Source: Swiss Re, Sigma Reports, Various Issues & IRDA Annual Reports.

An attempt is also made to find the place of India in the world rankings in respect of life insurance density. It was placed in 51st position in 2007 with a density of meager $ 40.4 and it was only $ 9.1 in 2001. Nigeria was the last country in the world to secure the least rank (79th) and accounted for the lowest density $ 0.9 in 2007.

CONCLUSION

It is observed from the tables in various aspects like penetration and density as total insurance i.e life and non-life and life insurance separately that India's density ratio is to be increased by creating awareness among the people in the country. After privatization of insurance sector the awareness on insurance is increased among the public only because of the private players. Due to the competition every insurer is trying to grasp the market through the agents. But the insurers should give proper training to the agents to create awareness and educate the public on insurance by giving proper information, some agents are giving wrong information to the policyholders this should be controlled by the insurers.

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AN ENHANCE SECURITY OF PLAYFAIR CIPHER SUBSTITUTION USING A SIMPLE COLUMNAR TRANSPOSITION TECHNIQUE WITH MULTIPLE ROUNDS (SCTTMR)

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ABSTRACT

In this paper, we have made use of a traditional Playfair cipher technique with Simple Columnar Transposition Technique with Multiple Rounds (SCTTMR). After applying SCTTMR we got the actual cipher. Our main focus is on the Playfair Cipher, its advantages and disadvantages. Finally, we have proposed methods to enhance the Playfair cipher for more secure and efficient cryptography which provide difficulty in identifying individual diagram.

KEYWORDS

Playfair Cipher, Simple Columnar Transposition Technique, SCTTMR, Substitution Cipher.

INTRODUCTION

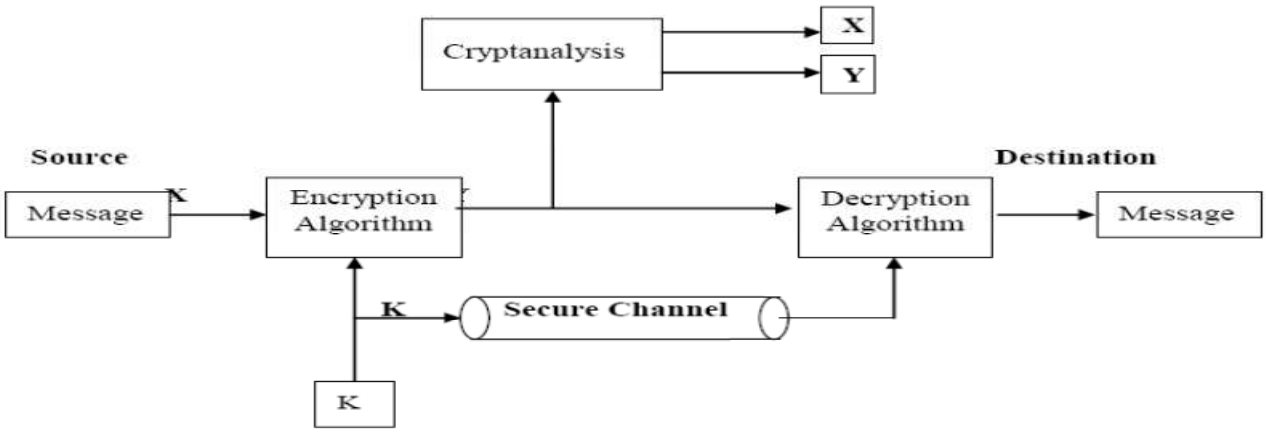
From the beginning of human society, people have been very much concerned with the privacy of their communications. In contemporary societies, the growing use of computer has made the security of digital files of outmost concern against those users with malevolent intentions, especially on the internet. To protect the digital files either in the computer or in the transmission [2],

Cryptography is the science which deals with all the means and methods for converting an intelligible message into an unintelligible or secret form and for reconverting the secret form into the intelligible message by a direct reversal of the steps used in the original process [1]. Even though encryption is very powerful among these two, the cryptanalysts are very intelligent and they were working day and night to break the ciphers. To make a stronger cipher it is recommended that to use: More stronger and complicated encryption algorithms with more number of rounds, Keys with more number of bits (Longer keys), secure transmission of keys [3].

CRYPTOGRAPHY SCIENCE

The word is derived from the Greek crypto's, meaning hidden. Cryptography is a science of devising methods that allow information to be send in a secure from in such a way that the only person to able retrieve this information is the intended recipient. Encryption is based on algorithms that scramble information (Plaintext or Clear Text) into unreadable (Cipher Text) form. Decryption is the process of restoring the scrambled information to its original form. Cryptography includes techniques such as microdots, merging words with images, and other ways to hide information in storage or transit. Cryptographic systems are used to provide privacy and authentication in computer and communication systems. Modern cryptography intersects the disciplines of mathematics, computer science, and electrical engineering. Applications of cryptography include ATM cards, computer passwords, and electronic commerce. [9]

FIGURE 1: CRYPTOGRAPHIC SYSTEM



All Cryptographic algorithms are based on two general principles: substitution, in which each element in the plaintext (bit, letter, and group of bits or letters) is mapped into another element and in transposition, the elements of the plaintext have simply been re-arranged in different order; their position with relation to each other have been changed. [4]

CLASSIC CRYPTOGRAPHY

The earliest forms of secret writing required little more than local pen and paper analogs, as most people could not read. More literacy, or literate opponents, required actual cryptography. The main classical cipher types are transposition ciphers, which rearrange the order of letters in a message (e.g., 'hello world' becomes 'ehlol owrdl' in a trivially simple rearrangement scheme), and substitution ciphers, which systematically replace letters or groups of letters with other letters or groups of letters (e.g., 'fly at once' becomes 'gmz bu podf' by replacing each letter with the one following it in the Latin alphabet). [9]

- **Substitution Technique**

In cryptography, a substitution cipher is a method of encryption by which units of plaintext are replaced with cipher text according to a regular system; the "units" may be single letters (the most common), pairs of letters, triplets of letters, mixtures of the above, and so forth. The receiver deciphers the text by performing an inverse substitution.

There are a number of different types of substitution cipher available like Caesar Cipher, Mono-alphabetic Cipher, Homophonic Substitution Cipher, Polygram Substitution Cipher, Polyalphabetic Substitution Cipher, Playfair Cipher and Hill Cipher. [9]

- **Transposition Technique**

In cryptography, a transposition cipher is a method of encryption by which the positions held by units of plaintext (which are commonly characters or groups of characters) are shifted according to a regular system, so that the cipher text constitutes a permutation of the plaintext. That is, the order of the units is changed. Mathematically a bijective function is used on the characters' positions to encrypt and an inverse function to decrypt.

There are a number of different types of Transposition cipher available like Rail Fence Cipher, Simple Columnar Transposition, Vernam Cipher, Double transposition, Myszkowski Transposition, Disrupted Transposition. [9]

PLAYFAIR CIPHER

The Playfair cipher or Playfair square is a manual symmetric encryption technique and was the first literal digraph substitution cipher. The scheme was invented in 1854 by Charles Wheatstone, but bears the name of Lord Playfair who promoted the use of the cipher. The technique encrypts pairs of letters (digraphs), instead of single letters as in the simple substitution cipher and rather more complex Vigenère cipher systems then in use. The Playfair is thus significantly harder to break since the frequency analysis used for simple substitution ciphers does not work with it. Frequency analysis can still be undertaken, but on the 600 possible digraphs rather than the 26 possible monographs. The frequency analysis of digraphs is possible, but considerably more difficult – and it generally requires a much larger cipher text in order to be useful. [8]

The Playfair cipher uses a 5 by 5 table containing a key word or phrase. Memorization of the keyword and 4 simple rules was all that was required to create the 5 by 5 table and use the cipher.

To generate the key table, one would first fill in the spaces in the table with the letters of the keyword (dropping any duplicate letters), then fill the remaining spaces with the rest of the letters of the alphabet in order (usually omitting "Q" to reduce the alphabet to fit; other versions put both "I" and "J" in the same space). The key can be written in the top rows of the table, from left to right, or in some other pattern, such as a spiral beginning in the upper-left-hand corner and ending in the center. The keyword together with the conventions for filling in the 5 by 5 table constitute the cipher key.[8]

To encrypt a message, one would break the message into digraphs (groups of 2 letters) such that, for example, "Hello World" becomes "HE LL OW OR LD", and map them out on the key table. If needed, append a "Z" to complete the final digraph. The two letters of the digraph are considered as the opposite corners of a rectangle in the key table. Note the relative position of the corners of this rectangle. Then apply the following 4 rules, in order, to each pair of letters in the plaintext:

1. If both letters are the same, add an "X" after the first letter. Encrypt the new pair and continue. Some variants of Playfair use "Q" instead of "X", but any uncommon monograph will do.
2. If the letters appear on the same row of your table, replace them with the letters to their immediate right respectively.
3. If the letters appear on the same column of your table, replace them with the letters immediately below respectively.
4. If the letters are not on the same row or column, replace them with the letters on the same row respectively but at the other pair of corners of the rectangle defined by the original pair. The order is important – the first letter of the encrypted pair is the one that lies on the same row as the first letter of the plaintext pair. [8]

To decrypt, use the INVERSE (opposite) of the last 3 rules, and the 1st as-is (dropping any extra "X"s (or "Q"s) that don't make sense in the final message when finished).

Example:-

Key is "Playfair example" the table becomes

TABLE 1

P	L	A	Y	F
I/J	R	E	X	M
B	C	D	G	H
K	N	O	Q	S
T	U	V	W	Z

Message is "Hide the gold in the tree stump":

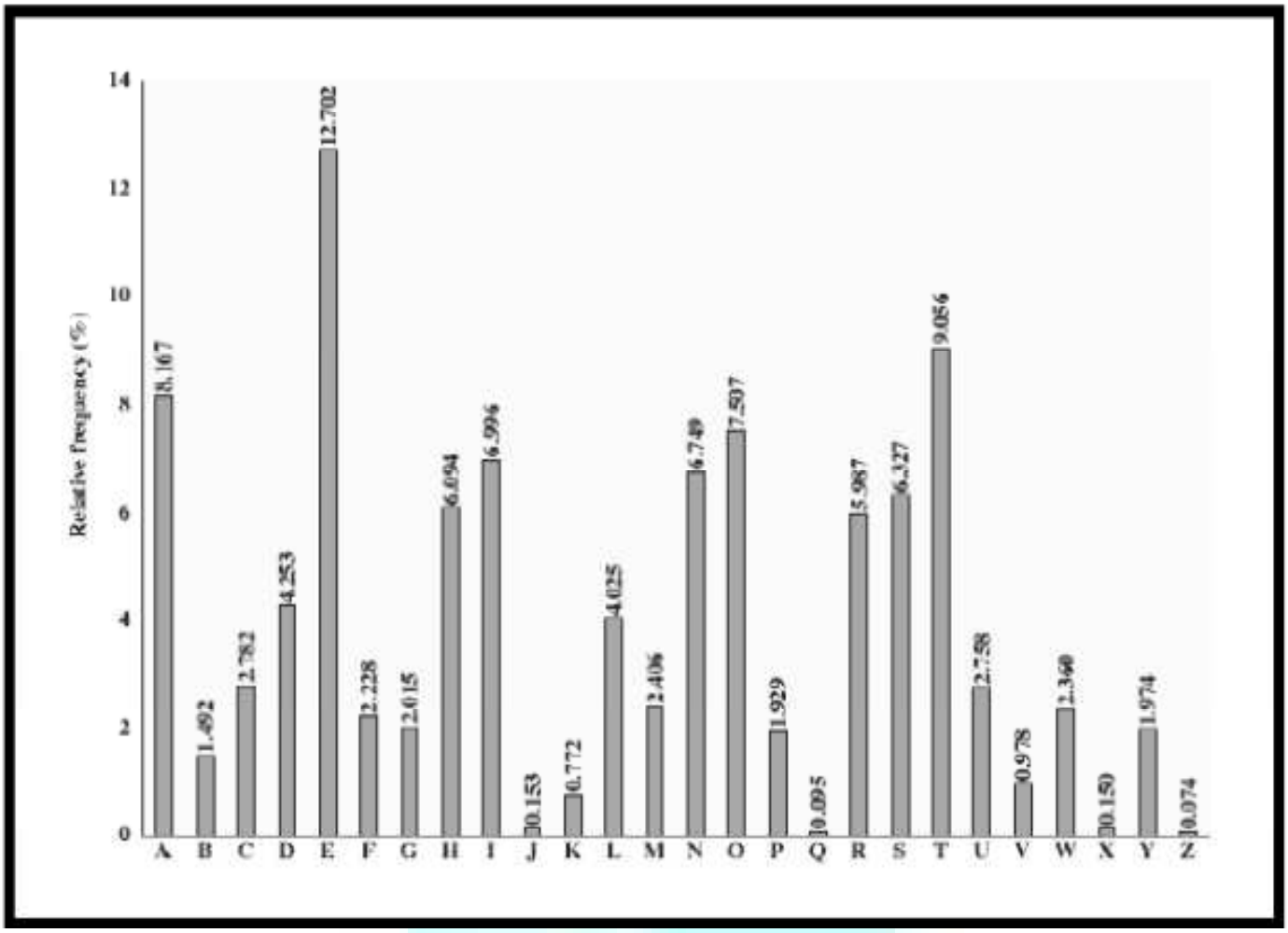
To encrypt a message, one would break the message into digraphs (groups of 2 letters) such that, becomes “HI DE TH EG OL DI NT HE TR EX ES TU MP”

Thus the Message (Plain Text) "Hide the gold in the tree stump" becomes "BMNDZBXDKYBEJVDMUIXMMNUVIF".

PRAPOSED PLAYFAIR CIPHER

From the Figure-2, we can notice that, the frequency of the letter I is 6.996 and J is 0.153. These are widely used letters in normal text and considered as a single letter in the Playfair Table-I. It may leads to the confusion at the receiving side whether to use I / J for decryption. [4]

FIGURE 2: RELATIVE FREQUENCY OF LETTERS IN ENGLISH TEXT



To reduce the ambiguity at the receiving end, it is better to combine the less frequency letters as a one letter in the Table-I rather than using I/J as single letter. So, that the less frequency letters appears very rare in the text and hence we can reduce the confusion level while decrypting at the receiving end. For this we recommend to combine Q (0.095) and Z (0.074) as a single letter in the Playfair Table 2.

For constructing the Table-2 we rearranged the 26 letters in 5X5 matrix by considering the frequency of letters from the Figure-2. Use the keyword and fill the keyword characters from left to right and top to bottom in the matrix, then fill the least frequency letters Q/Z count as one letter, after that fill the remainder of the matrix with the remaining letters in alphabetic order. [4]

TABLE 2

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q/Z	R	S	T
U	V	W	X	Y

In above metrics we apply a Simple Columnar Transposition Technique with Multiple Rounds.

HOW TO APPLY MULTIPLE ROUNDS

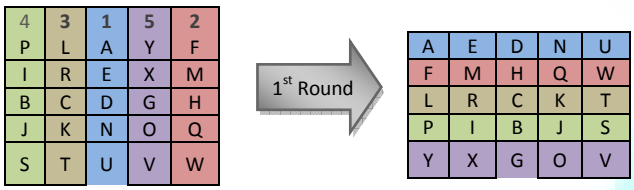
1. Using the keyword we arrange the keyword character from left to right and fill the 5X5 matrices with remaining character.
2. We mark the first row of matrices with 1, 2,3,4,5 according the dictionary order.
3. Rearranged the first marked column in first row which makes the first round.
4. In next round we mark the second row according to step 2.
5. Then fallow the steps 2 to 4.
6. Follow the steps 2 to 5 for 5 round.

Example

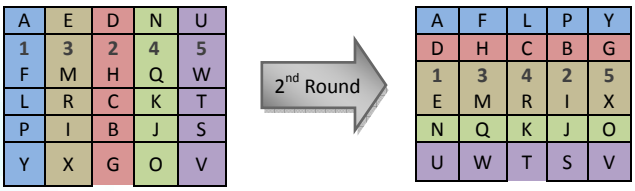
Key is "Playfair example" the table becomes

P	L	A	Y	F
I	R	E	X	M
B	C	D	G	H
J	K	N	O	Q/Z
S	T	U	V	W

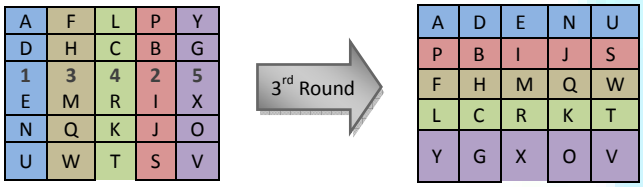
1st Round



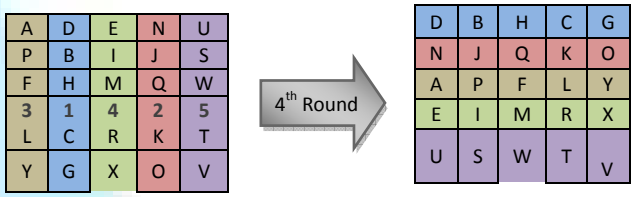
2nd Round



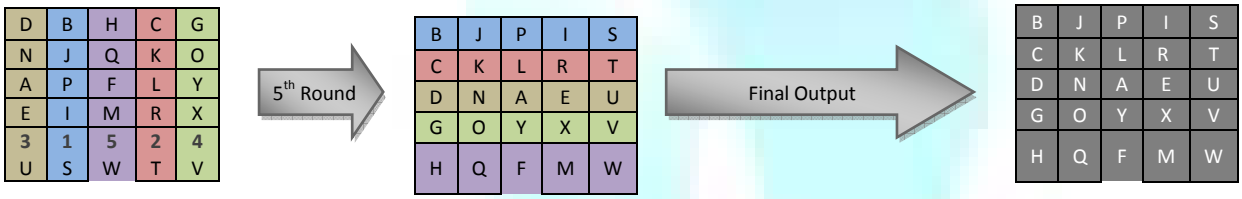
3rd Round



4th Round



5th Round



Message is "Hide the gold in the tree stump":

In this Message (Plain Text) we apply all rules of existing Playfair cipher in section 4 of this paper.

"HI DE TH EG OL DI NT HE TR EX ES TU MP" becomes

"MBNUCWDXYKEBUKMDCTXMUIUVFI".

RESULT

With our enhanced Playfair Cipher Technique with SCTTMR is observed that, it can be used for the plaintext with Multiple Rounds which makes the encryption complex and difficult to identify individual diagram. It is also noticed that, by combining less frequency character 'Q/Z' instead of 'I/J' the ambiguity at receiving end will be reduced.

ADVANTAGE OF PRAPOSED PLAYFAIR TECHNIQUE

- Identification of individual diagrams is difficult.
- Frequency analysis difficult.

CONCLUSION

In this paper we have combine two different approach Substitution and Transposition Technique including Simple Columnar Transposition Technique with Multiple Rounds (SCTTMR). To solve the de merits in Playfair we have proposed and explained methods with examples. For this, we provide multiple rounds which make the complex encryption. Finally we named it as: '**An Enhance Security of Playfair Cipher Substitution Using a Simple Columnar Transposition Technique with Multiple Rounds (SCTTMR)** '. The present version of the play fair technique will consider only text in English for conversion; we can also extend it to numbers and symbols for wide range of use.

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CONSUMERS PERCEPTIONS OF CORPORATE SOCIAL RESPONSIBILITY: EMPIRICAL EVIDENCE

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ABSTRACT

Corporate social responsibility (CSR, also called corporate conscience, corporate citizenship, social performance, or sustainable responsible business/ Responsible Business) is a form of corporate self-regulation integrated into a business model. The goal of CSR is to embrace responsibility for the company's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered as stakeholders. The scale and nature of the benefits of CSR for an organization can vary depending on the nature of the enterprise, and are difficult to quantify. Orlitzky, Schmidt, and Rynes found a correlation between social/environmental performance and financial performance. However, businesses may not be looking at short-run financial returns when developing their CSR strategy. Long term benefits of CSR to the organization can be brand loyalty earned based on distinctive ethical values, which helps in making products/services being distinct from others. In this paper, an attempt has been made in understanding the financial implications of CSR, which includes measuring preferences given to the products/services of organizations practising CSR & willingness to pay higher for the products/services of organizations practising CSR.

KEYWORDS
Consumer Preference, CSR, Financial Implications of CSR.

INTRODUCTION

Keller (1998) defined CSR image as *the consumers' associations arising from corporate activities related to public affairs, literature and arts, social welfare, and so on*.

Over the years, corporate social responsibility (CSR) and its effect on an organisation's success has been the subject of much academic debate and criticism. Proponents of CSR argue that corporations benefit in many ways by operating with a longer term view of their organisation and role in society than they do by focusing on just their own short-term profits. Critics argue that CSR distracts from the fundamental economic role of businesses, which is to make money. Others argue that CSR is nothing more than a feel-good programme, which attempts to serve as a watchdog over large and powerful corporations.

In any event, research has extensively investigated the relationship between social responsibility and financial performance of organisations. Even in the event of any relationship existing between CSR and Financial performance, positive or negative relationship, or no relationship existing at all between them, CSR can help in building the image of the organization as customers view organization from holistic point of view.

REVIEW OF LITERATURE

McWilliams, Siegel, and Wright (2006) credit Theodore Levitt with sparking the current CSR debate in the academic literature. Farmer (1964) framed CSR in terms of a religious spectrum, arguing that some business philosophies necessitated CSR while others precluded its use.

The gap between corporations' stated CSR practices and public perceptions has become quite noticeable. Porter and Kramer (2006) highlighted several incidents throughout the mid-1990s showing that the public valued CSR whether the academic literature had decisively proven its utility or not. For example, Coca Cola faced an extensive consumer boycott after the News broke out in various media about the high value of pesticides found in the soft drink. Later company with the use of heavy promotions have to rebuild the image and earn repute.

Currently, CSR as an academic field is a wide-ranging, multi-faceted research area. The quantity of research produced has increased enormously over the last decade, and touches nearly every facet of business theory. The field has been helped by the news media, as scandals such as those at Enron and WorldCom have thrust debates concerning corporate governance and corporate social performance (CSP) to the forefront of the minds of shareholders, managers, and public policy makers.

Swasy (1990) observed that consumers want not only to understand a firm's product characteristics and marketing activities, but also to know about the corporation itself and their cognition will be built up from different sources of information. Denworth (1989) found that 71% of consumers have a good impression of a corporation if they have access to positive information about it. Corporate image is, thus, one of the elements making up brand name benefit, and, thus, firms seek to influence consumer perception of corporate image. Consumer understanding of what a firm thinks, says, and tends to do in relation to others (i.e., its sense-making process) is also likely to strengthen perception of corporate social responsibility (CSR; Basu & Palazzo, 2008).

Corporate social responsibility has been a topic that has garnered increased attention in recent years (Sethi, 1995). Several studies have examined the relationship between corporate social performance and financial performance (e.g. Pava & Krausz, 1995). Although Ullman (1985) found that no clear support exists for the social responsibility financial performance link (CSR- FP), Pava and Krausz (1995) noted that of the 21 studies that had examined the CSR- FP relationship, 12 indicate a positive link whereas only one found a negative link.

NEED/IMPORTANCE OF THE STUDY

It becomes important to investigate whether customers value the dedication of organization towards CSR efforts. A very little research has been carried out to investigate any preference given to companies following CSR practises by the customers, and hence it becomes very important to study whether customers value the CSR practices adopted by organizations, and give preference to the products/services offered by organizations practising CSR.

STATEMENT OF THE PROBLEM

Determining consumer preferences and consumers' willingness to pay higher prices for the products or services of the organization practising CSR

OBJECTIVES

- To assess the awareness level of customer regarding CSR
- To study consumer preference given to the products/services offered by organizations practising CSR
- To check whether customers are ready to pay higher prices for products/services offered by organizations practising CSR

HYPOTHESES

The following are the two null hypothesis used for the study:
H0 (1): There are no significant differences in the preference given by the respondents to the products/services of organizations practising CSR.
H0 (2): There are no significant differences in the willingness of the respondents to pay higher prices for the products/services of organizations practising CSR

RESEARCH METHODOLOGY

A structured questionnaire was prepared and executed on respondents, customers. The questions comprised of close ended questions, directed to find any relationship between the organizations practising CSR and customers preference to the companies practicing it while purchasing the products, and willingness to pay higher prices for the products/services of the organizations practising CSR.

RESULTS & DISCUSSION

The first point being the awareness level about the CSR, The responses obtained were showing significant portion of respondents 33% absolutely did not know about the CSR at all.

TABLE 1: AWARENESS OF RESPONDENTS ABOUT CSR

Awareness	No. of respondents	Percentages
Yes	101	67%
No	49	33%
Total	150	100%

This table represents that companies need to spread a word of CSR and then, customers will to a larger extent will respond to the CSR activities that companies might carry out. This question only represents the awareness of CSR as a terminology. It does not depict the opinion about the CSR. To deal more specifically with the problem of terminological differences; then the respondents responded to the question; whether the organizations utilizing the resources of the society should return in terms of doing socially responsible activities. The responses obtained are depicted in the following table.

TABLE 2: OPINION OF RESPONDENTS ABOUT COMPANIES BEING SOCIALLY RESPONSIBLE

Other than earning profits, are organizations responsible for socially responsible activities?	No. of respondents	Percentages
Yes	143	95%
No	07	05%

This table depicts that there are 143 respondents believe that organizations are bound to be socially responsible. Only 5% of the respondents argue against and respond that organizations are not responsible rather they only exist to earn profit.
Contrary to the question mentioning the awareness about the concept of CSR this question depicts that 95% of the respondents believe that organizations should also be considering socially responsible activities rather than just making profits.
Total of 143 respondents believe that organizations have to be socially responsible. Respondents were asked to express their opinion regarding several activities that organizations may adopt for being socially responsible. The following table depicts the opinion of the respondents.

TABLE 3: OPINION OF RESPONDENTS ABOUT CONCRETE ACTIONS THAT THEY WISH ORGANIZATIONS TO TAKE

Which are concrete actions towards community organization should adopt?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Donation to organizations having social utility	28	59	25	19	12
Sponsorship of sport and cultural events	24	48	39	27	5
Cause Related Marketing campaign	9	25	34	48	27
Corporate foundation for social causes	67	37	16	16	7

Assigning weightages to the factors i.e. Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, & Strongly Disagree as 1, 2, 3, 4, & 5 respectively and finding out the weighted average, and arranging it as per their relative importance, we get the following result.

TABLE 4: WEIGHTED SCORE OF THE CONCRETE ACTIONS RESPONDENTS WISH ORGANIZATIONS TO TAKE

Factors	Total Score	Weighted Score
Corporate Foundation For Social Causes	288	19
Donation To Organizations Having Social Utility	357	24
Sponsorship Of Sport And Cultural Events	370	25
Cause Related Marketing Campaign	488	33

The minimum weightage was given to the most important factor and highest weightage was given to the factor least important hence, the lowest score would mean that the factor is most important. As per the calculation Corporate Foundation for Social Cases gets the lowest score meaning it is very important. Customers want organizations to become more socially responsible themselves. If organizations do not prefer to indulge themselves directly then they should opt for opt for Donation to Organizations Having Social Utility. Some respondents believe that organizations should sponsor sports and cultural events. The factor Cause Related Marketing Campaign is having the highest score meaning it is least important.
It becomes important to assess what consumers think about the primary reason for companies practising CSR. Total 143 respondents are taken into consideration, as the other 07 respondents believe that organizations are not responsible for being socially responsible, and they believe that organizations should only exist to earn profit.

TABLE 5: REASONS FOR COMPANIES PRACTISING CSR

In your opinion, which are the reasons for which companies may adopt CSR practices?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Promote corporate image	71	24	14	29	5
Increase of the efficiency	6	12	32	74	19
Commercial advantages to new markets	34	68	23	14	4
Public incentives	25	49	49	17	3
Pressure from consumer association and media	29	58	28	26	2

Assigning weightages to the factors i.e. Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, & Strongly Disagree as 1, 2, 3, 4, & 5 respectively and finding out the weighted average, and arranging it as per their relative importance, we get the following result.

TABLE 6: WEIGHTED SCORE OF THE REASONS FOR COMPANIES PRACTISING CSR

Reason	Total Score	Weighted Score
Promote corporate image	302	20
Commercial advantages to new markets	315	21
Pressure from consumer association and media	343	23
Public incentives	353	24
Increase of the efficiency	517	34

This table depicts that according to the respondents, organizations adopt CSR to primarily promote the corporate image. Respondents do believe that organizations may adopt CSR practices to gain commercial advantages to new markets also. Enough emphasis is put on the factor that indicates that organizations are practicing CSR just because of the Pressure for consumer association and media. In the case when consumers believe that organizations are adopting CSR practices to Promote Corporate Image, it becomes important to assess whether organizations will be successful in capitalizing their corporate image built by practicing CSR, in terms of consumer preference to their products/services. To check the same, consumers were asked whether they prefer to buy the products/services of the companies following CSR. Here only 143 responses are taken into consideration, because others don't bother about organizations doing socially responsible activities.

TABLE 7: PREFERENCE GIVEN TO PRODUCTS/SERVICES OF SOCIALLY RESPONSIBLE ORGANIZATIONS

Do you prefer to buy products/services of the companies following CSR?	No. of respondents	Percentages
Yes	96	67%
No	47	33%
Total	143	100%

Out of total respondents those believed that companies should be socially responsible 96 (67%) respondents responded that they prefer to buy products of the companies those are socially responsible.

H_0	There are no significant differences in the preference given by the respondents to the products/services of organizations practising CSR
H_1	There are significant differences in the preference given by the respondents to the products/services of organizations practising CSR

TABLE 8: BINOMIAL TEST STATISTICS FOR PREFERENCE GIVEN TO PRODUCTS/SERVICES OF THE ORGANIZATIONS PRACTISING CSR

Binomial Test					
	Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
Yes	1.00	96	.67	.50	.000[a]
No	2.00	47	.33		
Total		143	1.00		

The Binomial test was used to identify whether there are any significant differences existing in the dichotomous question. If out of all respondents 50% respondents says yes and 50% respondents answers No, then in that case there would not be any significant differences in the sample regarding preference given to the products/services of the organizations practising CSR. Hence the test proportion was kept at 50% (0.50). The resultant Asymp. Sig. is 0.000 (<0.05) which shows that there are significant differences in the data regarding preference given.

The data set indicates that the data is more skewed towards the 'yes' option with 96 respondents (67%), meaning there are significant no. of respondents answering that they would like to prefer the products/services of the organizations practising CSR. Hence it is important to measure the attitude of consumers and analyze whether they are willing to pay higher prices for purchasing the products/services of the organizations practising CSR.

CSR practices may prove to be a factor adding some cost to the company, may it be in any form, pushing organizations either to shrink their margins or increase their selling prices of the products or services they are offering to their end-users. Simultaneously, willingness of the customer to pay higher prices for the products/services should also be checked in case organizations are forced to increase the selling price due to the additions in the cost of practising CSR. The following table depicts the responses of the respondents, when they were asked, 'Do you prefer to pay higher prices for products/services of the companies following CSR'.

TABLE 9: WILLINGNESS TO PAY HIGHER PRICES FOR PRODUCTS/SERVICES OF SOCIALLY RESPONSIBLE ORGANIZATIONS

Do you prefer to pay higher prices for products/services of the companies following CSR?	No. of respondents	Percentages
Yes	58	41%
No	85	49%
Total	143	100%

Out of total 143 respondents 58 (41%) respondents are ready to pay higher prices for purchasing products/services of socially responsible organizations. Table 4 depicts that if CSR practises are becoming a factor adding some cost to the organizations then, there are customers who are willing to pay higher prices.

Table 10 depicts that out of total 96 respondents, those who prefer to buy products of the companies following CSR practices 58 (60%) respondents are willing to pay higher prices for purchasing the products/services of the companies following CSR practices. Considering that 60% respondents are even willing to pay higher prices organizations can sufficiently adapt the practices of CSR though it may add it to the cost structure.

TABLE 10: CROSS-TABULATION OF WILLINGNESS TO PAY HIGHER PRICES FOR PRODUCTS/SERVICES OF SOCIALLY RESPONSIBLE ORGANIZATIONS AND PREFERENCE GIVEN TO THE PRODUCTS/SERVICES OF SOCIALLY RESPONSIBLE ORGANIZATIONS

		Willing to Pay Higher		Total
		Yes	No	
Preference Given	Yes	58	38	96
	No	00	47	47
Total		58	85	143

So, it becomes important to assess the variations in the responses obtained for the willingness to pay higher prices for the products / services of the organizations practising CSR. For the assessing the same binomial test was used at test proportion being 50% (0.50).

H_0	There are no significant differences in the willingness of the respondents to pay higher prices for the products/services of organizations practising CSR
H_1	There are significant differences in the willingness of the respondents to pay higher prices for the products/services of organizations practising CSR

TABLE 11: BINOMIAL TEST STATISTICS FOR WILLINGNESS TO PAY HIGHER PRICES FOR PRODUCTS/SERVICES OF THE ORGANIZATIONS PRACTISING CSR

Binomial Test					
	Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
Yes	1.00	58	.41	.50	.029[a]
No	2.00	85	.59		
Total		143	1.00		

The resultant Asymp. Sig. is 0.029 (<0.05) which shows that there are significant differences in the data regarding preference given. The data set indicates that the data is more skewed towards the option 'No' having 85 respondents (59%). This indicates that there are respondents who are willing to give higher preference to the products/services of the organizations practising CSR, but most of the respondents are not wiling to pay higher prices for products/services of the organizations practising CSR.

The rational for adapting CSR practices becomes stronger when 96 (67%) respondents are ready to purchase the products/services of the organizations practising CSR. As 67% of the respondents are willing to purchase products/services of organizations practicing CSR, companies may take advantage by initiating and selling higher volumes by communicating or marketing the practices of CSR. Thus, companies can get the investment back that has been spent for incorporating CSR practices in the organization, though CSR may not be viewed only for earning profits or getting benefits of higher volume of sales.

Organizations are utilizing the resources of the society and it becomes the moral responsibility of the organizations to be socially responsible. The respondents were asked on whether to legalize for the organizations to be socially responsible by any means, may it be doing it themselves or helping the organizations only running to fulfil the social causes. The responses obtained were

TABLE 12: OPINION OF RESPONDENTS ABOUT MAKING CSR A LEGAL REQUIREMENT

Do you prefer to make CSR a legal requirement for the organizations?	No. of respondents	Percentages
Yes	113	79%
No	30	21%
Total	143	100%

Here it is evident that respondents are in favour of making CSR a legal requirement may it be just an incorporation of CSR practices in code of conduct or even incorporated in Accounting Standards, making it a mandatory an inclusion of CSR in financial statements.

It is very important to know in which functional area respondents want organizations to implement put into practice. The following question was asked to the respondents and the following responses were obtained.

TABLE 13: OPINION OF RESPONDENTS ABOUT THE ACTIVITIES THEY WISH ORGANIZATIONS TO CARRY

Which of the following activities do you wish organizations to carry?	No. of respondents	Percentages
True & Clear information about products or services	69	48%
Investigation about customer satisfaction	26	18%
Proper handling of complaint by customer	48	34%
Total	143	100%

This table depicts that most importantly, 69 customers want true & clear information about products/services they wish to purchase followed by proper handling of customer complaints. One of the interpretations could be customers don't want lucrative or big offers, they just want true promises. Customers want organizations to project the real picture rather than projecting big picture.

TABLE 14: OPINION OF RESPONDENTS ABOUT THE ACTIVITIES THEY WISH TO REALIZE BY THE ORGANIZATIONS IN THE NEXT YEARS

Which of the following activities do you want to realize by the organization in the next years?	No. of respondents	Percentages
Communicate true information in CSR to stakeholders	74	51
Improve environmental impact of products/services	28	19
Improve rigid control on standard regarding human rights	41	28
Total	143	100%

This table depicts that customers want companies to communicate true information to their stakeholders. Customers want transparency in all the functions of organizations. Customers also want organizations to loosen the rigid control on standards regarding the human right. Similarly customers also want organizations to be environment friendly and reduce the overall impact of products/services on environment.

CONCLUSION

The literature notion of implementing the CSR, both proactively and strategically, is strongly backed by the empirical evidences gathered and strongly recommends that implementing CSR should be mandatory rather than a choice left for the organizations, to the extent that respondents believe CSR to be a legal requirement.

The results reported in this paper indicates that the respondents are very much of the opinion that other than earning profits organizations are responsible for carrying out socially responsible activities. Not only that, but respondents are willing to purchase products or services of the organizations practising CSR, though significant portion of respondents are not ready to pay higher prices for the products/services of the organizations practising CSR.

It is very important for the organizations to start practising CSR by providing true and clear information about the products or services as total of 69 respondents (48%) want organizations to provide true and clear information about the products or services. Similarly respondents also want organizations to properly handle the customer complaints. The notion or providing true and clear information about the products or services is also reflected when respondents responded with

the answer that they wish organizations to communicate true information in CSR to stakeholders. From the responses it could be estimated that respondents want to have true and clear picture about the kind of information that concerns them.

In addition, in the 21st century, consumers have higher expectations of corporations, and expect that they will not only make a profit for their investors, but that they will also be honest and socially responsible. Corporations must take into account consumers' rights, and at the same time be responsible for activities those are socially responsible such as the recycling of resources and environmental protection. Consumers want corporations that are not only profitable, but also can provide a social service.

SCOPE FOR FURTHER RESEARCH

Despite the fact that respondents only intended to prefer products/services of the organizations practicing CSR, there are scopes of future research, for finding any linkages between the implementation of CSR and financial health of the company, as the preference given may not end up in improving financial health. Even though significant number of respondents are not willing to pay higher prices for the products/services of the organizations practising CSR, there are 58 (41%) respondents are willing to pay higher prices for products/services of the organizations practising CSR, studies can reveal that whether targeting these 58 customers and implementing the CSR in the organization, would be feasible for the organization or not.

Rigorous studies undertaken at various time intervals can reveal whether the CSR practices have financial implications, for specific organization. Simultaneously, contextual factors such as the regulatory environment, the external culture, institutional conditions, and the given company's unique history and strategy, should also be studied in order to understand how organizations are approaching CSR.

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A STUDY ON FINANCIAL HEALTH OF KINGFISHER AIRLINES LTD: (Z- SCORE APPROACH)

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ABSTRACT

Most of the external users like bankers, financial institutions, investors, government, NGOs etc have been focusing on the success and survival of the business while they were dealing with the same. Financial soundness of a firm is reflected through various financial parameters which are closely associated with each other. A general belief is that a firm's operating performance depends on certain key financial factors viz., turnover, profit, asset utilization etc and the variables which are found in profit and loss account and balance sheet of a firm have a direct or indirect relation with each other. In order to measure the performance, ratios, the indicators, are normally used to identify the financial health of the firm. Edward I Altman, Professor of Finance at New York University was the first person who developed a new model popularly known as "Z-score Model" to predict the financial health of the business concerns. He considered five ratios and assigned a weight for each ratio and produced a single number which indicates the financial health of the business concerns. In this research paper an attempt is made to predict the financial health of one selected sample Airlines companies (Kingfisher Airlines Ltd.) for five years 2007 to 2011 using Altman's model. The research findings of the study are that the overall financial health of Kingfisher Airlines Ltd was bad.

KEYWORDS
Working Capital, Total assets, Market value of equity share, Earnings before interest and tax.

INTRODUCTION

The importance of financial management practices have excelled in every area of business. The success of any business is largely depends on its effective financial management practices which starts with procurement of funds and ends with effective utilization of funds. In the changing scenario, every business strives hard for survival in this growing era of core competence. Survival of the business in the modern world is possible, only when, apart from other things, it has sufficient finance. The financial requirements of a business must be sufficient to meet its long-term and short-term commitments. To meet long-term commitment, it needs permanent capital and for short-term commitment, it needs working capital. Thus, Finance is a significant facet of every business. Both excessive as well as inadequate finance positions are dangerous from the business point of view. In other words, finance is back bone of any business. Any business without finance is a wingless bird. Therefore the financial analyst is responsible to monitor the financial position of the business regularly. The performance of the company is judged through its financial statements, which throws light on the operational efficiency and financial position of the company. Financial statements are the sources for financial information, based on which the financial planning and decision making is done. The profit and loss account provides data about the operating activities where as balance sheet provides the value of acquired assets and liabilities of the business at a particular point of time. The absolute figures reported in the financial statements do not serve the purpose of measuring the financial health of the companies. Hence, the financial analyst has to analyze the financial data in order to ascertain the strengths and weaknesses of the companies. Despite the financial analyst had many analytical tools, ratio analysis is most powerful toll to ascertain the financial health of the companies. Alone a single ratio does not serve the purpose. Therefore, it is necessary to combine the different ratios into a single measure of the provability of sickness or failure. **Multiple discriminant analysis** is useful tool in such situations. "The use of MDA helps to consolidate the effect of all ratios". The present study is concerned with the analysis of financial health of Kingfisher Airlines Ltd.

ABOUT THE COMPANY

Kingfisher Airlines Ltd. was initially incorporated as a private limited company on 15th June, 1995 in Karnataka with the main object of pursuing chartered aviation services both for commercial and non commercial purposes in India and to provide all aviation's related services. Our Company was promoted by Capt. G.R. Gopinath, Capt. K.J. Samuel and Capt. Vishnu Singh Rawal.

Today's air traveler is like any other consumer looking for value for money. Disposable incomes are on the rise and the consumer is willing to spend more for quality and brands. Air travel is no more about transporting passengers. It is more about the flying experience. People like travelling in planes. 'Kingfisher airlines' has a very good social image. Being five star airlines, customers want to travel with Kingfisher. Also, the brand charges a premium price that is why only upper Socio Economic Class people prefer Kingfisher airlines. The lifestyle of the people is improving. Luxury is becoming necessary. They are ready to pay more for luxury services. Kingfisher has a strong advantage here. So, we can conclude that sociological conditions are favoring Kingfisher airlines.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

1) To assess the overall financial performance of the company
2) To know the efficiency in financial operations
3) To predict the financial health and viability of the company

RESEARCH METHODOLOGY

The study was concerned with Kingfisher Airlines Ltd. This study was based on the secondary data which was obtained from the published sources i.e. Annual report for the period of 5 years (2007 to 2011). The collected data was analysed with the help of ratio analysis. The many accounting ratios used to predict the financial performance of the company, gives a warning only when it is too late to take corrective action.

Keeping the above view in mind, the "Z score" analysis has been adopted to monitor the financial health of the company to predict as well as to avoid business failure and subsequent bankruptcy.

LIMITATIONS OF THE STUDY

1) The study is confined to only one Airlines company.
2) The present study covers only a period of five years.
3) The collected data for the present study is secondary data.

REVIEW OF LITERATURE

Many of the research works have been conducted, over the period by applying the Multiple Discriminant Analysis to predict the corporate failure. **W.H. Beaver (1966)** was the first researcher to study the prediction of bankruptcy using financial data. His analysis was based on ratios and identified ratios, which have discriminating power to predict the bankruptcy of the companies using failed and non-failed 79 manufacturing companies in each of two matched pair groups.

Altman I. Edward (1968) was the classical Multiple Discriminant Analysis technique with five financial ratios is used for predicting the risk of failure and developed a model (Z score) to find a bankruptcy prediction model based on a sample composed of 66 manufacturing companies with 33 companies in each of two matched-pair groups (33 publicly-traded manufacturing bankrupt companies between 1946 and 1965 and matched them to 33 firms on a random basis for a stratified sample), which is built out of the five weighted financial ratios.

Jonah Aiyabei (2002) discussed the theoretical aspect of a financially distressed firm based on a cyclical concept and examined the financial performance of small business firms based in Kenya using Z score model.

Praveen kataria in his study attempted to predict corporate sickness of the companies. Financial information about all the sick companies was collected for five years before sickness. Healthy companies were matched with the sick companies on the basis of industry composition size. 54 financial ratios and 8 macro economic variables were taken to study their effect along with financial ratios.

Rekha Pai dealt with the prediction of industrial sickness using multiple discriminant analysis. The data set constitutes 21 financial ratios of 34 Indian sick companies in 2001 and 38 contemporary non sick companies, both selected irrespective of size and industry category 3 years prior to sickness. The multiple discriminant analysis (MDS) showed greater accuracy in predicting industrial sickness up to three years in advance.

Ramakrishna in his paper examined two well known financial distress model namely multiple discriminate analysis and logistic regression analysis by using a sample of 298 firms. The study found that cash flow and working capital are important predictive variables, irrespective of when compared to any other models. The selected models were also found to be capable of predicting with minimum errors, one year in advance, which is vital for the bankers, restructuring agencies and the management to initiate revival process before the company actually gets in to financial distress.

In Indian context, **L.C Gupta (1999)** attempted a refinement of Beaver's method with objective of predicting the business failure. Whereas Mansur. **A.Mulla (2002)** made a study in Textile mill with the help of Z score model for evaluating the financial health with five weighted financial ratios and followed by Selvam M, and others (2004) had revealed about Cements industry financial health especially India Cements Limited. **Krishna Chaitanya (2005)** used Z model to measure the financial distress of IDBI and concluded that IDBI is likely to become insolvent in the years to come.

Z SCORE INGREDIENTS

About 40 years ago, **Edward I. Altman**, a financial economist at New York University's Graduate School of Business, developed a model for predicting the likelihood that a company would go bankrupt. This model uses five financial ratios that combine in a specific way to produce a single number. This number, called the Z score, is a general measure of corporate financial health. The most famous failure prediction model is Altman's Z-Score Model. Based on **Multiple Discriminate Analysis** *(MDA)*, the model predicts a company's financial health based on a discriminant function of the form.

Z = 0.012X1+0.014X2+0.033X3+0.006X4+0.999X5

X1=Working capital/Total assets

X2=Retained earnings/Total assets

X3=Earnings before interest and taxes/Total assets

X4=Market value of equity/Book value of total liabilities

X5=Sales/Total assets

The Z-Score model (developed in 1968) was based on a sample composed of 66 manufacturing companies with 33 companies in each of two matched-pair groups. Altman subsequently developed a revised Z-Score model (with revised coefficients and Z-Score cut-offs) which dropped variables X4 and X5 (above) and replaced them with a new variable X4 = net worth (book value)/total liabilities. The X5 variable was allegedly dropped to minimize potential industry effects related to asset turnover.

The Z score is calculated by multiplying the following accounting ratios, which is efficient in predicting bankruptcy.

1. X1 (Working Capital / Total Assets)

This ratio expresses of the liquidity position of the company towards the total capitalization. Working capital is defined as the difference between current assets and current liabilities. Liquidity and size characteristics are explicitly considered.

2. X2 (Retained Earning / Total Assets)

It indicates the amount reinvested, the earnings or losses, which reflects the extents of company's leverage. In other words, the extent to assets, which have been paid for by company profits. Those firms with high RE relative to TA have financed their assets through retention of profits and have not utilized as much debt. It also highlights either the use of internally generated funds for growth (low risk capital) Vs OPM (other people's money) – high risk capital. This is measure of cumulative profitability overtime and leverage as well.

3. X3 (EBIT / Total Assets)

It is the measure of the company's operating performance and also it indicates the earning power of the company. In addition, this is a measure of the productivity of the firm's assets, independent of any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, this ratio appears to be particularly appropriate for studies dealing with credit risk.

4. X4 (Market Value of Equity / Book Value of Total Liabilities)

It is the measure of the long-term solvency of a company. It is reciprocal of the familiar debt-equity ratio. Equity is measured by the combined market value of all shares. While debt includes both current and long term liabilities. This measure shows how much assets of an enterprise can decline in value of an enterprise can decline in value before the liabilities exceed the assets and the concern becomes insolvent.

5. **X5 (Sales / Total Assets)**

This is a standard turnover measure. Unfortunately, it varies greatly from one industry to another. In addition to this, it will reveal the sales generating capacity of the company's assets and also measure of management's capacity to deal with competitive conditions.

GUIDELINES

TABLE 1: ALTMAN GUIDELINES

Situation	Z Scores	Zones	Remarks
I	Below 1.8	Bankruptcy	Its failure is certain and extremely likely and would occur probably within a period of two years.
II	Between 1.8 and 2.99	Healthy	Financial viability is considered to be healthy. The failure in this situation is uncertain to predict.
III	3.0 and above	Too Healthy	Its financial health viable and not to fall

EMPIRICAL ANALYSIS

TABLE 2: "Z SCORE" INGREDIENTS OF KINGFISHER AIRLINES LTD. (In Crore)

YInear	2011	2010	2009	2008	2007
Working capital	1,734.76	1,343.35	329.19	491.59	607.59
Total assets	8,631.86	7,978.97	7,400.39	1,830.09	1,757.49
Retained Earning	-4,005.02	-4,268.84	-2,496.36	52.99	249.23
EBIT	822.6	-175.69	-87.5	-229.84	62.03
Market value of equity	4193.01	1696.6	1212.12	1657.44	1249.71
Total Liabilities	11,520.94	11,830.63	9,480.19	1,621.69	1,365.86
Sales	6,233.38	5,067.92	5,269.17	1,456.28	1,800.21

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

TABLE 3: SHOWING THE NET WORKING CAPITAL TO TOTAL ASSETS RATIO OF KINGFISHER AIRLINES LTD. (IN CRORE)

Year	2011	2010	2009	2008	2007
Working capital	1,734.76	1,343.35	329.19	491.59	607.59
Total assets	8,631.86	7,978.97	7,400.39	1,830.09	1,757.49
Working capital / Total assets	0.20097	0.16836	0.04448	0.26862	0.34571

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

It may be observed from the table 3 that the working capital to total assets ratio of Kingfisher Airlines Ltd had been around 0.201 to 0.346. This ratio of company is very fluctuates. Whereas total assets increased year by year which shows the company had more concentration on the investments in fixed assets. The efficiency of this company in the matter of management of working capital helps the company to maintain the good financial health. But the working capital management of this company was satisfactory and not effective and sound.

This analysis will help Kingfisher Airlines Ltd. in maintaining the appropriate working capital i.e. neither low nor high level of investments in current assets without disturbing the basic liquidity position of the companies.

TABLE 4: SHOWING THE RETAINED EARNINGS TO TOTAL ASSETS RATIO OF KINGFISHER AIRLINES LTD. (IN CRORE)

Year	2011	2010	2009	2008	2007
Retained earning	-4,005.02	-4,268.84	-2,496.36	52.99	249.23
Total assets	8,631.86	7,978.97	7,400.39	1,830.09	1,757.49
Retained earnings / Total assets	-0.464	-0.535	-0.3373	0.02895	0.14181

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

The ratio of retained earnings to total assets indicates that how much portion of total assets has been financed by retained earnings. Higher the ratio greater the financial stability of the company at times of low profitability periods. And also it depicts that the company utilizing its own earnings as cheaper source of finance rather than debt finance.

From the table 4 it is observed that Kingfisher Airlines Ltd. Negative retained earnings in year 2009 to 2011. It shows the negative profitability of company. This study shows that Kingfisher Airlines Ltd have been utilizing more debt rather than retained earnings. The decreasing trend of retained earnings during the study period indicates that the unsustainable growth of the Kingfisher Airlines Ltd.

TABLE 5: SHOWING THE EBIT TO TOTAL ASSETS RATIO OF KINGFISHER AIRLINES LTD. (IN CRORE)

Year	2011	2010	2009	2008	2007
EBIT	822.6	-175.69	-87.5	-229.84	62.03
Total assets	8,631.86	7,978.97	7,400.39	1,830.09	1,757.49
EBIT / Total assets	0.095298	-0.02202	-0.01182	-0.12559	0.035295

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

The operational performance and earning power could be accessed through EBIT to Total assets which lead the business success or failure. The profitability of the company was very low. From year 2007 to 2011 company's profit was slight increase but compare to profit there was more increase in total assets. In short, this ratio indicates that the overall profitability of the company was very low.

TABLE 6: SHOWING THE MARKET VALUE OF EQUITY TO TOTAL LIABILITIES RATIO OF KINGFISHER AIRLINES LTD. (IN CRORE)

Year	2011	2010	2009	2008	2007
(No. of share in lakhs)	10,508.80	3629.1	3629.1	1358	1354.7
Market Price (As on 31st March)	39.9	46.75	33.4	122.05	92.25
Market Value	419301.1	169660.4	121211.9	165743.9	124971.1
MV of Equity	4193.01	1696.6	1212.12	1657.44	1249.71
Total Liabilities	11,520.94	11,830.63	9,480.19	1,621.69	1,365.86
Market value of equity / Total Liabilities	0.363947	0.143407	0.127858	1.022045	0.914962

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

The table 5 shows that, the market value of equity and total liabilities increased every year but not in the same proportion. Equity to debt ratio indicates the proportion of owner's fund to the long term debt. The idle ratio is 1:1. Where debt is more, the company has an obligation to pay interest to the creditors and thereby the shareholders risk may be increased. From above table we observed that compare to market value of equity, total liabilities was more. If debt is more than the equity it will reduce the profit of the company, despite increases the profitability of the share holders. It will be a curse in times of bad performing.

On the basis of the analysis pertaining to this ratio, it may be concluding that the financial health of the Kingfisher Airlines Ltd. is quite bad. It cannot provide a margin of safety to its creditors in times of bankruptcy. Therefore it is advised the Kingfisher Airlines Ltd. has to take an appropriate step to improve the equity portion as per its benchmark.

TABLE 7: SHOWING THE SALES TO TOTAL ASSETS RATIO OF KINGFISHER AIRLINES LTD. (IN CRORE)

Year	2011	2010	2009	2008	2007
Sales	6,233.38	5,067.92	5,269.17	1,456.28	1,800.21
Total Assets	8,631.86	7,978.97	7,400.39	1,830.09	1,757.49
sales/total assets	0.722136	0.63516	0.712012	0.795742	1.024307

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

Sales revenue plays a pivotal role in overall performance of the companies because all the operations are more or less depend on the sales revenue. Sales to total assets ratio measure the power of the asset in generating the sales. Higher ratio indicates the better performance and while poor ratio indicates the poor financial management of the companies in the optimum utilization of its assets in generating the sales revenue.

Based on the information from table 6 it was crystal clear that Kingfisher Airlines Ltd. still had an opportunity to improve its sales capacity but had been totally failure to utilize their assets optimally in generating the sales revenue. It will have an adverse effect on its performance. It is suggested that to company has to take appropriate steps in the optimum utilization of its assets in generating more and more sales revenue.

TABLE 8: SHOWING THE "Z SCORE" POINTS OF KINGFISHER AIRLINES LTD FROM 2007 TO 2011
Z = (0.012X1+0.014X2+0.033X3+0.006X4+0.999X5)

	Ingredients \ Year	2011	2010	2009	2008	2007	MEAN
x1	WC/ TA	0.20097	0.16836	0.04448	0.26861	0.34571	**0.20562**
x2	Retained Earnings / TA	-0.46398	-0.53501	-0.33733	0.02895	0.14181	**-0.23311**
x3	EBIT / TA	0.095298	-0.02202	-0.01182	-0.12559	0.035295	**-0.00577**
x4	MV eq. / Total Lia.	0.36394	0.14340	0.12785	1.02204	0.91496	**0.51444**
x5	Sales/TA	0.72213	0.63516	0.71201	0.79574	1.02430	**0.77787**
	"Z Score"	**0.72266**	**0.62919**	**0.70749**	**0.80056**	**1.03607**	**0.77919**

(Source: Computed from Annual report of Kingfisher Airlines Ltd year 2007 – 11)

Inference

For determining the financial health of this company, this study used Z score model, which provides the financial soundness of a business. The table 7 shows the Z score values of this company. As per the Altman's guidelines, the company financial position is not healthy during the study period which was tested through Z score model.

Lastly I conclude that Kingfisher Airlines Ltd's score value in 2011 is below 1.8 the unit is considered to be in bankruptcy zone.

MAJOR FINDINGS

1) Overall, it is clear that this company's financial position is not healthy during the study period. The unit is considered to be in bankruptcy zone.
2) Year to Year Company's investment in current assets was increase. It shows the inefficiency of this company in the matter of management of working capital was not satisfactory which cannot help the company to maintain the good financial health.
3) Company has been utilizing more debt rather than retained earnings.
4) EBIT to Total Assets ratio indicates that the overall profitability of the company was very low.
5) The market value of equity and total liabilities increased every year but not in the same proportion. Company's MV of equity to total Liabilities ratio was bad. It cannot provide a margin of safety to its creditors in times of bankruptcy.
6) Company still had an opportunity to improve its sales capacity but had been totally failure to utilize their assets optimally in generating the sales revenue.

CONCLUSION

Financial health of a firm is a centre theme for share holders. Any decision of a firm is taken on the basis of financial soundness of a firm. In this context, Altman's Z score plays a vital role in deciding the financial bankruptcy of a firm and there by a firm can judge its financial position. The present study was conducted to analyze and predict the financial performance of Kingfisher Airlines Ltd. The study revealed that the company is not financially sound during the study period. It means the company's overall financial health was bad.

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STRATEGIES OF CUSTOMER RELATION MANAGEMENT IN MODERN MARKETING

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ABSTRACT

CRM is a comprehensive set of processes and technologies for managing the relationships with potential and current customer across the business functions. The goal of CRM function is optimize customer satisfaction and revenue through relationship built with potential and current customer across the business functions. The first CRM Strategies are based on customer intelligence. The customer intelligence is built using Sales force automation, Customer service, marketing automation system. The second approach is more dynamic and uses processes to understand customer behaviour to formulate CRM strategies. In process driven approach, CRM solution senses the behaviour of the customer and acts proactively to deliver the services. This system has capability to capture these interactions, analyse, process them, and formulate a strategy to service the customer. Operational CRM supports for Marketing supports Campaign, promotion, materials management, Marketing planning – segment, channel, contact, product, pricing and category management. Analytical CRM supports the detailed analysis that provides the insights and evidence necessary to identify opportunities for increased effectiveness and efficiency and also this paper focuses the techniques and Challenges of CRM. As more businesses continue to compete on a global level, it will become more important for them to use successful CRM techniques.

KEYWORDS
CRM, modern marketing.

INTRODUCTION

CRM is a comprehensive set of processes and technologies for managing the relationships with potential and current customer across the business functions. The goal of CRM function is optimize customer satisfaction and revenue through relationship built with potential and current customer across the business functions. The relationship is built through managing customer initiatives and behavior in such a way that customer experience is full of comfort, happiness and satisfaction.CRM is a number of strategies and technologies that are used to build stronger relationships between companies and their customers. A company will store information that is related to their customers, and they will spend time analyzing it so that it can be used for this purpose. The competition in the global market has become highly competitive, and it has become easier for customers to switch companies if they are not happy with the service they receive. One of the primary goals of CRM is to maintain customer. When it is used effectively, a company will be able to build a relationship with their customers that can last a lifetime. CRM is being a methodology, an approach that a company will use to achieve their goals. It should be directly connected to the philosophy of the company. It must guide all of its policies, and it must be an important part of customer service and marketing. If this is not done, the CRM system will become a failure. There are a number of things the ideal CRM system should have. It should allow the company to find the factors that interest their customers the most. A company must realize that it is impossible for them to succeed if they do not cater to the desires and needs of their customers. With CRM, the customer is always right, and they are the most important factor in the success of the company. It is also important for the company to use measures that are dependent on their customers. This will greatly tip the odds of success in their favor.

WHAT IS CRM?

CRM, or Customer Relationship Management, is a company -wide business strategy designed to reduce costs and increase profitability by solidifying customer satisfaction, loyalty, and advocacy. True CRM brings together information from all data sources within an organization (and where appropriate, from outside the organization) to give one, holistic view of each customer in real time. This allows customer facing employees in such areas as sales, customer support, and marketing to make quick yet informed decisions on everything from cross-selling and up selling opportunities to target marketing strategies to competitive positioning tactics.

OBJECTIVES OF THE STUDY

The present study is undertaken with the following objectives:
1. To understand the different approaches of CRM Strategies.
2. To study the types and benefits of CRM.
3. To develop new techniques of CRM.
4. To analyze the challenges faced by the CRM

APPROACHES TO CRM

I. The first approaches of CRM Strategies are based on customer intelligence. The customer intelligence is built using the information from following systems.

I. Sales force automation The customer intelligence is built using

- ✓ Lead tracking
- ✓ Opportunity management
- ✓ Contact management
- ✓ Order booking and follow up delivery

II. Customer service

- ✓ Call center management
- ✓ Online help
- ✓ Internal help desk
- ✓ Knowledge based expert system

III. Marketing automation system

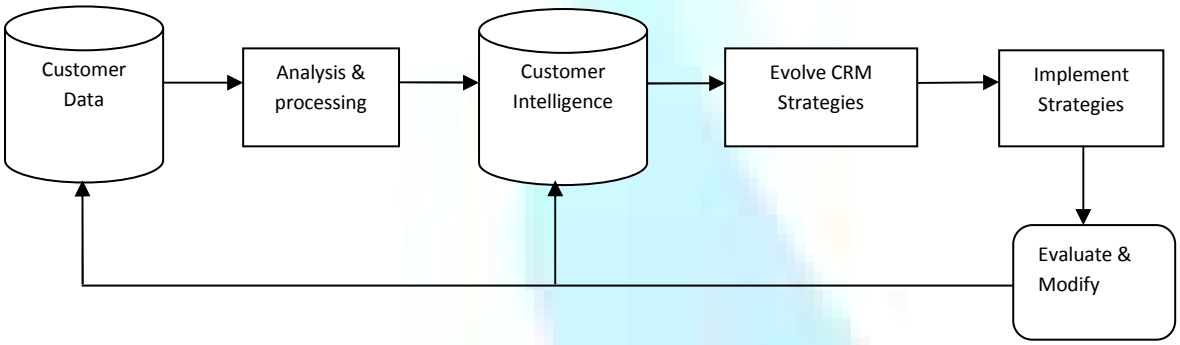
- ✓ E mail response management
- ✓ E commerce
- ✓ Web enabled ordering systems
- ✓ Information sharing with internal and external customers

II. The second approach is more dynamic and uses processes to understand customer behaviour to formulate CRM strategies. In process driven approach, CRM solution senses the behaviour of the customer and acts proactively to deliver the services. In the process approach, customer service process cycle is managed online and in real time. The customer Service Process Cycle has following phases:

- Initiation of service
- Transaction of service
- pre-service
- service
- post service

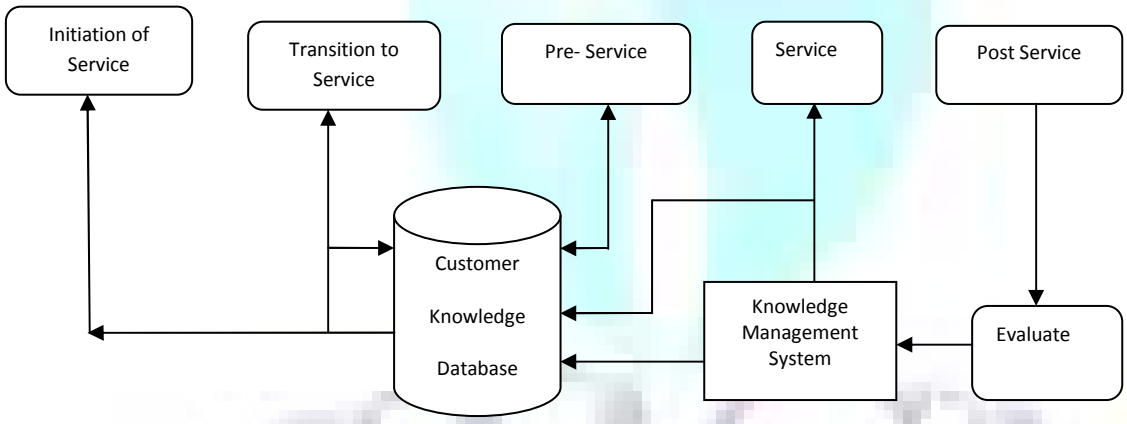
In this approach customer is provided with tools and facilities to interact with the organisation. CRM system has capability to capture these interactions, analyse, process them, and formulate a strategy to service the customer. In the process driven approach every customer is treated is treated as a unique customer.

a. DATA DRIVEN CRM MODEL



b. PROCESS DRIVEN CRM MODEL

This module include contract management, Prospecting, Lead analysis and qualification, Lead management Forecasting, Pipeline management. Sales management system executes the sales order to customer.



Its design is intended for delivery of service. It is a sales operations management system. CRM is a system with strategic role and objective to build a relationship with the customer to build business potential, loyalty and repeat business.

TYPES OF CRM

OPERATIONAL CRM

Operational CRM enables consistent and efficient execution of all customers facing Processes. Operational CRM for Marketing supports:

- ✶ Campaign, promotion and event management
- ✶ Developing a single view of the customer
- ✶ Marketing materials management
- ✶ Marketing planning – segment, channel, contact and product
- ✶ Offer development
- ✶ Product , pricing and category management

ANALYTICAL CRM

Analytical CRM supports the detailed analysis that provides the insights and evidence necessary to identify opportunities for increased effectiveness and efficiency. Process driven CRM is also termed as 'analytical CRM' helping to enhance the value of CRM system.

Following processes are handled in analytical CRM:

- Customer value management
- Customer satisfaction analysis
- Revenue analysis by customer satisfaction
- Customer classification by different profits

- Customer buying behaviour analysis, current and sequential
- Customer Vs. servicing channel analysis
- Response capturing to marketing campaigns and its analysis

Analysis in analytical CRM is carried with the help of IT tools. Most popular and often used tool is OLAP- Online Analytical Processing. This tool helps access data online at all levels and provides analysis as required by the user. OLAP brings out certain attributes of data organized around several dimensions such as Customer segment, Period of sale, Location, Market segment and so on. Another powerful tool for analysis is "Data Mining". This application is possible if an organization has a data warehouse system. Data warehouse Stores processed data with context from cross functional areas with its metadata for strategic analysis. Data mining tools identify patterns and relations in data and deliver valuable insight in the business. It has focus three areas, namely prediction of customer decisions based on historical data, sequence prediction of customer activities and association prediction of items, which move together.

BENEFITS OF A CRM

The benefits of a CRM system are many but only if it is properly integrated. CRM system should always refer to the 3 P – personnel, processes, programs.

1. COST MINIMIZATION

With a CRM system the company makes their customers partners, not just business objects. Customers are offered themselves to bring their offers and access to sufficient information which to allow them to decide whether to purchase a product or service, thus the company will reduce its staff to serve this activity.

2. CUSTOMER SERVICE

Full details regarding the relationship with the customer are centralized. This greatly facilitates the work of the department service with clients because they have the necessary information. You should not be asking the customer the same questions again. The company will be able to expect customers' new needs – prior to foresee and to work to meet them.

3. ENHANCE CUSTOMER SATISFACTION

CRM at the same time assists product sales groups to own greatest degree of service to customers because they are able to competently recognize and satisfy their particular customers' demands. Without having a CRM system customer details could be displaced or even recorded improperly, whenever you carry out a CRM system a sales staff can easily obtain information on every one of the company's customer within the a single location and will presume and satisfy their very own specifications.

4. CUSTOMER RETENTION

If the company has chosen the right CRM system, the customer will become more loyal and will continue to search for the company again and again.

5. MORE NEW DEALS

Each new customer will tell about you to some people that eventually will become clients of your company. A company needs to remember that it can rely only on loyal customers – those who will choose the company because they are happy with the price, quality, advertising and service.

6. GREATER PROFITS

The more new deals signed by the company on lower prices the greater the profits will be.

7. IMPROVE SALES BY ADVERTISING AND CROSS MARKETING DIFFERENT PRODUCTS

Each and every time a representative of staff notes details regarding their customers in a CRM system they are assisting to develop an image of the routines that the company's customers possess. A CRM at system could monitor anything from the period of day that a customer creates a call and a purchase, to the acquisitions they put together, motivation strategies they're part of as well as additional details chosen up in the discussion such as in the event that they're planning on vacation. A sales team can make use of this particular information to cross sell and up sell other items or solutions to their customers as they will certainly possess an apparent concept of the customers' lifestyles as well as buying methods. The information on a CRM system will additionally permit a staff to look at their own customers' buying trends historically and look for motives in their actions which may suggest a person can easily get in touch with them at the most right moments.

8. PROVIDE CUSTOMER INFORMATION AND FACTS WITHOUT DIFFICULTY

A CRM system enables whole groups of individuals to talk about business and customer information effortlessly which could conserve time. Acquiring customer track record at hand and being able to provide this particular for a whole product sales staff immediately could make the product sales course of action significantly less complicated. Another advantage could be that the information could be more protected since it will be in the particular location and won't have to be distributed throughout numerous hard drives, published out or delivered electronically onto memory sticks. CRM is just the tool that allows informed decisions and control of all different levels.

TECHNIQUES OF CRM

CLASSIFICATION

Classification is a process, which uses criteria to classify customer population into different classes with associated business data. A class may predict some behavior pattern. For example, customer views will tell which customers buy which products and tell which mode of payment they prefer. When new customers enter the system, it is possible to predict buying and payment behavior of the customer by identifying its class.

REGRESSION

Regression is the process of finding a value of a variable, which is dependent on other variables. Regression process succeeds when a significant relationship between variable and dependent variables is a tested one. For example, the value of business per day can be predicted in the case of grocery chain store using dependent variables, namely time spent, by customer frequency of visits, and class of customer.

LINK ANALYSIS

Link Analysis is a process of finding the links between two sets of variables. The link relationship may be of following types:

- ✓ Lag and lead eg: Sale of umbrellas lags the rainfall.
- ✓ Moving together eg:bread and butter, paper napkins & cups
- ✓ Configured links eg: drinks, chips & soda; bread, milk &eggs.

SEGMENTATION

Segmentation is a process of identifying finite sets of data clusters. For example, customers can be clustered using following clustering criterion

- Buying behaviour
- Value of purchase
- Preference for high value
- Preference for discount/bargain purchase

DEVIATION DEFECTION

Deviation is s process of identifying the deviation from confirmed prior trend or expectations. The analysis of deviation shows whether there is a shift in the pattern due to certain changes in dependent variables or is it a random occurrence.

E-CRM

E-CRM provides a means to conduct interactive personalized transactions and communications with the customers in online and real time mode. In E-CRM interaction begins more intelligently using customer intelligence. One can summarise key features of E-CRM as under:

- Driven by online data mining tools.
- Real time assessment of customer interactions, its analysis and interpretation and startegising the actions based on it.

- Begins to build relationship with customer initiative.

In E-CRM unlike CRM, every customer initiative is treated separately. Each customer is evaluated in real time using customer intelligence database for action prediction. The real strength of a CRM is its ability to provides a rich, value added experience to customer on all channels of initiatives namely call centres, Kiosks, retail outlets, ATMs, self help, PDAs and websites and portals.

CHALLENGES OF CRM

IMPROVED PROFITABILITY

As with most business innovations, CRM is ultimately intended to drive revenue and increase profitability for companies that use it. According to Target, increased profitability is the goal of using CRM to enable better targeting of top customers by sales and marketing departments. This is the revenue-generating aspect of CRM. CRM is also intended to reduce costs by cutting down on inefficient advertising to less desirable customers.

BETTER CUSTOMER RELATIONSHIPS

An underlying premise of CRM is analyzing customer data to continue to improve the customers' experience with your organization. This should lead to stronger loyalty and better profits from core customers. Using CRM database, or software solutions, employees are equipped with stronger information about customers.

CROSS-ORGANIZATIONAL PARTICIPATION

One of the greatest challenges of CRM is that a company-wide CRM program inherently involves participation from members of departments across the entire organization. CRM programs are typically developed and implement by cross-organizational teams with representation from each functional department. This stimulates cooperation and communication, but putting this into practice is difficult. The website CRM Info line stated in 2010 that "only one in every six companies that have installed CRM have been successful." A main reason for this lack of success is due to confusion within the company. This demonstrates the challenge in getting all departments and employees on board with CRM, which is necessary for long-term success.

TECHNOLOGY STIGMA

One of the most often cited challenges for companies implementing CRM is the common misconception that CRM is technology-driven, or worse, that it is simply a technology. CRM is supported by a technological infrastructure, including software solutions used to gather, analyze and interpret customer data. However, these technological capabilities alone do nothing to make companies successful. It is grounded in goals, metrics and measurement of performance with customers.

CONCLUSION

CRM is used to build a long term and profitable relationship with the customer. Analytical CRM is technology driven and uses high-end tools, namely Data Warehousing, Data Mining, OLAP, and statistical analysis tools. The best results are obtained when CRM tools are integrated in CRM solution. CRM solution addresses three requirement of the business, acquisition of new business, expansion of current business, and retention of the customer base and creating a customer culture, adopting customer-based measures, introducing effective IT, segmenting customers, developing an end-to-end process. The degree of change required around each of these measures needs to be evaluated at the outset. To be effective, the CRM process needs to be integrated end-to-end across marketing, sales and customer service. This may require the introduction of board-level representation of the customer. There are important human resource implications, such as managing the expectations created by the project concerning timescale, costs and results.

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CORPORATE GOVERNANCE IN OIL & GAS SECTOR: AN EMPIRICAL INVESTIGATION

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ABSTRACT

Corporate governance refers to the structures and processes for the direction and control of companies. Corporate governance matters because it improves investee companies' performance and helps develop capital markets. Sound corporate governance reduces risk, adds value to investments, and avoids reputational risks for investors. Given the strong links between good corporate governance and sustainable economic development, improving corporate governance practices has become an important element of the development mission of financial institution and corporate sector. This empirical investigation analyzes the Corporate Governance disclosure practices in Indian Oil & Gas Sector companies with research Objective to examine and compare corporate governance practices of companies of the said sector. Research Methodology undertaken is Corporate Governance Score card for comparison purpose in the light of CG compliance requirements and mandatory/non-mandatory disclosure standards, as envisaged by the recent provisions of the SEBI's "Clause 49 of the Listing Agreement,". We have primarily used secondary sources of information, both from the Reports and literature on corporate governance and the Annual Report of respective companies, for the financial year 2011. For data analysis Descriptive statistics and comparative Score card have been employed and Microsoft Excel has been used to analyze and interpret the data.

KEYWORDS

Corporate Governance, Disclosure Practices, Oil and Gas Industry, SEBI, Clause 49.

CORPORATE GOVERNANCE

Good corporate governance makes good, hard-nosed business sense. Countries with strong corporate governance practices attract capital. Today's domestic and international investors are likely to shy away from countries that do not guarantee investor rights, that do not provide for adequate corporate disclosure, and that do not ensure sound board practices , as put by Mervyn King, Chairman of the King Committee on Corporate Governance , South Africa.(15)

The International Financial Corporations defines it as the structures and processes for the direction and control of companies including Financial Stakeholders (Shareholders); Boards of Directors (Checks and Balances);Control Environment(Accounting, Controls, Internal and External Audit)Transparency and Disclosure, although it may reinforce, Corporate Social Responsibility/Corporate Citizenship; Socially Responsible Investing; Elements of Sustainability; Political Governance; Ethics; Anti-Corruption/Anti-Money Laundering factors.

LITERATURE REVIEW

Florencio Lopez-de-Silanes, Andrei Shleifer, Robert (1997) with study object that of most basic prediction of the legal approach is that investor protection encourages the development of financial markets. Author finds that when investors are protected from expropriation, they pay more for securities, making it more attractive for entrepreneurs to issue these securities and thereby study reveals and applies to both creditors and shareholders' Investor Protection and Corporate Governance.(6)

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) in the working paper discuss a set of key legal rules protecting shareholders and creditors and document the prevalence of these rules in 49 countries around the world. Authors aggregate these rules into shareholder (anti director) and creditor rights indices for each country, and consider several measures of enforcement quality, such as the efficiency of the judicial system and a measure of the quality of accounting standards leading to further possibility of research in the area of aligning the judicial system and laws towards corporate governance principles.(8)

Cyril Lin (2000) in cross comparative analysis between level of economy and status of governance system observes, " Transition and most developing economies have corporate landscape morphologies significantly different from those of advanced market economies. They typically have large and inefficient public sectors. Their corporate landscapes and industrial structures are dominated either by large SOEs or by large founder family-owned and controlled firms". Problem in these economies is not so much insider control (so advocated by Shleifer and Vishny (1997) per se as it is one of which type of insider and/or excessive ownership concentration.(4)

Black and Khanna (2007) analyzes Clause 49 of the Listing Agreement to the Indian stock exchange (Bombay Stock Exchange), a major governance reform in India in 2000, which resembles the U.S. Sarbanes-Oxley Act.13. Clause 49 requires that companies have, among other things, audit committees, a minimum number of independent directors, and chief executive officer and chief financial officer certification of financial statements and internal controls.14 Initially, the reforms applied only to larger firms; they reached smaller public firms after a several-year lag. Black and Khanna document that this reform was of greater benefit to firms that need external equity capital and to cross-listed firms, suggesting that local regulation can complement, rather than substitute for, firm-level governance practices.(3)

Afra Afsharipour (2010) in the study of Indian firm's corporate governance benefits and effects find that the larger Indian firms in particular seemed to welcome Clause 49's reforms because they appear to have benefited from the more robust corporate governance rules imposed by Clause 49. In their event study of the impact of Clause 49 reforms on the market value of Indian firms, Professors Black and Khanna found a significant rise in the share price of large firms following SEBI's initial announcement to adopt corporate governance reforms similar to those proposed by the CII. This result reflected investor expectations that corporate governance reforms would increase the market values of larger Indian public firms.(1)

NEED AND IMPORTANCE

INDIAN OIL AND GAS INDUSTRY OVERVIEW

India is the fifth largest consumer of energy in the world, and is likely to surpass Japan and Russia to become the world's third biggest energy consumer by 2030. According to the International Energy Agency (IEA), hydrocarbons satisfy major energy demand in India wherein coal and oil, together, represent about two-thirds of total energy use. Natural gas accounts for about 7 per cent share. According to Oil & Gas Journal (OGJ), India has about 5.7 billion barrels of proven oil reserves. India's oil and gas sector has attracted investors round the globe as the country enjoys rich reserves of resources.(13) The petroleum and natural gas industry in India has attracted foreign direct investment (FDI) worth US$ 3, 332.78 million during April 2000 to December 2011, according to the data provided by Department of Industrial Policy and Promotion (DIPP). The Department further recorded US$ 196 million during April– December 2011-12, in the industry. Showing the alarming need of regulatory and corporate governance compliance norms as to attract more Investments through better disclosure , transparency and investor safety perspective policies. (13)

CORPORATE GOVERNANCE IN OIL & GAS SECTOR

Dr. Sarkar (2011) eminent analyst states that "Among the Indian national oil companies Indian Oil remains the true to the belief that good corporate governance practices lead to efficient running of the company and help in optimizing value for its stakeholder. The company has been making an effort to uphold the principles of corporate governance to ensure transparency, integrity and accountability in its functioning - elements that are vital to achieve its vision of becoming a major diversified transnational, integrated energy company". With the adoption of, (a) Code of conduct for directors and senior management personnel, (b) code of conduct for prevention of insider trading, (c) policy on risk assessment and minimizing procedures, the company has further enhanced its commitment towards corporate governance. Access to the right to information act manual that addresses the constitutional right to know and access information relating to any private body. BPCL and Reliance Industries RIL have joined the club of select Asian companies to rank high in a Corporate governance Poll. RIL is the only Indian Private Sector company in the Top Five Leagues in Energy Sector, in a recently conducted Corporate Governance Poll published in issue of Asian money magazine. Among the four Indian Companies in the energy sector BPCL, a public sector undertaking is ranked no.1 with the score of 78 and is followed by RIL in second place with the score of 72. India leads with four companies followed by three companies from China, two from Thailand and one from Korea.(14)

Sebastian Molineus -Project Manager IFC, in the IFC Report quotes the reference to the poll conducted among investors by McKinsey, 85% of market participants believe that in evaluating companies in Eastern Europe the level of corporate governance plays the same or even a higher role than their financial performance. Even more impressive is the following fact: 73% of investors investing in Eastern Europe are ready to pay a premium for companies with efficient corporate governance and the premium which investors are ready to pay for Russian companies with good corporate governance is as big as 38% (12)

Greco, Giulio (2012) in their efforts of continuous analyses of Ownership structures, corporate governance and earnings management in the European Oil Industry Research investigates the impact of corporate governance and ownership structure variables on earnings management in the European oil industry. The findings show non-linear relationships among institutional investors ownership and governmental ownership with the magnitude of earnings management.(18)

For institutional investors ownership authors found a positive association within lower levels of ownership (consistently with the short-term transient view of institutional investors shareholding) and a negative association within higher levels of ownership (consistently with the long-term orientation view of institutional investors, playing a monitoring role over the company's financial performance).(*Id19*)

The corporate governance scorecards " assess a company's governance practices and provide opportunities for systematic improvement. The scorecard is closely related to the corporate governance code and represents all of its relevant criteria. Different scores related to these criteria are assigned thus, the scorecard determines a total value of corporate governance" (16). This approach is designed to depict for companies the quality of their own corporate governance and to facilitate comparisons between companies, which also makes it a source of useful information for investors. Scorecard is derived as per the Corporate Governance guidelines of OECD and Clause 49 of SEBI Listing Agreement which satisfies the mentioned research objectives for studying Oil & Gas Industry corporate governance scenario.

STATEMENT OF THE PROBLEM

The study aims to evaluate the state of compliance of various governance parameters in these companies. The parameters include the Statutory and Non mandatory requirements stipulated by revised Clause 49 of the listing agreement as prescribed by Securities and Exchange Board of India (SEBI), Kumar Mangalam Birla Committee Recommendations. and relative amendments in the Companies Act, 1956 to ascertain and investigate Indian Oil and Gas companies adherence levels to corporate governance principles as per norms prescribed.

OBJECTIVES OF THE STUDY

- To analyze corporate governance practices and differences with respect to the disclosure norms by the selected Indian companies from the oil & gas industry for year ending 2011.
- To study annual reports and corporate governance reports with reference of mandatory and non mandatory disclosure and respective parameters described by SEBI for Indian companies as per Clause 49 of listing agreement.

RESEARCH METHODOLOGY

1) The companies selected are ONGC and Cairn India – Oil drilling and exploration industry and IOCL & Reliance Industries Limited – Refineries Industry with the criteria of having highest market capitalization as on June 2012 as per respective field and listed in NSE/BSE.
2) For analysis data was derived from annual reports and corporate governance report of FY 2011 from the official websites of the company. Hence, Parameters based Score card method has been adopted for comparative analysis.
3) Descriptive statistics and comparative Score card (Table 1) have been employed and Microsoft Excel have been used to analyze and interpret the data

ANALYSIS, RESULTS AND DISCUSSIONS

TABLE 1: CORPORATE GOVERNANCE SCORE CARD FOR THE YEAR ENDING ON 31-3-2011

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
			2011	2011	2011	2011
1		**Statement of Company's philosophy on code of governance**	**2**	**2**	**2**	2
2		**Structure and Strength of board**	2	**2**	2	2
3		**Chairman & CEO Duality**				
	I	Promoter Executive Chairman – Cum – MD / CEO	0	0	1	0
	Ii	Non promoter Executive Chairman cum MD / CEO	2	2	0	0
	iii	Promoter Non Executive Chairman	0	0	0	1
	iv	Non Promoter Non Executive Chairman	0	0	0	0
	V	Non Executive Independent Chairman	0	0	0	0
4		**Disclosure of Tenure and Age limit of directors**	1	**1**	2	1
5		**Disclosure of :**				
	I	Definition of Independent Director	1	0	1	1
	Ii	Definition of Financial Expert	0	0	0	0
	iii	Selection Criteria of Board of Directors incl. Independent directors	1	1	1	0
6		**Post Board meeting follow up system and compliance of the board procedures**	2	**2**	2	1
7		**Appointment of lead independent director**	0	**0**	2	0
8		**Disclosure of other provision as to the boards and committees**	1	**1**	1	1
9		**Disclosure of**				
	I	Remuneration Policy	1	1	1	1
	Ii	Remuneration of Directors	1	1	1	1
10		**Code of Conduct**				
	I	Information on Code of Conduct	1	1	1	1
	Ii	Affirmation of compliance Board Committee	1	1	1	1
11		**Board committee**				
	A	**Audit Committee**				
	I	Transparency in composition of audit committee	1	1	1	1
	Ii	Compliance of minimum requirement of the number of independent directors in the committee	1	1	1	1
	iii	Compliance of minimum requirement of the number of meetings of the committee.	1	1	1	1
	iv	Information about literacy & expertise of committee members.	1	1	1	1
	V	information about participation of head of finance, statutory auditor and chief internal auditor in the committee meeting	2	2	2	1
	vi	Disclosure of audit committee charter and terms of reference	1	1	1	1
	vii	Publishing of audit committee report	1	1	1	1
	B	**Remuneration / Compensation Committee**				
	I	Formation of the committee	1	1	1	1
	Ii	Information about number of committee meetings	1	1	1	1
	iii	Compliance of minimum requirement of number of non-executive directors in the committee.	1	0	1	1
	iv	Compliance of the provision of independent director as a chairman of the committee.	1	0	1	1
	V	Information about participation of all members in the committee meeting	1	1	1	1
	vi	Publishing of committee report	1	1	1	1
	C	**Shareholders' / Investors Grievance Committee**				
	I	Transparency in Composition of the committee	1	1	1	1
	Ii	Information about nature of complaints & queries received and disposed -item wise.	0.5	1	1	1
	iii	Information about number of committee meetings	1	1	1	1
	iv	information about action taken and investors/shareholders survey.	0.5	1	1	1
	V	publishing of committee report	0	1	1	0
	D	**Nomination Committee**				
		i) Formation of the Committee	0	0	1	1
		ii) Publishing of committee charter and report	0	0	0	0
	E	Health, Safety and Environment Committee	1	1	1	0
	F	Ethics and Compliance Committee	0	1	0	1
	G	Investment Committee	0	0	1	0
	H	Share Transfer Committee	1	1	1	1
12		**Disclosure and Transparency**				
	A	Significant related party transactions having potential with the interest of the company conflicts.	2	2	2	1
	B	Non Compliance related to capital market matters during last three years.	2	2	2	1
	C	Accounting treatment	2	2	2	0
	D	Board Disclosure - Risk Management				
		i) Information to the board on Risk Management	2	2	0	0
		ii) Publishing of Risk Management Report	0	0	0	1
	E	Management Discussion and Analysis	2	2	2	2

	F	Shareholders' Information				2
		i) Appointment of new director / re appointment of existing director.	1	1	1	
		ii) Quarterly results and Presentation	1	1	1	2
		iii) Share Transfers	1	1	1	1
		iv) Directors Responsibility Statement	1	1	1	1
	G	Shareholder Rights	1	2	2	1
	H	Audit Qualification	2	2	2	2
	I	Training of Board Members	2	2	2	2
	J	Evaluation of Non-Executive Directors	0	2	0	2
	K	Whistle Blower Policy	2	2	2	2
13		**General Body Meetings**				
	I	Location and time of general meetings held in last three years	1	1	1	1
	Ii	Details of Special Resolution passed in last three AGMs \EGM'S	1	1	1	1
	iii	Details of resolution passed last year through postal ballot incl. conducting official and voting process.	1	1	1	1
14		**Means of communication and General shareholder information.**	2	2	2	2
15		**CEO / CFO Certification**	2	2	2	2
16		**Compliance of Corporate Governance and Auditors' Certificate.**				
	I	Clean Certificate from Auditor	5	5	5	3
	Ii	Qualified Certificate from auditors	5	5	5	5
17		**Disclosure of Stakeholders' interests :**				
	I	Environment, Health & Safety Measures (EHS)	1	2	2	1
	Ii	Human Resource Development Initiative (HRD)	1	2	2	1
	iii	Corporate Social Responsibility (CSR)	2	2	2	1
	iv	Industrial Relation (IR)	1	0	2	1
	V	Disclosure of policies on EHS, HRD, CSR & IR	0	1	1	0
TOTAL			**78**	**83**	**87**	**74**
RANK			**3**	**2**	**1**	**4**

Das S C (2007), Corporate Governance Standards and Practices information Technology Industry in India, The Management Accountant, 111-113 Clause 49 Score Card Reference (5)

SUB CATEGORYWISE ANALYSIS

TABLE 2: STATEMENT OF COMPANY'S PHILOSOPHY ON CODE OF GOVERNANCE

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
1	Statement of Company's philosophy on code of governance	2	2	2	2

ANALYSIS

All the four selected companies in brief have clearly stated their "Statement of Company's philosophy on code of governance". So they all have scored 100% in this parameter.

TABLE 3: STRUCTURE AND STRENGTH OF BOARD

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
2	Structure and Strength of board	2	2	2	2

ANALYSIS

The companies have aptly stated the structure, strength and composition of their board of directors and thus they have scored full in this parameter.

TABLE 4: CHAIRMAN & CEO DUALITY

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
			2011	2011	2011	2011
3		Chairman & CEO Duality				
	I	Promoter Executive Chairman - Cum - MD / CEO	0	0	1	0
	Ii	Non promoter Executive Chairman cum MD / CEO	2	2	0	0
	Iii	Promoter Non Executive Chairman	0	0	0	3
	Iv	Non Promoter Non Executive Chairman	0	0	0	0
	V	Non Executive Independent Chairman	0	0	0	0

ANALYSIS

"The appointment of Chairman of the board carries of critical importance. Separation of chairman and CEO post is considered as one of the best practices in industry in today's corporate world and it is also important from the point of view of non promoters share holders". (Sanjay P. S. Desai & Dr. I Bhanumurthy)(9) ONGC & IOCL being a public company, have Non promoter Executive Chairman cum MD / CEO. In RIL, the chairman is Promoter Executive Chairman - Cum - MD / CEO so it scores low in that parameter. Cairn India scores the maximum with a non-executive chairman.

TABLE 5: DISCLOSURE OF TENURE AND AGE LIMIT OF DIRECTORS

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
4	Disclosure of Tenure and Age limit of directors	1	1	2	1

ANALYSIS

RIL is the only company that has disclosed in details about the tenure and age of directors. Others have not mentioned the tenure and thus have scored low on this parameter.

TABLE 6: DISCLOSURE OF DEFINITION AND SELECTION CRITERIA FOR (INDEPENDENT) DIRECTORS

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
			2011	2011	2011	2011
5		Disclosure of :				
	I	Definition of Independent Director	1	1	1	1
	Ii	Definition of Financial Expert	0	0	0	0
	Iii	Selection Criteria of Board of Directors incl. Independent directors	1	1	1	0
	Ii	Affirmation of compliance Board Committee	1	1	1	1

ANALYSIS

Clause 49 of listing agreement which applicable to all the listed companies irrespective of size of the company from 1st January 2006 has mandated that every listed company should have 50 percent of board consist of independent directors, if chairman of the board is executive and one-third board members should be independent in case the chairman is non- executive (Prof.Sanjay P. S. Desai & Dr. I Bhanumurthy) All the companies except Cairns India have complied with the disclosure requirement of the clause 49. None of the company have defined "financial expert" in their report. (9)

TABLE 7: POST BOARD MEETING FOLLOW UP SYSTEM AND COMPLIANCE OF THE BOARD PROCEDURES

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
6	Post Board meeting follow up system and compliance of the board procedures	2	**2**	2	1

ANALYSIS

All the companies have a well structured mechanism for "Post Board meeting follow up system and compliance of the board procedures", except Cairns, as it does disclose its procedures clearly.

TABLE 8: APPOINTMENT OF LEAD INDEPENDENT DIRECTOR

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
7	Appointment of lead independent director	0	**0**	2	0

ANALYSIS

Khaled Samaha (2010) In view of Agency theory, states" that the presence of non-executive directors in the board of the firms and their supervisory performance as independent individuals, remarkably contribute the declined conflicts of interests existing between shareholders and directors of the firm". (7) RIL is the only company that has specifically mentioned about its appointment of lead independent director. Rest of the companies has not scored at all in this parameter.

TABLE 9: DISCLOSURE OF OTHER PROVISION AS TO THE BOARDS AND COMMITTEES

No	Governance Parameters	IOCL	ONGC	RIL	CAIRN
		2011	2011	2011	2011
8	Disclosure of other provision as to the boards and committees	1	**1**	1	1

ANALYSIS

Companies under research i.e., IOCL, ONGC RIL & Cairn India follows the disclosure practices of other provisions as to the boards and committees as per mentioned parameter and thus have scored 1 against weightage of 1 point score.

TABLE 10: DISCLOSURE OF REMUNERATION POLICY & REMUNERATION OF DIRECTORS

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
			2011	2011	2011	2011
9		Disclosure of				
	I	Remuneration Policy	1	1	1	1
	Ii	Remuneration of Directors	1	1	1	1

ANALYSIS

For current study the corporate governance report of each of the company has clearly laid down the norms of the remuneration of its directors.

TABLE 11: CODE OF CONDUCT

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
			2011	2011	2011	2011
10		Code of Conduct				
	I	Information on Code of Conduct	1	1	1	1
	Ii	Affirmation of compliance Board Committee	1	1	1	1

ANALYSIS

Scott Carson,Mark Baetz,Shelley McGill (2008) describes the codes as Value statements, whether they express preferences or moral requirements, are based on a broader conception of what is right and wrong. Ideally, code items should be very specific and value-based (Robin et al., 1989) (10). In current research study the companies have stated their Code Of Conduct in their Corporate Governance Report and the compliance of the Board Committee for the same. (10)

BOARD COMMITTEES

Naspers (2010) states "the whole board remains accountable for the performance and affairs of the company, it delegates certain functions to subcommittees and management to assist in discharging its duties. Appropriate structures for those delegations are in place, accompanied by monitoring and reporting systems. Each subcommittee acts within agreed, written terms of reference. The chair of each subcommittee reports at each scheduled board meeting "(17). As per the disclosure in Annual Report the study shows that the various committee formed by the board play a very significant role in the control and adherence of corporate governance.

TABLE 12 (A): AUDIT COMMITTEE

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
11		**Board committee**				
	A	**Audit Committee**				
	I	Transparency in composition of audit committee	1	1	1	1
	Ii	Compliance of minimum requirement of the number of independent directors in the committee	1	1	1	1
	Iii	Compliance of minimum requirement of the number of meetings of the committee.	1	1	1	1
	Iv	Information about literacy & expertise of committee members.	1	1	1	1
	V	Information about participation of head of finance, statutory auditor and chief internal auditor in the committee meeting	2	2	2	1
	Vi	Disclosure of audit committee charter and terms of reference	1	1	1	1
	Vii	Publishing of audit committee report	1	1	1	1

ANALYSIS

It is one of the most important committee of a company. With regard to audit committee meeting Clause 49 mandates that company audit committee should meet once in a quarter to review the quarterly results. All the companies have adhered to this norm. All have scored well in the above parameters, except Cairns because it has not specified whether the statutory auditor have participated in the meeting or not.

TABLE 12 (B): REMUNERATION COMMITTEE

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
11		**Board committee**				
	B	**Remuneration / Compensation Committee**				
	I	Formation of the committee	1	1	1	1
	Ii	Information about number of committee meetings	1	1	1	1
	Iii	Compliance of minimum requirement of number of non-executive directors in the committee.	1	0	1	1
	Iv	Compliance of the provision of independent director as a chairman of the committee.	1	0	1	1
	V	Information about participation of all members in the committee meeting	1	1	1	1
	Vi	Publishing of committee report	1	1	1	1

ANALYSIS

The remuneration committee of each company is well formed. The remuneration details of the directors' have also been provided. ONGC is facing a problem related to minimum requirement of directors, as stated earlier in the report, which is reflected in this committee as well. Rest all the companies have complied with the norm.

TABLE 12 (C): SHAREHOLDERS' / INVESTOR'S GRIEVANCE COMMITTEE

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
11		**Board committee**				
	C	**Shareholders' / Investors Grievance Committee**				
	I	Transparency in Composition of the committee	1	1	1	1
	Ii	Information about nature of complaints & queries received and disposed -item wise.	0.5	1	1	1
	Iii	Information about number of committee meetings	1	1	1	1
	Iv	information about action taken and investors/shareholders survey.	0.5	1	1	1
	V	publishing of committee report	0	1	1	0

ANALYSIS

Clause 49 of listing agreement mandates that "every company should have a board committee under the chairmanship of a non-executive director to specifically look into the redressal of shareholder and investors complaints like transfer of shares, non-receipt of balance sheet, non-receipt of declared dividends etc. It has been observed that all the companies have this committee". IOCL scores low on this parameter because it does not provide details about the complaints received in category wise and the action taken to resolve the same. Moreover IOCL & Cairns have not disclosed about the reports being published or not.

TABLE 12 (D): NOMINATION COMMITTEE

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
	D	**Nomination Committee**				
		i) Formation of the Committee	0	0	1	1
		ii) Publishing of committee charter and report	0	0	0	0

ANALYSIS

Alan Gutterman (2010) states "the responsibilities of the committee should be explicitly spelled out in the charter or a board resolution that is included in the company's proxy statement and posted on the company's website inclusive of recommending nominees to the board and its committees as well as monitoring and safeguarding the independence of the board and developing and recommending a set of corporate governance principles to the board". (2) as per current study Only RIL & Cairns have formed this committee. No disclosures made regarding the reports of the committee being published.

TABLE 12 (E): OTHER COMMITTEES

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
	E	Health, Safety and Environment Committee	1	1	1	0
	F	Ethics and Compliance Committee	0	1	0	1
	G	Investment Committee	0	0	1	0
	H	Share Transfer Committee	1	1	1	1

ANALYSIS

These are the committees that enhance the working of the corporate governance of a company. In Oil & Gas companies, health & safety is a priority. it is observed that except Cairns, all the other companies have Health, Safety and Environment Committee. Investment Committee is formed only in RIL. On the other hand, "Share Transfer Committee" is a part of each of the company. It is also observed that Ethics Committee is formed only in ONGC & Cairn. In this industry, the safety committee should be made mandatory by the law.

TABLE 13: DISCLOSURE AND TRANSPARENCY

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
12		**Disclosure and Transparency**				
	A	Significant related party transactions having potential with the interest of the company conflicts.	2	2	2	1
	B	Non Compliance related to capital market matters during last three years.	2	2	2	1
	C	Accounting treatment	2	2	2	2
	D	Board Disclosure - Risk Management				
		i) Information to the board on Risk Management	2	2	0	0
		ii) Publishing of Risk Management Report	0	0	0	0
	E	Management Discussion and Analysis	2	2	2	2
	F	Shareholders' Information				
		i) Appointment of new director / re appointment of existing director.	1	1	1	2
		ii) Quarterly results and Presentation	1	1	1	2
		iii) Share Transfers	1	1	1	1
		iv) Directors Responsibility Statement	1	1	1	1
	G	Shareholder Rights	1	2	2	1
	H	Audit Qualification	2	2	2	2
	I	Training of Board Members	2	2	2	2
	J	Evaluation of Non-Executive Directors	0	2	0	2
	K	Whistle Blower Policy	2	2	2	2

ANALYSIS

The above mentioned parameters enhance the transparency of the company in various matters related to the shareholder. ONGC scores the highest in this parameter while RIL scores the lowest. The reason being that it does not it does have a separate cell for Risk Management and does not carry out evaluation of non-executive directors.

TABLE 14: GENERAL BODY MEETINGS

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
13		**General Body Meetings**				
	I	Location and time of general meetings held in last three years	1	1	1	1
	Ii	Details of Special Resolution passed in last three AGMs \EGM'S	1	1	1	1
	Iii	Details of resolution passed last year through postal ballot incl. conducting official and voting process.	1	1	1	1

ANALYSIS

Clause 49 of listing agreement stipulates that every company board should meet minimum 4 times in a year to approve the quarterly results. All the companies have followed these statutory requirements.

TABLE 15: MEANS OF COMMUNICATION AND GENERAL SHAREHOLDER INFORMATION

No	Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
14	**Means of communication and General shareholder information.**	2	2	2	2

ANALYSIS

All the companies have disclosed their means of communication and General shareholder information in their corporate governance reports as per annual reports year ending 2011.

TABLE 16: CEO / CFO CERTIFICATION

No	Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
15	**CEO / CFO Certification**	2	2	2	2

ANALYSIS

Clause 49 states that The CEO, i.e. "the Managing Director or Manager appointed in terms of the Companies Act, 1956 and the CFO i.e. the whole-time Finance Director or any other person heading the finance function discharging that function shall certify to the Board that: They accept responsibility for establishing and maintaining internal controls for financial reporting and that they have evaluated the effectiveness of internal control systems of the company pertaining to financial reporting and they have disclosed to the auditors and the Audit Committee, deficiencies in the design or operation of such internal controls, if any, of which they are aware and the steps they have taken or propose to take to rectify these deficiencies"(11). Research observes that all the 4 companies have complied with the CEO/CFO certification as per the clause.

TABLE 17: COMPLIANCE OF CORPORATE GOVERNANCE AND AUDITORS' CERTIFICATE

No		Governance Parameters	IOCL 2011	ONGC 2011	RIL 2011	CAIRN 2011
16		**Compliance of Corporate Governance and Auditors' Certificate.**				
	I	Clean Certificate from Auditor	5	5	5	5
	Ii	Qualified Certificate from auditors	5	5	5	5

ANALYSIS

Clause 49 mentions the role of audit committee as to provide oversight of the company's financial reporting process and the disclosure of its financial information to ensure that the financial statement is correct, sufficient and credible. Here It is observed that all the companies have complied with the Corporate Governance & Auditor's Certificate. (11)

TABLE 18: DISCLOSURE OF STAKEHOLDERS' INTERESTS :

No		Governance Parameters	IOCL	ONGC	RIL	CAIRN
17		Disclosure of Stakeholders' interests :				
	I	Environment, Health & Safety Measures (EHS)	1	2	2	1
	Ii	Human Resource Development Initiative (HRD)	1	2	2	1
	Iii	Corporate Social Responsibility (CSR)	2	2	2	1
	Iv	Industrial Relation (IR)	1	0	2	1
	V	Disclosure of policies on EHS, HRD, CSR & IR	0	1	1	0

ANALYSIS

In the above mentioned parameters, RIL have scored maximum because it has disclosed all measures in brief in its Annual Report except for the policies which are not clearly stated. IOCL & CAIRNS have not disclosed any of the policies.

FINDINGS AND ANALYSIS: EVALUATION OF GOVERNANCE STANDARDS

With respect to disclosures made in the annual reports by respective listed companies as well as corporate governance norms been followed being analyzed with the base of difference parameters of study, the companies are being ranked Excellent , Very Good , Good, Average or Below Average as per the scores calculated on the bases of score card table. As discussed earlier regarding the importance of scorecard with varied level of weight age to difference parameters are analyzed and summarized as to come to the conclusion of comparative analysis of study between four companies under research.

TABLE 19: EVALUATION OF GOVERNANCE STANDARDS

Score Range	Rank
86 – 100	Excellent
71 – 85	Very Good
56 – 70	Good
41 – 55	Average
Below 41	Below Average

Study reveals that there exists difference as to adherence to corporate governance norms as to practice & disclosure. We found that different parameters are given importance by companies as per level of Market capitalization and working laws pertaining to the industry. There is exists inconsistency in relationship between regulatory compliance of corporate governance parameters and respective growth of companies. According to Clause 49 respective weight age have been provided for varied parameters in the score card but being a issue of regulatory policy, varied score cards and regulatory bodies strives to adhere to the principles provided by OECD and other proved governance models across countries.

From the above analysis, it can be concluded that with implementation of Clause 49 of listing agreement companies started corporate disclosure practices in more systematic manner. From this study it is observed that Corporate governance and disclosure practices followed by companies are very good with exception one or two parameters. Cairns also follow a good disclosure practice but it lacks in terms of safety norms disclosures.RIL and ONGC is the top scorer among all the selected companies scoring 87 % (Excellent) and 83% (Very Good) points as per disclosures in Annual Reports ranking 1 and 2. IOCL and CAIRN India adhering to norms of clause 49 of listing agreement with the scores 78% (Very Good) and 74% (Very Good)with 3rd and 4th Rank as per Score Card method.

RECOMMENDATIONS AND SUGGESTIONS

After this study, we would like to give the following suggestion regarding the disclosures of the company

- The norms related to disclosure of qualification, age & tenure of the directors should be mandatory and more narrative.
- The companies should also include Value Based Management parameters like EVA, MVA, and Balance Scorecard ,Brand valuation, Balance sheet including intangible assets, Economic Value-Added (EVA®) statement, Intangible asset scorecard, Risk management report, Human resource accounting etc in their reports as they enhance the value of shareholder's wealth and minimize the occurrence of Agency problems.
- The rules regarding the disclosures should be amended on regular basis in accordance with the need of the changing economies of the world.
- A well defined structure of punitive actions required to be taken in case of non adherence should be developed.

FUTURE RESEARCH DIRECTIONS

Further research study can be conducted as to study the correlation between corporate governance and fund flow, corporate governance adherence and FDI, corporate governance and subscription to Public issues, corporate governance and probable premium as to IPO pricing with cross comparison with EVA model and Risk Management for better insights into the perspectives of Investors and guidance to regulatory bodies.

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KNOWLEDGE MANAGEMENT & MOBILIZING KNOWLEDGE IN EDUCATION BY FOLLOWING CASE STUDY OF YU;GI-OH WORLD

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ABSTRACT

Knowledge Management is an important field that promotes the creation, capture, sharing & application of organizations knowledge. The most vital resource of today's enterprise is the collective knowledge residing in the minds of employees ,customers, &vendors.Knowledge management is fast becoming a commercial necessity for many educational institutes, & organizations, for managing their intellectual assets and geting competitive advantage. Individual and organizational knowledge is difficult to value and therefore difficult to manage. Knowledge Management (KM) is an important sector of human resource management. Knowledge management is the process of transforming information and intellectual assets into enduring value. It connects people with the knowledge that they need while taking decisions. In the corporate sector, managing knowledge is considered key for breakthrough competitive advantage, better decision making, improving cycle time, accelerating innovations and increase in profits. The paper tries to focus on the need of KM. in the non-profit sector-educational institutes as these are 'knowledge centers'. Therefore, efficient and successful knowledge management may improve the performance of institutes. The paper also emphasizes on the implementation of important technique of KM used in YU;GI-OH WORLD which gives importance to the mobilization of Knowledge required in Education Institutes also.

KEYWORDS
Knowledge ,Knowledge management, Knowledge Mobilization.

KNOWLEDGE MANAGEMENT

Knowledge management is the process of transforming information and intellectual assets into enduring value. It connects people with the knowledge that they need to take action, when they need it.

In the corporate sector, managing knowledge is considered key to achieving breakthrough competitive advantage and increases their profits. The non-profit sector-educational institute also needs knowledge management because they are 'knowledge center'. Therefore, efficient and successful knowledge management may improve the performance of institutes.

CLASSIFICATION OF KNOWLEDGE MANAGEMENT

Most literature on KM classifies knowledge into two main categories: explicit knowledge and tacit knowledge.

EXPLICIT KNOWLEDGE

Explicit knowledge is documented information that can facilitate action. It can be expressed in formal, shared language. Examples include formulas, equations, rules, and best practices.

Main Features of Explicit knowledge is:

- Packaged
- Communicable
- Transferable
- Easily codified

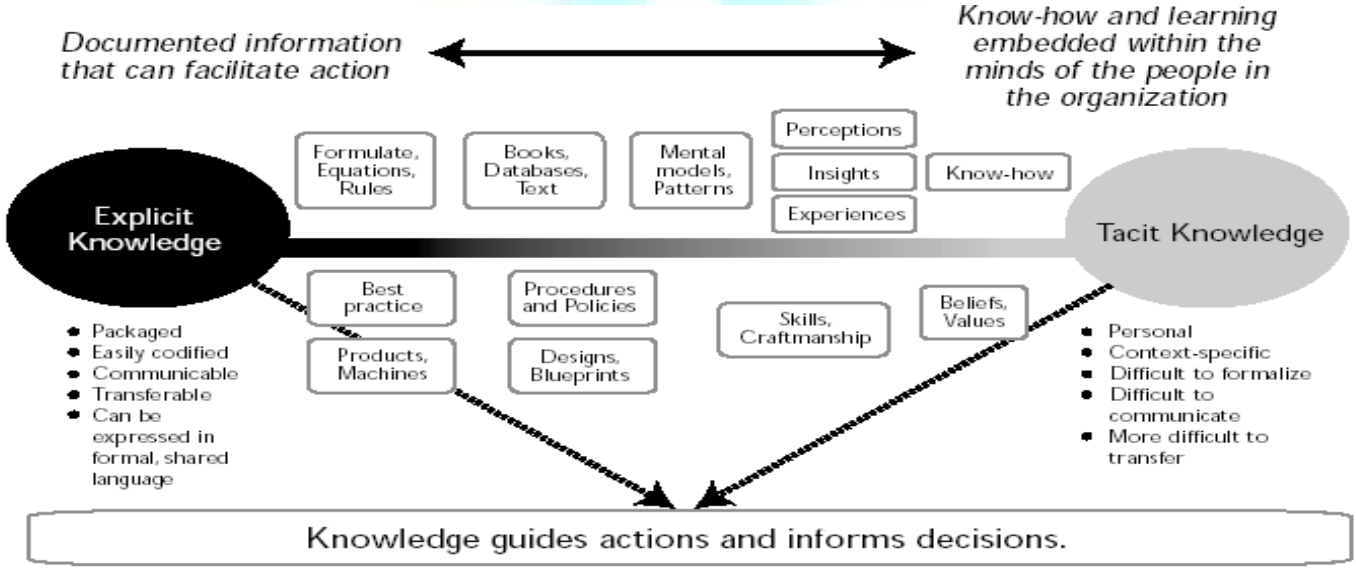
TACIT KNOWLEDGE

Tacit knowledge is know-how and learning embedded within the minds of the people in an organization. It involves perceptions, insights, experiences, and craftsmanship.

Main Features of Tacit knowledge is:

- Personal
- Difficult to formalize
- More difficult to transfer
- Context-specific
- Difficult to communicate

Most educational activities require the guidance of both explicit and tacit knowledge.



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KNOWLEDGE MANAGEMENT IN EDUCATION

Are the concepts of knowledge management (KM) applicable to colleges and universities? Some would argue that sharing knowledge is their job duty &right. If that is the case, then the education sector should be replete with examples of institutions that leverage knowledge to spur innovation, improve customer service, or achieve operational excellence. However, although some examples exist, they are very few. Knowledge management is a new field, and experiments are just beginning in education. We believe there is tremendous value to higher education institutions that develop initiatives to share knowledge to achieve business objectives. This paper outlines the basic concepts of mobilization of knowledge management as it is applied in the corporate sector, considers trends, and explores how it might be applied in education and whether education is ready to embrace it.

HOW DOES KNOWLEDGE WORK IN ORGANIZATIONS?

Knowledge originates in individuals, but it is embodied in teams and organizations. In an organization, examples of explicit knowledge are strategies, methodologies, processes, patents, products, and services. Examples of tacit knowledge in an organizational context are skills and competencies, experiences, relationships within and outside the organization, individual beliefs and values, and ideas. Knowledge also is embedded in work. processes, and it exists in all core functions of an organization as well as in its systems and infrastructure. Effective knowledge management programs identify and leverage the know-how embedded in work, with a focus on how it will be applied. The challenge in knowledge management is to make the *right* knowledge available to the *right* people at the *right* time.

APPLYING KM IN EDUCATION

Using knowledge management techniques and technologies in education is as vital as it is in the corporate sector.If done effectively, it can lead to better decision-making capabilities, reduced" product" development cycle time (for example, curriculum development and research), improved academic and administrative services, and reduced costs .Consider the number of faculty and staff who possess institutional knowledge.

For example, what if institution does not have a faculty member who has led successful curriculum revision task forces? Department staff who know how to navigate the complex proposal development or procurement processes? Or a special assistant to the chairman who has generated useful reports that principal or department head could use to develop their own strategic plans? Relying on the institutional knowledge of unique individuals can hamper the flexibility and responsiveness of any organization. The challenge is to convert the information that currently resides in those individuals and make it widely and easily available to any faculty member, staff person, or others. An institution wide approach to knowledge management can lead to exponential improvements in sharing knowledge—both explicit and tacit and the subsequent surge benefits. Knowledge management applications could benefit a number of institute processes and services: the research process, curriculum development process, student and alumni services, administrative services, and strategic planning.

Is education ready to embrace knowledge management? A key ingredient in an institution's readiness to embrace knowledge management is its culture—the beliefs, values, norms, and behaviors that are unique to an organization.

Informally, it is the unwritten rules or "how things really get done."Education is moving from the old culture that considers, "What's in it for me?" to a new culture that says, "What's in it for our customer?" And it is developing a culture that is ready to embrace knowledge management. As institutions launch knowledge management initiatives, they can learn lessons from their counterparts in the corporate sector. Some key points to remember are:

• *Start with strategy*. Before doing anything else, determine what we want to accomplish with knowledge management.

• Organizational infrastructure—human resources, financial measurements of success, and information technology—should support knowledge management.

Think of technology as an enabler, and measure the impact of KM in financial terms, such as cost reductions, customer satisfaction, and speed to market.

• *Seek a high-level leader for the initiative*—someone who believes in its benefits and who can advocate as needed.

• *Select at project for knowledge management*—ideally one with high impact on the organization but of low risk to build credibility for knowledge management. If possible, make the project that participants will enjoy and find rewarding.

• *Develop a detailed action plan for the projectt* that defines the process, the IT infrastructure, and the roles and incentives of the project team.

• After the project *assess the results and refine the action plan.*

APPLICATION AND BENEFITS OF KM FOR THE CURRICULUM DEVELOPMENT PROCESS

Benefits

• *Enhanced quality of curriculum and programs by identifying and leveraging best practices and monitoring outcomes.*

• *Improved speed of curriculum revision and updating.*

• *Enhanced faculty development efforts, especially for new faculty.*

• *Improved administrative services related to teaching and learning with technology.*

• *Improved responsiveness by monitoring and incorporating lessons learned from the experiences of colleagues, student evaluations, and corporate or other constituent input.*

• *Interdisciplinary curriculum design and development facilitated by navigating across departmental boundaries.*

Knowledge Management Application

• *Repository of curriculum revision efforts that includes research conducted, effectiveness measures, best practices, lessons learned, and so forth.*

• *Repository of content modularized and arranged to facilitate interdisciplinary curriculum design and development.*

• *Portal of information related to teaching and learning with technology, including facultydevelopment opportunities, outcomes tracking, lessons learned, best practices, technology overviews, and so forth.*

• *Information in each disciplinary area, including updated materials, recent publications, applicable research, and so forth.*

• *Repository of pedagogy and assessment techniques, including best practices, outcomes tracking, faculty development opportunities, and research.*

• *Repository of analyzed student evaluations updated each semester for lessons learned and best practices for all faculty.*

• *Portal for new faculty with guides for developing curriculum, working with senior faculty ,establishing effective teaching styles, advising do's and don'ts, supervising PhD students,and so forth.*

• *Repository of corporate relationships to identify curriculum design advisory task forces, guest speakers, adjuncts, case study sites, and so forth.*

APPLICATION AND BENEFITS OF KM FOR STUDENT AND ALUMNI SERVICES

Benefits

• *Improved services for students.*

• *Improved service capability of faculty and staff.*

• *Improved services for alumni and other external constituents.*

• *Improved effectiveness and efficiency of advising efforts (to integrate fragmented efforts undertaken by faculty ,academic support staff, student services staff.*

Knowledge Management Application

• *Portal for student services for both students and for faculty and staff at the institution so that they are well informed to advice students. Infor mation could include policies and procedures related to admissions, financial aid, registration, degree audit, billing, payment process, advising and tutoring, housing, dining, and other services.This portal could be personalized for individual schools or student groups to customize service offerings.*

• *Portal for career placement services (potentially part of a large portal for all corporate connections) to provide a one-stop service center for students, but also for faculty and staff to ensure they are informed.*

• *Repository of student affairs services for faculty and staff to ensure all constituents understand existing services and can provide proper advising.*

• *Portal for alumni and development services to minimize redundant efforts; capture contact reports;and link to research, curriculum, and career development efforts.*

• Portal for information on outreach constituents to integrate efforts and minimize redundant efforts.service to research. Knowledge managementshould not strike higher education institutions as a radically new idea; But implementing knowledge management practices wisely is a lesson that the smartest organizations in the corporate and not-for-profit sectors are learning all over again.

CHALLENGES TO IMPLEMENTING KM

There are obvious challenges to the implementation of KM. The Knowledge Management magazine IDC survey (Dyer and McDonough, 2001) documents the following:

--Employees have no time for KM (41.0%)
--Current culture does not encourage sharing (36.6%)
--Lack of understanding of KM and benefits (29.5%)
--Inability to measure financial benefits of KM (24.5%)
--Lack of skill in KM techniques (22.7%)
--Organization's processes are not designed for KM (22.2%)
--Lack of funding for KM (21.8%)
--Lack of incentives, rewards to share (19.9%)
--Have not yet begun implementing KM (18.7%)
--Lack of appropriate technology (17.4%)
--Lack of commitment from senior management (13.9%)
--No challenges encountered (4.3%)

LIST OF TECHNIQUES

1. ***On site observation**: Onsite observation gives the knowledge to the students within the working world of the expert, in the form of visuals and live exposures.*
2. ***Brainstorming:** Brainstorming is an unstructured approach to generate ideas about a problem for a creative solution. E.g.: group discussions, meetings.*
3. ***Delphi method**: It is a survey of experts. A series of questionnaires are used to pool the expert's responses in order to solve a difficult problem. E.g.: Need based curriculum of MSBTE.*
4. ***Decision Tree**: It is an alternative solution in the decision making graphic tool used to evaluate each alternative solution in the decision-making*
5. ***Protocol Analysis**: Sometimes the experts may or may not be able to deliver the knowledge to satisfy the knowledge seeker, then the best method is to adopt the alternative ways. E.g.: Synchronization of theory and practical sessions.*
6. ***Decision making techniques**: It identifies and selects a course of action to deal with a specific problem. E.g.: Organization of an event such as competitions, conferences and training programs.*
7. ***Consensus decision-making**: Involves making a choice from available or generated alternatives. E.g.: In a meeting, the consensus of all the members of the committee don't come to the same conclusion, because of differences, but commitment of the members to the implementation of the solutions is assured.*
8. ***Nominal group technique (NGT):** An alternative to consensus technique the nominal group technique provides an interface between consensus and brainstorming. E.g.: Governing body committee, Board of studies of autonomous polytechnics.*
9. ***Concept mapping**: It is unique tool to represent the knowledge in graphs. This tool helps in designing complex structures to design large websites. It consists of nodes and links. Nodes represent a concept and a link represents the relationship between the concepts. E.g.: figure showing the relationship between explicit and tacit knowledge.*
10. ***Black boarding**: Bringing a group of experts together in a room to solve a problem using the blackboard as their workspace. The essence of this technique is the independence of expertise in an atmosphere that discourages compliances or intimidation.*
11. ***Problem solving**: It is an important skill, which determines whether a problem is solved properly or not. This also depends on the individuals ego state. This skill is required at all levels-institute heads, staffs, supervisors, students at different categories in engineering and non engineering sections.*

CASE STUDY-V.P.M'S POLYTECHNIC AS KNOWLEDGE CENTER

*V.P.M's polytechnic is a well renowned self-financed polytechnic in educational sector in Maharashtra. This institute works with the mission of **"Imparting creative learning through innovative methodologies to expose the talents"** since from its inception (1983).*

The knowledge workers (seekers) and knowledge seekers had together developed a good KM system.The perception of Knowledge Management among academic staff is that their work involves managing knowledge. So they are the managers of their own knowledge and hence are already involved at some level in KM. The different recipes are to be used to transform ignorance into knowledge. Faculty use al technology and tools to transfer the knowledge to students. Environment developed in the institute not only helps in knowledge transaction but also provides all opportunities to manage and develop knowledge to each individual.

Certain techniques adopted by the institution are…

1. *Conductive and friendly environment helps to develop good relationship among staffs and between staffs and students. This provides a path for smooth transaction of knowledge.*
2. *Each individual operates in his or her own empowered space and establishes a bond with others through a strategic vision of the institute.*
3. *Provision of electronic tools-Internet, Intranet, Wi-Fi connection, Open source operating system (Linux system) administration along with good infrastructure. Dynamic website provides easy access to databases and e-journals.*
4. *Library which is an 'Information center also promotes relationship in and between libraries and between library and user, to strengthen knowledge sources.*
5. *Sustaining the synergic relationships with all stakeholders of the institute –DTE, MSBTE, Management, industries, parents etc.*
6. *Developing learning resources like lab manuals, question banks, note to improve the quality of output through MIPP by adopting Concept mapping.*
7. *On site observations provides exposure to practical field-Industrial visits, training programs, workshops are arranged for the students on the upcoming field of engineering.*
8. *By encouraging training programs, industrial training programs and workshop opportunities are provided to update the teacher's knowledge.*
9. *For effective teaching theory sessions are synchronized with practical sessions thereby adopting Protocol Analysis tool and Black boarding.*
10. *For development of soft skills-Paper presentation, quiz, debate, competitions and cultural activities are conducted.*
11. *Activities of Professional societies such as ISTE students and staff chapters, Computer Society Of India provides good exposure to students as well as staffs.*
12. *Enhancements of knowledge and performance platforms created through National seminars, conferences.*
13. *Brain storming technique and Decision making techniques adopted on departmental monthly meeting helps to generate ideas about a problem and to get a creative solution.*
14. *Institute successfully organizes events such as national seminars, competitions, conferences and training programs are as Decision making techniques are adopted by individual/groups.(Nominal group techniques.*
15. *In spite of consensus of members, each committee will assure to the implementation of the solutions(Consensus decision-making)*
16. *Self-appraisal and Feedback technique adopted helps to improve each individual to excel in his work.*
17. *Rewarding of good performance of staff as well as students encourages KMS members.*

18. *Social responsibilities-Energy park, Synergy group, Blood donation camps etc.*
19. *Knowledge workers are in very long service that helps to sustain goals and objectives of the institutes.*
20. *Continuing education programs such as Ad. Dip. in Industrial safety, Ad. Dip. in Computer software. Ad. Dip. in Energy management and audit, etc. International Collaboration with Northern College, Canada provides continuing education in Canada as well as placements.*
21. *Strong bond of Alumni leads to participation in institutional activities-placement, projects and expertise lectures.*
22. *Advancement e-tool such as Video conferencing facility in the institute helps to arrange guest lectures of global faculty.*

BENEFITS OF KNOWLEDGE MANAGEMENT IN POLYTECHNIC

BENEFITS FOR INSTITUTION

Generating academic experts
Good results
Recognition state wise and global wise.
Sponsorships and financial aids.
Better industry-institute interaction
Loyal services.
Improved administrative services.

BENEFITS FOR FACULTY

Enhanced faculty development efforts for new faculty.
Improved service capability of faculty and staff.
Improved teaching methodologies.
Introduction of new engineering fields.
Opportunities for leader qualities.
Improved responsiveness by experiences of colleagues.
Recognition in the society

BENEFITS FOR STUDENTS

Improved services for students.
Development of soft skills.
Exposure to e-tools.
Improved responsiveness from the experiences of alumni.
Opportunity to learn from guest lectures of global faculty
Recognized students of reputed institution.

CHALLENGES FOR IMPLEMENTING KM IN POLYTECHNIC

Challenges observed by V.P.M'S Polytechnic during the implementation of KM. Some of them are following:

- Staffs and faculty lack time for KM due to academic activities.
- Competitive environment does not encourage sharing
- Constraints in understanding KM and its benefits.
- Inability to measure financial benefits of KM
- Lack of skill/.hesitation to develop in Km techniques.
- Limitation in funding
- Lack of incentives, rewards to share.
- Some faculties are satisfied with short term goals.
- Lack identification of opportunities for KM.

V.P.M's Polytechnic as an educational institute is striving to overcome these challenges in order to reap the benefits of KM for the growth and to sustain the vision "Ensuring quality technical education to society".

As institutes find innovative ways to overcome these unique challenges, the success stories of these knowledge centers will redefine the way knowledge is managed in businesses.

KNOWLEDGE MOBILIZATION

"Many of us practice knowledge mobilization in some form every day – we just don't realize it." – In an era of shrinking funds and increased demand for research. This holds true for an academic researcher or a community non-profit organization. It is necessary to learn methods to enhance knowledge mobilization, a key component of any KM application.

EVOLUTION OF KNOWLEDGE MOBILIZATION (KMB)

Knowledge mobilization, or KMb, can be defined as the complex process of making what we know, ready for service or action to deliver value. Another commonly used definition is "getting the right information to the right people in the right format at the right time so as to influence decision making" .

The current evolution of knowledge mobilization goes beyond knowledge as a thing. Knowledge is now viewed as a flowing between and among various individuals and networks. Knowledge management incorporates many concepts.

Today's knowledge management initiatives are part of the job, not just an "add-on" to the current workload of employees. The top reasons why KMb is important are as follows:

1. A greater sense that the value of the knowledge that is produced must be shared with others
2. The changing nature of expertise - there are more people in more places who are specialists
3. The growing demand for collaboration and co-creation – a greater sense that the value of the knowledge that is produced must be shared with others
4. New generational norms
5. An inflation of expectation of results
6. Granting agencies require it

Knowledge mobilization can take many forms. Tools for knowledge mobilization include events; publications; meta tools such as needs assessment studies, experimental projects, and developing reference materials; sustainability approaches such as advisory boards, discussion forums and expert networks; and KMb and learning, which includes collaborative exploration, distance learning, and co-op arrangements. At the core of choosing appropriate KMb methods is determining the ones that are complementary, gives the most value, and thus are more useful for the recipient of the knowledge. Appropriate KMb methods will take into account the message that is being delivered and should reflect not only the type of new knowledge, but also the audience for that knowledge.

In the beginning of the process, KMb included a list of traditional activities such as workshops ,bulletins and conferences. However, this evolved into a commitment to share new knowledge among partners rather than have one group produce the knowledge, and others receive it. The team recognized the importance of establishing trust, and made sure KMb was an integrated underlying thrust of the final project, not just a required section of the application.

Discovery Workshops help determine research priorities for each community. Knowledge syntheses distill current academic literature into practical tools understood by those of varying backgrounds. Case studies highlight success stories that provide examples of business practices that can benefit others, and annual conferences inform a wide range of practitioners, policy makers, and academic researchers about innovative approaches to community economic development.

MOBILIZING KNOWLEDGE IN A WAY OF YU;GI-OH WORLD

The paper emphasizes on the techniques adopted for mobilization of KM in *Yugioh*, a *manga* (comic) and *anime* series that relies on a blend of the real and virtual, and the interpenetration of the other world of multi referential fantasy with the everyday social lives of children. In this paper, I describe how the fantastic and other worldly characters and narratives of the *Yugioh* pantheon are part of the everyday constructions of identity and social relations among children, adult fans, and media industries. ***Yugioh* ties together people, commodities, and images in a complex media mix**. In this *Yugioh* KM networks extend beyond the texts themselves, the creators of the texts, develops the consumers, to include a wide range of social actors that repackage, appropriate, and perform *Yugioh* in often unexpected ways. Yugioh successfully implemented km techniques .It is a great achievement for company that through mobilization of KM at various stages i.e from cards development, serial production on T.V.,various product development,rules formats preparation, connectivity between various formats such as cards, T.V., video games, application at various stages, that company could get commercial success.This successful implementation of KM with effective mobilization of knowledge at various stages with such diverse products & customers that gave commercial success to the company has been main reason for selecting this case study as an example for following in other organizations.

YUGIOH

Yugioh was the most popular media mix content among elementary age boys in Japan in the years from 2000-2002. The *Yugioh* manga series has also spawned a television animation, its own immensely popular card game, over ten different video game versions, and character goods ranging from T-shirts to pencil boxes. One survey in 2000 of three hundred students in a Kyoto elementary school indicated that by the third grade, every student owned some *Yugioh* cards (Asahi Shinbun 2001). The *Yugioh* animation was released in the US in 2001, and now the card game has overtaken *Pokemon* in popularity.

Yugi representing one pole of kindness and fraternity and Kaiba representing an opposing pole of ruthless individualism.

The series focuses on a card game Magic and Wizards,..In the *manga* and animation, players engage in lengthy duels where they pit monster, magic and trap cards against each other in dramatic play, often involving technologies that render the dueling monsters in 3D.These fantastic creatures are rendered in the everyday world with more and more fidelity through advancing virtual reality technologies. The series began by **mapping a contact point between the** world of the monsters and the human characters in the threat of psychological horror;

YAMI

Yugi's special powers could hurl his opponent into a 'world of darkness' inhabited by the monsters depicted in the playing cards. Eventually, the (fictional) creators of the card game develop technologies that render the monsters in fully-interactive 3D, inflicting real-life pain as their monsters attack each other and the players. The *anime* depicts real and virtual worlds in constant and dynamic contact. **Human players in the *manga* mobilize monsters in their everyday world, and kids in "real life" mobilize these same monsters in their play with trading cards and game boys. The activities of children in our world thus closely mimic the activities and materiality's of children in Yugi's world.** They collect and trade the same cards and engage in play with the same strategies and rules. Scenes in the *anime* depictYugi frequenting card shops and buying card packs, enjoying the thrill of getting a rare card, dramatizing everyday moments of media consumption in addition to the highly stylized and fantastic dramas of the duels themselves.

Just as in the *anime*, the focus of dramatic action for kids is moments of card play. Most owned versions of the game boy game, read the *manga* at least periodically, and watched the TV show. Some participated in Internet groups that exchanged information and *Yugioh* goods. But the most popular is the card game. All of the boys had some kind of collection of cards that they treasured. They exploit gaps in dominant systems of meaning and mainstream commodity capitalism, mobilizing tactics that are a thorn in the side of those relying on mass marketing and distribution. Card *otaku*, who buy and sell cards through alternative networks, even to the extent of creating counterfeit or original cards, are considered a threat to normalized capitalist relations.

Yugioh cards have been released in a variety of forms, including ready-to-play packs, vending machine versions, and limited release versions packaged with game boy software, in books, and distributed at trade shows. The most common form of purchase is in five card packs costing ¥150. A new series of these five card packs is released every few months. When purchasing a pack of cards, one doesn't know what one will get within the fifty or so cards in a series. Most card packs have only "normal" run of the mill cards, but if you are lucky you may get a "rare," "super rare," "ultra rare," or perhaps even an "ultimate rare" card in one of your packs.One kind of *otaku* knowledge is known as *sa-chi* "searching" which are methods with which card collectors identify rare card packs *before* purchase. Collectors meet with each other on rounds of convenience stores sharing tips and techniques. Now these tips are posted on numerous web sties soon after the new packs hit the shelves. These web sites post detailed photos highlighting and describing minute differences in packaging such as the length of the ridges along the back of the card pack, or slight differences in printing angle and hue.

The salesperson is amused but slightly annoyed, and it takes some negotiating to get him to open all three boxes. My companions pride themselves on their well trained fingertips that enable them to identify the key card packs. They teach me a few tricks of the trade, but clearly this is a skill born of intensive practice. After identifying all the rare, super rare, and ultra rare cards in the store, they head out to clear the other neighborhood shops of rarecards before daybreak, when run of the mill consumers will start purchasing.Single cards, often purchased in these ways, are sold at card shops and on the Internet. In city centers in Tokyo there are numerous hobby shops that specialize in the buying and selling of single cards, and which are frequented by adult collectors as well as children. These cards can fetch prices ranging from the equivalent of pennies to hundreds of dollars for special edition cards. Street vendors and booths at carnivals will also often have a display of single-sale *Yugioh* cards that children flock to. The Internet, however, is probably the site that mediates the majority of these player-to-player exchanges. The total volume is extremely large. One collector purchases about 600 packs of cards in each round of searches and could easily make his living buying and selling *Yugioh*cards.

Some of these adult traders are in it for that money.The Internet sites for these *Yugioh* teams are the primary site for affiliating, with chat rooms, bulletin boards, card trade areas, and virtual duel spaces. Konami makes their business out of selling card packs to regular consumers in mainstream distribution channels. At the same time, Kona mi is plays to multiple markets by mobilizing mass oriented strategies as well as fodder for *otaku* and entrepreneurial kids. They have both an official and unofficial backchannel discourse. They continue to generate buzz and insider knowledge through an increasingly intricate and everchanging set of rules and the release of special edition cards and card packs. The market for media mix content is becoming organized into a dual structure, where there are mainstream, mass distribution channels that market and sell to run of the mill consumers, and an *otaku* zoneof exchange which blurs the distinction between production and consumption, children andadults.

KM IN EDUCATION THROUGH YUGIOH WORLD

They were not just playing cards nor videogames but the experiences of watching daily tv show ,playing with videogames, dueling with each other using card decks. &downloading the latest sheets & facts about monsters from the internet were all interconnected. At the heart of the commercial **success of the YU;GI;OH was the companies ability to mobilize &integrate diverse knowledge resources that reside in the heterogeneous communities in order to design & deliver experiences in a such a unique &multilayered manner.**

YU;GI-OH world,the **ideal of creating an organization in which knowledge flows freely from one corner of the organization to another in order to create new & novel products &solutions that delivers unique &powerful experiences to customers** .

EXPERIENCE

First, thing that defines the experience economy is a shift from products to experiences as the main source of value creation. As in the case of the Yu-Gi-Oh! example, what distinguishes a product is not just its physical and material features but how the product is used to create unique experiences. Philosopher J6hn Dewey (1934) puts it, "Experience occurs, continuously, because the interaction of live creature and environing conditions is involved in the process of living" (p.

35). Experiences, then, are to be understood in terms of interaction between an individual and products. Similarly in education its an **experience** which students as a product get while studying in an institute that creates good repute of any institute which is very vital for attracting new students to the institute.

INTERACTIONS

In the industrial economy, the primary goal of organizations was to produce better products with lower cost compared to their competitors (Porter, 1980). To the contrary, in the experience economy, the key is not to have a better product but to create unique and powerful experiences using the products. In such cases, what companies focus on is not the products themselves but what customers do with them. An experience, hence, is not some thing that is designed ahead of time and handed over to the customers. Instead, it emerges from the interactions between the products and the customers (Heskett, 2002).

In education also its necessary to have positive interactions with the students, alumni, parents, & other stake holders frequently. There is need to have strong interconnectivity, cooperation, mobilization of KM between diploma, degree college ,industries while designing the curriculum .through the entire process & delivery of education

SEAMLESS CONNECTIONS

Third, the value of connections overshadows the value of possessions in the experience economy. As users are more concerned about experiences than products, the ability to identify and connect to the resources that are essential to the experiences becomes more important than the mere ownership of the resources. For example, in the case of Yu-Gi-Oh! It was the seamless connections of several different facets of experiencing the trading card game that created its own unique experiences. Similarly, the users of the internet derive its value not by owning Web pages that contain useful information but by being able to connect to the site. The advancement of network technology has enabled organizations and consumers alike to access knowledge resources that are not owned. by them. Furthermore, digitized resources can be easily disintegrate, modified, and reintegrated with other digitized resources, opening up the possibilities of novel experiences. Organizations can create new value by connecting activities and knowledge resources that were previously separated. So, the key to successful innovations is not so much about the possession of knowledge resources but the ability to bring their connections to bear for seamless consumptions by the users.

Similarly for students possessing knowledge is not sufficient it is necessary to find how this knowledge is being applied in the actual work related problems. Hence it is very important to find, study & analyze the opportunities, carrier options, jobs responsibilities offered, salary package payable, their further progress cycle after their education.

CONCLUSION

Knowledge management in educational institutions is still a relatively new area. The benefits of KM to these institutes will undoubtedly acquire greater visibility in the recent future.

Polytechnics have different opportunities to apply knowledge management practices to support every part of their mission—from education to public service. Knowledge management should not strike higher education institutions as a radically new idea; rather, it is a rising challenge in the path of future. But implementing knowledge management practices wisely is a lesson that the smartest organizations in the corporate and not-for-profit sectors should learn. In addition to the problematic conceptualization of tacit knowledge, KM raised several other challenges that tried to implement it. First, it was much easier to create demand for knowledge than supply. Second, the use of powerful incentive systems led to information overload and employees struggled to find the knowledge that could really help them solve their problems (Hansen and Haas, 2(01). Knowledge resides in a community of practice and thus, institutes need to nurture and support communities of practice in order to leverage the knowledge resources in the organization.The importance of identity, language, and work practices are essential elements of sharing knowledge.

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STUDY OF CRM THROUGH SOCIAL NETWORKING SITE: *A FACEBOOK PERSPECTIVE*

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ABSTRACT

The purpose of this study is to examine the extent of usage of Facebook for CRM activities by various organizations and to analyze the factors which are important for maintaining Customer Relations through Facebook. A structured questionnaire survey was used to collect the data. Data was collected from120 respondents and used for analysis. The findings of the result showed that there are six factors which are important to maintain relations with customers by use of Facebook; i.e. Features of Organization's facebook profile, Ease of use, Brand Likeability, Recommendation, Decision making, Brand comparison by joining groups. The study has also proved that the extent of importance of various factors for CRM through facebook does not vary across profession, age and income. The study specifically helps the organization on how to stay connected with the customers for maintaining relations with customers. The study has proved that the above mentioned six factors are the most important for judging the relations of the customers with the Company through Facebook.

KEYWORDS

Social Networking Site, Customer relationship

BACKGROUND

In the era of Customer Centric business Customer Relationship Management(CRM) is an integral part of any company for its growth and success. CRM is the strongest and very efficient approach to manage the relationships with the customers, keep the existing customers satisfied and also to find out new customers. These days, consumers are demanding highly interactive customer services from the organization hence it is a challenge for the companies to facilitate the constant interactions. Social Networking Sites are playing an important role in this regard; many companies are using Social networking sites to leverage their communication with customers.

CRM

Customer relationship management (CRM) is a widely implemented strategy for managing a company's interactions with customers, clients and sales prospects. Customer relationship evolved from Relationship Management (Hung 2005). Gummesson (2002) stated "marketing is based on relationships, networks and interaction, recognizing that marketing is embedded in the total management of the networks of the selling organization, the market and society. It is directed to long term win-win relationships with individual customers, and value is jointly created between the parties involved".

Harker (1999) defined CRM as a business strategy directed to understand, anticipate and respond to the needs of an enterprise's current and potential customers in order to grow the relationship value.

There are two reasons why an organization adopts CRM

1. The **defensive reasons** refer to an organization's fears of losing customers and revenues due to the successful CRM adoption among competitors while,
2. The **offensive reasons** refer to the desire to improve the profitability by reducing costs and increasing revenues through improving customer satisfaction and loyalty.

Brenner (2006) stated that the implementation of CRM is very fundamental for increasing customer loyalty. According to Shaw Gartner, Inc. (2009) there are several benefits of CRM:

- Overall revenue of the organization increase due to high sales
- Cost reduction is achieved to higher demand of products
- Better customer service is achieved
- Organizations can gain the competitive edge over its competitors
- Organizations can concentrate more on production
- Constant supply of vital customer data
- Customers receive satisfaction with the CRM activities

SOCIAL NETWORKING SITES

A social networking Site is an platform, or site that focuses on building and reflecting of social networks or social relations among people, who, for example, share interests and/or activities, Sunden's (2003). Friends, family, and acquaintances use social media to connect with each other socially. Social media gives people a never ending relationship, even when they're not communicating, as status updates, photos, etc., keep people informed of one another and involved in each other's lives. Apart from individuals, professionals are also using SNS as a medium to raise their visibility, get noticed, tell about their company, service, and get more clients.

SOCIAL NETWORKING SITES AND CRM

Since these websites started growing in popularity, businesses have looked for ways to integrate social media into their CRM strategies as well. Social media allows all types of companies to connect directly with their customers in a way that is both interactive and real time. However, very few companies are using social media to their advantage. Most companies start a social media campaign by starting a fan page on Facebook account and performing the occasional updates. The customers can establish the direct connection with the organization to communicate with them regarding various matters. But opening up a social media account and providing the occasional update does not lead to maintain relations with customers. Organization need to have a complete social media campaign, which interacts with the customer, allow conversation with them, create a relationship, and build the business of the Organization

FACEBOOK PERSPECTIVE

In the last couple of years, Facebook has gone from a college photo-sharing site to a business- networking platform of Organizations for Self-promotion, Advertising and Interaction. With new applications, Facebook users can, create and host events, advertise their businesses through Social Advertisements. The little networking site became a powerhouse for CRM. My spectrum of my study is confined to Facebook as the main Networking site for Customer Relationship Management. Following are the ways in with Facebook can be used for CRM activities.

1. **Company profiling**: Companies can create a profile on Facebook, on which a customer would find a link to visit the organization website, organization can promote their business, and explain the features and discount options about the product/service.
2. **Contacting Customers**: The entire idea of Facebook is to connect with people. Connections are made by sending and receiving friend requests, once accepted, your friends can view your profile and discover all that your business has to offer. Additionally, you are able to view your friends profile pages as well, including their friend list. Having access to more customers with like needs and financial statuses may bring about more business
3. **Communication**: All Facebook members have a "wall" where friends can post comments. This can be an easy and fun way to communicate various offersoand other information to customers.
4. **Status Update**: While most Facebook users are updating their profiles with basic daily routines, organization can promote events, share product information, offer discounts, and more. It is a quick way to let everyone on your friend list know the upcoming news about your company
5. **Join A Group**: Groups can be created on Facebook for discussing a large variety of topics. Companies can join groups that are related to the products they offer, as well as search existing groups to find possible customers. In other words, here are many opportunities to connect with new friends.
6. **Polls**: Organizations looking for quick information and customer opinions can use a poll so that they can judge about the liking of the product they offer.

LITERATURE REVIEW

Customer satisfaction is an integral part of company growth and success. Customer relationship management (CRM) systems offer businesses a way to keep current customers satisfied, as well as a way of finding new customers. Social networking can play a huge role in both these endeavors. Many companies incorporate CRM systems in order to manage and organize all the contact it has with both existing and prospective customers, through software or Web-based approach that supports these ventures. For example, customer data and interactions can be entered, stored, and accessed by personnel based on several categories. The data then can be used to encourage better customer service with comprehensive information, and to improve targeted marketing. Social networking offers yet another channel to accomplish both of these goals.

This natural marriage between next-generation social technologies and enterprise platforms brings together a powerful tool for the ever-changing corporate world. Whether your business is large or small, the benefits are countless. For example, a large corporation can use social networks for providing better customer service to their already large customer base. A small company may use social networks to reach more people and spread the word of their products and services. In the end, the main goals are providing better customer service and attracting new customers

Abed concluded that social networking sites explode in popularity, the hype and interest continue to build. Facebook alone topped 1000 million users in 2011 . He found out that sorting the fact from the hype can be a challenge. Social networking at a high level is described as the convergence of technologies that make it possible for individuals to easily communicate, share information, and form new communities online. But the big question for him was that today is not what social networking is, but rather what it means for businesses. He found out that while social networks began as the province of individuals, businesses are now trying to capitalize on this trend as they search for specific strategies and tactics to derive value from it.

In an extensive study of the Garner Research program, Munn, Mezt, 2008 noted a large increase in investment in social networking by businesses. He concluded that used effectively, social networking sites can enable marketing professionals, salespeople, and customer service agents to develop meaningful relationships with customers in new ways.

Graham Walton. (2009) argued that, the true value from social networking can't be achieved in isolation. Rather, organizations need to take stock of their core business processes and customer management initiatives and identify how social networking can further enhance and extend those initiatives. Unlike other communication mediums, social networking sites not only provide the ability for users to communicate with each other but also enable users to find like-minded individuals. Once they discover each other, members can form ad hoc communities based on their mutual interests. Multiplied many times over, these individuals become the new power behind the old saying, "power of the masses." Thus social networking sites help shift power from the company to the consumer as the masses are able to channel and exert their influence. As social networking sites continue to grow in popularity, firms can no longer solely rely on traditional mediums (print, radio, TV, etc.) to enforce public perception of their product. Conversely, these new communication channels also provide organizations with a way to discover and maintain a persistent connection with their most vocal constituents. By harnessing this social networking information, organizations can use it to help identify their most influential consumers, drive participation in product development and improve brand sentiment. While some organizations may still question the business relevance of social networking, un-monitored conversations that impact their business are likely occurring online right now. And as many companies have learned, it is important to be involved in those conversations. Ultimately, social networks should be viewed as a channel that organizations need to monitor and engage in. Adam Sarner, Gartner analyst, contends that in social networking that the CRM is where one is going to see the ROI in the business model as opposed to anywhere else. It's all about connecting and engaging in new ways with customers. According to him it isn't surprising that customers who are using social networks want meaningful engagement with companies. And businesses want a way to manage and measure their forays in social networking. Makcy (2009) found out the combination of social networking and CRM provides an enormous opportunity to enrich customer interactions and give businesses a way to manage and measure how they use social networking while successfully engaging social customers. A Gartner Research program by Rafaeli (1988) calls social networking a "disruptive influence" on the CRM market, challenging companies to innovate and adjust. An ever growing number of companies have begun employing Facebook "fan" pages for customer relationship management (CRM). During the last few weeks, ClickZ has examined dozens of Facebook brand pages with an eye toward CRM and discovered that commitment level varies widely. While some appear nonplussed by the CRM opportunities on Facebook, others have bought in. Not surprisingly, firms committing to answering publicly/anonymously-made questions and authoring responses to "fan" comments predominantly have vested interests in direct-selling or retail. Lee Matthewl (2010) concluded that Wal-Mart, Dell, Comcast, Toyota, Domino's, Taco John's, and Teleflora, among others, have been proactively addressing customer concerns on Facebook. If questions cannot be immediately answered, their social reps normally direct "fans" to a Web page, toll-free number, or customer service e-mail address in a follow-up post. De Ruiter quoted that by looking at what other companies, such as Comcast and the folks at Dell have experienced, They knew that opening themselves up to social channels meant they would experience customer-service type questions. CRM via social media is just one piece of their overall social strategy. According to Alaxander Ardichvili, (2010) many firms use their posts to address rising CRM situations on the fly. He conducted a research on Dominos and concluded that Domino's has a long 'fan' following than any other brands

The objective of the present study is to explore the factors contributing to the effectiveness of CRM through Social Networking Site and also to analyse the extent of importance given to these factors by various respondents based of demographics factors.

RESEARCH METHODOLOGY

Primary data has been collected for the purpose of this research. In order to collect data a questionnaire was developed. To avoid misinterpretations, the pretesting of questionnaire was conducted on a pilot group selected from the population. For pilot study a survey of 50 respondents was conducted. After pretesting necessary modifications were incorporated in the original questionnaire. In the final questionnaire 21 variables were incorporated to ascertain the effectiveness of CRM through Social networking site. A five (5) point likert scale (where least important=1 and very important=5) was used to measure the importance given by customer to each of the variable. Simple random sampling was adopted to collect the data. The sample size was 120 respondents. To minimize the number of variables, factor analysis approach to data reduction has been applied. Further to compare various factors of measuring effectiveness of CRM across the age groups, household hold income and occupational groups, the obtained data has been analyzed by using one way analysis of variance (ANOVA). The survey was limited to Delhi and National Capital Region.

DATA ANALYSIS

Factor analysis and Correlation is applied in order to find out the relation between the Social Networking site and which variables are more dominant in a Social Networking site to enhance the Customer relationship. Factor analysis determines what the patterns of relationship between variables are. Correlation determines how Social Networking Site and Customer relationship is related.

The reliability test was conducted for the nineteen variables for checking the effectiveness of facebook in maintain CRM. It is done to confirm the consistency and accuracy of the results using these variables. Cronbach alpha measure has been used to check reliability.

The Cronbach Alpha for the variables regarding the Effectiveness of CRM through Facebook is 0.835

So it can be concluded that the variables for checking CRM through Facebook are found to be reliable

RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
.835	21

DESCRIPTIVE ANALYSIS

The questionnaire included a section on consumer profiling. It includes the consumer age, income, profession and gender. Table 1 provides the demographic profiling of the facebook users who have participated in the study

TABLE 1: DEMOGRAPHIC PROFILE OF RESPONDENTS

Profile	Frequency	Percentage	Cumulative Percentage
Age Profile			
0-18	64	53.3	53.3
18-25	39	32.5	85.8
25-40	11	9.2	95
40+	0	5	100
Total	120	100	
Annual Income			
0-3	68	56.7	56.7
3-5	52	43.3	100
Total	120	100	
Gender			
Male	73	60.8	60.8
Female	47	39.2	100
Total	120	100	
Profession			
Student	54	45	45
Business	18	15	60
Professional	28	23	83.3
Service Class	20	16.7	100
Total	120	100	

It can be seen from Table 1, the majority of respondents are from 0-18 years (53.3%), followed by 18-25years (32.5%). Occupation profile reveals that the larger numbers of respondents are students that are 54 (45%). Followed by professionals (23%), and servive class (16.7%)

The income profile depicts that a big percentage of of respondents 68% has a income less than 3,00,000 pa.

FACTOR ANALYSIS

Factor analysis attempts to identify underlying variables or factors that explain the pattern of Correlations within a set of observed variables.

Factor analysis is always used in Data reduction, by identifying a small number of factors which explains most of the variance observed in a much larger number of variables.

SAMPLE ADEQUACY

A set of twenty variables considered to be important while checking about the Effectiveness of Facebook on CRM, It was subjected to principal component analysis, using varimax rotation with Kaiser normalization in order to reduce the multiplicity of variables into selected factors.

TABLE 2: ROTATED COMPONENT ANALYSIS

ROTATED COMPONENT MATRIX[a]

	Component					
	1	2	3	4	5	6
I visit Facebook regularly to read the company profile of various products	.924	.080	-.069	-.199	.111	.053
I recommend same to my friends if I find the information useful	.871	-.165	.263	.068	-.163	-.098
I often establish connection with various companies	-.092	.973	.066	.066	-.016	.156
I have many companies added in my profile	.256	.127	.914	.170	.024	-.064
I usually take part in the polls about the various product	.788	-.183	.366	-.341	.039	.174
I join group of various products	.055	.226	-.050	.068	-.131	.950
I get to know what brands/products my friends are using through their pages	.000	-.023	.020	.031	.981	-.118
I generally visit those pages which are liked by my friends	-.245	.086	.161	.927	.039	.082
I get to know about the discounts and offer of the company through its pages	.924	.080	-.069	-.199	.111	.053
I suggest my friends to join groups of the various products	.871	-.165	.263	.068	-.163	-.098
I am easily directed on the home page of the product when I click on the Link on the page	-.092	.973	.066	.066	-.016	.156
I always hit a LIKE on the pages of brands I use	.256	.127	.914	.170	.024	-.064
I comment on the pages in case of Grievances	.788	-.183	.366	-.341	.039	.174
I can compare various brands with the help of facebook pages	.055	.226	-.050	.068	-.131	.950
The various pages give me a platform to decide about various brands	.000	-.023	.020	.031	.981	-.118
I prefer pages in which detailed information about the product is available	-.245	.086	.161	.927	.039	.082
I prefer pages in which important features of the product are available	.924	.080	-.069	-.199	.111	.053
I give preference to the pages which are well developed and easily understandable	.871	-.165	.263	.068	-.163	-.098
I generally avail the discounts and offers of the various products	-.092	.973	.066	.066	-.016	.156
I generally hit a like on the pages of the brand I use	.788	-.183	.366	-.341	.039	.174

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

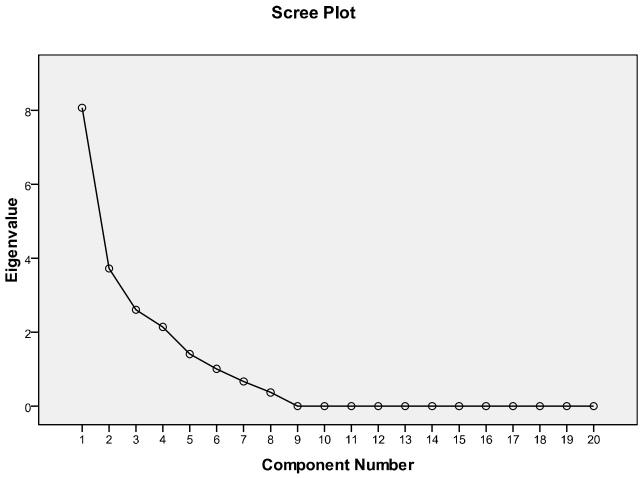
a. Rotation converged in 6 iterations.

TABLE 3: EIGEN VALUES

TOTAL VARIANCE EXPLAINED

Component	Rotation Sums of Squared Loadings		
	Eigen Value	% of Variance	Cumulative %
1	6.986	34.930	34.930
2	3.193	15.966	50.895
3	2.366	11.828	62.723
4	2.281	11.407	74.130
5	2.084	10.419	84.549
6	2.054	10.271	94.820

Extraction Method: Principal Component Analysis.



The table 3 indicates that 94.82 per cent of cumulative variance has been explained by 6 factors. The variance reflects considerable contribution of these factors while checking the Effectivness of CRM through Facebook.

To interpret the factors, the first factor has an Eigen value of 6.986. Since it is greater than 1.0, it explains more variance than a single variable. The percentage of variance explained by this factor is 34.930
The second factor has an Eigen value of 3.193 and explains 15.966 percent of Variance in the original data
The third factor has eigen value of 2.36 and explains 11.82 percent of variance in the original data
The fourth factor has eigen value of 2.28 and explains 11.40 percent of variance in the original data
The fifth factor has eigen value of 2.08 and explains 10.4 percent of variance in the original data
The sixth factor has eigen value of 2.05and explains 10.27 percent of variance in the original data
All factors account for high positive loadings. Keeping in view the Loadings of the factors, these are names as Features of Organization's facebook Profile, Ease of Use, Brand Likebility, Recommendation, Decision making and Brand Comparison by Joining Groups

F1 (FEATURES OF ORGANIZATION'S FACEBOOK PROFILE

As shown in table 4 all loadings of items in factorsF1 are significantly high, Nine variables with positive loadings are extracted on factor F1. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit that customers feel that features of facebook help them to know about various brands /products of Organization and discount offered by them.
Keeping in view the nature of variables having high loadings we named it Features of Organization's facebook profile

TABLE 4: F1 FEATURES OF ORGANIZATION'S FACEBOOK PROFILE

Items	Statement	Factor Loading
1	I visit Facebook regularly to read the company profile of various products	.924
2	I recommend same to my friends if I find the information useful	.871
5	I usually take part in the polls about the various product	.788
9	I get to know about the discounts and offer of the company through its pages	.924
10	I suggest my friends to join groups of the various products	.871
13	I comment on the pages in case of Grievances	.788
17	I prefer pages in which detailed information about the product is available	.924
18	I prefer pages in which important features of product are available	.871
20	I generally avail the discounts and offers of the various products	.788

F 2: EASE OF USE

As shown in table 5 all loadings of items in factorsF2 are significantly high, three variables with positive loadings are extracted on factor F2. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit that customers find easy to use the pages of facebook in order to join hands with its respective brands/organization
Keeping in view the nature of variables having high loadings we named it Ease of use

TABLE 5 F 2: EASE OF USE

Items	Statement	Factor loading
3	I often establish connection with various companies	.973
11	I am easily directed on the home page of the product when I click on the Link on the page	.973
19	I give preference to the pages which are well developed and easily understandable	.973

F3 BRAND LIKEABILITY

As shown in table 4 all loadings of items in factorsF3 are significantly high, two variables with positive loadings are extracted on factor F3. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit that how facebook helps the customers to display their Brand likeability towards an Organization/Brand
Keeping in view the nature of variables having high loadings we named it **Brand Likeability**

TABLE 6: F3 BRAND LIKEABILITY

Items	Statement	Factor Loading
4	I have many companies added in my profile	.914
12	I always hit a LIKE on the pages of brands I use	.914

F4: RECOMMENDATION

As shown in table 6 all loadings of items in factorsF4 are significantly high, two variables with positive loadings are extracted on factor F4. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit how customers recommend the brands/products to their Friends
Keeping in view the nature of variables having high loadings we named it **Recommendation**

TABLE 7: F4 RECOMMENDATION

Items	Statement	Factor Loading
8	I generally visit those pages which are liked by my friends	.927
16	I prefer pages in which detailed information about the product is available	.927

F5 -DECISION MAKING

As shown in table 8 all loadings of items in factorsF5 are significantly high , one variable with positive loadings are extracted on factor F5. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit that customers feel that features of facebook customers in Decision making about various products/brands
Keeping in view the nature of variables having high loadings we named it **Decision Making**

TABLE 8: F5 DECISION MAKING

Items	Statement	Factor Loading
15	The various pages give me a platform to decide about various brands	0.981

F6: BRAND COMPARISON BY JOINING GROUPS

As shown in table 4 all loadings of items in factorsF6 are significantly high , Nine variables with positive loadings are extracted on factor F6. The positive loadings indicate that these variables share most of their variances between them and thereby co-vary with each other.
These factors exhibit that customers feel that features of facebook help them compare about various brands.
Keeping in view the nature of variables having high loadings we named it **Brand Comparison By joining Groups.**

TABLE 9 F6: BRAND COMPARISON BY JOINING GROUPS

Items	Statement	Factor Loading
6	I join group of various products	.950
14	I can compare various brands with the help of facebook pages	.950

COMPARISON OF MEANS: ANOVA

ANOVA is applied to test the hypothesis under this study.

To test the Hypotheses i.e. the extent of importance of various dimensions for CRM through Facebook does not vary across Profession, Age and Gender; ANOVA test is applied

The Results by the table 10-12 show that whether there is any Significant difference among mean scores of the Various Dimensions

TABLE 10: PROFESSION WISE SUMMARY OF MEANS AND ANOVA OF DIMENSION OF EFFECTIVENESS OF CRM THROUGH FACEBOOK

Dimension	Student	Service Class	Professional	Business Man	F value	P value
	N=64	N=39	N=11	N=6		
Features of Organization's Profile	2.21	2.35	2.39	2.33	4.529	.011
Ease of use	2.71	2.10	2.36	3.0	2.371	.95
Brand likeability	2.12	1.79	2.18	2.66	.466	.628
Recommendation	2.15	1.74	1.72	3	2.713	.068
Decision Making	2.35	2.89	2.09	2.66	2.797	.043
Brand Comparison	2.46	2.48	2.27	2.83	.42	.73

Table 10 depicts that the highest mean score on the factor ' Features of Organizations Profile' is accorded by customers who are Professionals (2.39), followed by Service class people (2.35). The lowest mean score is obtained by the students. The F value for this factor is 4.529. This implies that Service Class and Professionals are more interested towards the CRM activities which are done by Organization through its facebook Profiles.

The F value of the remaining factors viz, Ease of Use, Brand likeability, Recommendation, Decision making and Brand Comparison is not found significant at 5 percent level. The table value of F at 5 percent significance is 3.00. The ANOVA results show that there is no significant difference among mean scores across the four professions, for each of these dimensions

TABLE 11: INCOME WISE SUMMARY OF MEANS AND ANOVA OF DIMENSION OF EFFECTIVENESS OF CRM THROUGH FACEBOOK

Dimension	0-3	3-5	F value	P value
	N=73	N=47		
Features of Organization's Profile	2.34	2.18	5.28	.001
Ease of use	2.36	2.70	2.887	.35
Brand likeability	1.91	2.25	1.53	.195
Recommendation	1.83	2.31	4.242	.005
Decision Making	2.31	2.85	2.797	.043
Brand Comparison	2.50	2.42	3.192	.024

It is clear from the mean scores given in Table 11 that the highest mean score of 'Features of Organization's Facebook Profile is accorded by Income group 0-3lacs (2.34). This means that lower income group gives more importance to the Features of the Organizations Profile than the higher income group

The F value for the Factor Brand Likeability is not found significant at 5 percent level. The ANOVA result shows that there is no significant difference among mean scores across the income groups.

TABLE 12: AGE WISE SUMMARY OF MEANS AND ANOVA OF DIMENSION OF EFFECTIVENESS OF CRM THROUGH FACEBOOK

Dimension	Below 18	18-25	26-40	40+	F value	P value
	N=64	N=39	N=11	N=6		
Features of Organization's Profile	2.35	2.39	2.33	2.31	4.529	.011
Ease of use	2.71	2.10	2.36	3.0	2.371	.95
Brand likeability	2.12	1.79	2.18	2.66	.466	.628
Recommendation	2.15	1.74	1.72	3	2.713	.068
Decision Making	2.35	2.89	2.09	2.66	2.797	.043
Brand Comparison	2.46	2.48	2.27	2.83	.42	.73

Table 12 depicts that the highest mean score on the factor 'Features of Organizations Profile' is accorded by customers who are 18-25 years (2.39), followed by below 18 youth (2.35). The lowest mean score is obtained by the age group 40+. The F value for this factor is 4.529. This implies that Below 18 and 18-25 year aged people are more interested towards the CRM activities which are done by Organization through its facebook Profiles.

The F value of the remaining factors viz, Ease of Use, Brand likeability, Recommendation, Decision making and Brand Comparison is not found significant at 5 percent level. The table value of F at 5 percent significance is 3.00. The ANOVA results show that there is no significant difference among mean scores across the age groups, for each of these dimensions

CONCLUSION

The study has brought out various variables concerning how Customer Relationship can be better Managed by Facebook which are grouped under five factors. These are: Features of Organization's facebook profile, Ease of use, Brand Likeability, Recommendation, Brand Comparison and Decision Making. Further this study reveals that the younger the generation is with purchasing power in hand, the higher the importance of various Features of the Organization's facebook profile for maintaining Customer Relationship. The research also exhibits that the Male gender is more inclined towards the features and make decision and generate brand likeability by comparing the brands with other Brands on the Organizations' Facebook Profile.

RECOMMENDATION

- More emphasis should be paid on creating and developing attractive Organization profile on the Facebook
- In the wake of intensifying competition of various organization, they should focus on innovative promotional activities through facebook
- Facebook should incorporate some tools which enable more interaction of customers through Facebook like direct chats with company professionals, Voice mail services by companies etc.

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ORDINARY LEAST SQUARES METHOD AND ITS VARIANTS

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ABSTRACT

Under certain assumptions, ordinary least squares (OLS) method has some very attractive statistical properties that have made it one of the most powerful and popular method in regression analysis. OLS estimators of the regression coefficients are the best linear unbiased estimators (BLUE). What happens to the properties of the OLS estimators when one or more of the assumptions are not fulfilled and what can be done in those situations? This paper describes about violations of some of assumptions in single equation linear model only. First the concept of multicollinearity is reviewed from many non-traditional angles and measures are then suggested to quantify it. Then it is proposed in this paper that one may use in the face of multicollinearity: (i) Ridge Regression (RR), (ii) Principal Component Regression (PCR) or (iii) Generalized Inverse Regression (GIR) only.

KEYWORDS

Multicollinearity, Ridge, Principal Components and Generalized Inverse Regressions, Two Famous Controversies about Credits of Discoveries.

INTRODUCTION

A very important problem in mathematical statistics is that of finding the best linear or non-linear regression to express the relationship between a dependent variable and several explanatory variables. The best solution of all problems in linear regression depends upon the distribution of the random errors. The method of least squares is the best method of fitting a regression equation.

Singh (2010 a) discussed that researchers in astronomy must be thankful for giving a new direction to their works, which latter evolved into the method of least squares. It is intriguing to notice that this method was in frequent use since the 18th century mainly on the ground of simplicity and ease of computation. Controversy about the credit arose between Gauss and Legendre in Statistics over the discovery of the method of least squares (LS). Gauss has been using it since around 1794 without bothering to publish it and Legendre published it in 1805. The most famous priority dispute in the history of Statistics is given by Stigler (1981). According to him, 'The method of OLS is the automobile of modern statistical analysis: despite its limitations, occasional accidents, and incidental pollution, it and its numerous variations, extensions, and related conveyances carry the bulk of statistical analyses, and are known and valued by nearly all. It is unnecessary to repeat the details of this dispute – R. L. Placket (1972) has done a masterful job of presenting and summarizing the evidence in the case'. A number of responsible scholars wrote volumes on the dispute and tried to settle it on the basis of morality, ethics and available letter exchanged among Gauss, Legendre, Jacobi, etc. Singh (2010 and 2011) found the famous dispute between Gauss and Legendre in Statistics over the discovery of the method of LS that who should take the credit about discovery?

Let us investigate that some of the assumptions do not follow and thus they are violated. This paper describes the application of RR, PCR and GIR only for the estimation of parameter vector in these situations.

VIOLATIONS OF ASSUMPTIONS

Violations of assumption of non-zero mean of disturbances are not very critical from computational and practical viewpoint because it affects only the intercept term of the regression and we cannot estimate the original intercept. However, since in practice the intercept term is generally of little importance, we may not pay much attention to it. The violation of assumption of normality of U leads to the case of non-normal disturbance. In this case it can be shown that the LS estimators are still BLUE and they tend to be normally distributed as the sample size increases indefinitely. However, this is not true for the small samples. In the later situation one cannot assess their statistical properties by the usual tests of significance such as t, F etc. because they are based on the assumption of normality. We can, however, use the 'Central Limit Theorem' for non-normal situation. Schmidt (1976) made some interesting observations in case of non-normal distribution of disturbance vector provided the variance of the disturbance terms is finite. Normality assumption does not seem absolutely essential if we require estimation only. Non-normality of the disturbance vector does not destroy the property of BLUE. Thus, violation of normality assumption is not so serious.

THE CASE OF HETEROSCEDASTIC DISTURBANCE

Violation of the assumption of homoscedasticity is known as heteroscedasticity. There are several reasons for the heteroscedasticity. Presence of heteroscedasticity does not destroy the unbiassedness and consistency properties of the usual OLS estimators but the estimators are not efficient. The confidence interval based on them will be unnecessarily wide and the tests of significance would be less powerful. Therefore, it will be better to detect the existence of heteroscedasticity in the data and treat them, if found. White (1980) advised to test directly for the presence of heteroscedasticity. If found should be treated. OLS estimators in those cases are the unbiased but less efficient (has higher variance) than weighted least squares (WLS) estimator. Confidence interval derived in the presence of heteroscedasticity is unnecessarily wide, the tests of significance are less powerful for OLS estimation and the prediction would be unreliable because the high variance of the predicted (estimated) value includes the variance of the disturbance term and have the parameter estimates, which are not minimal due to incidence of heteroscedasticity. Park (1966), Goldfeld and Quandt (1965, 1972), Glejser (1969) and others suggested tests which could fruitfully be applied to get information on the presence of heteroscedasticity in the data.

THE CASE OF AUTOCORRELATION

Kendall and Buckland (1971) defined the term, autocorrelation as the 'Correlation between members of series of observations ordered in time (as in time series data) or space (as in cross sectional data)'. Usually the errors in time series data exhibit serial correlation. Such error terms are said to be autocorrelated that is termed as violation of the assumption $E(u^i, u^j) = 0$ of the classical linear regression model. Several effects on the OLS regression procedure are to be faced due to the presence of autocorrelation in the error terms. OLS estimates of regression coefficients remain unbiased but they are inefficient (as compared with BLUEs). Therefore, the confidence intervals are unnecessary wide and the test of significance is less powerful. The estimate of the error variance $\hat{\sigma}^2$ is likely to be underestimating the true σ^2 and the variances and standard errors of the OLS estimators are likely to underestimate the true variances and standard errors. The usual t and F tests of significance are no longer valid.

Autocorrelated disturbances exhibit such a serious problem for the use of OLS. It is extremely important to test for their presence, if any. Various statistical tests are used to detect the presence of autocorrelation. Two commonly used tests to detect its presence are:

(a) Durbin-Watson d test: The test proposed by Durbin-Watson (1950, 1951) is one of the most widely used tests. This test is based on the assumption that errors in the regression model are generated by a first-order regressive process observed at equally spaced time period. This test is applied to small sample also. Durbin-Watson d statistic is as

$$d = \sum_{t=2}^{n} (e_t - e_{t-1})^2 \Big/ \sum_{t=1}^{n} e_t^2 \quad (4)$$

where e^t (t = 1, 2, …, n) are the residuals from an OLS analysis.

Durbin and Watson (1951) show that d lies between two bounds, say d^u and d^L, which do not depend upon x and if d is outside these limits a conclusion regarding the hypotheses (H^o : ρ = 0 and H^1 : ρ ≠ 0) can be reached. The decision procedure to test the hypothesis of zero autocorrelation against the alternative hypothesis of positive first order autocorrelation is if

$d < d^L$, reject H^o : ρ = 0

$d > d^u$, do not reject H^o : ρ = 0

$d^L \le d \le d^u$, the test is inconclusive.

where d^L and d^u are lower and upper limits respectively. The possible range of d suggested by Koutesoyiannis (1984) is 0 < d < 4. Durbin and Watson (1971), in their paper, suggest approximating the distribution of d by that of a + b d^u, where a = E (d) – $\sqrt{V(d)/V(d_u)}$ E (d^u) and b = $\sqrt{V(d)/V(d_u)}$.

The hypothesis of no autocorrelation is rejected if $d < a + b\, d^u$, where d^u is the critical value for the upper bound tabulated for the Durbin-Watson statistic. Theil and Nagar (1961) have attempted a solution at the expense of making more specific assumptions about the x variables. Henshaw (1966) proposed an accurate and conclusive test. However, this test is complicated and computationally cumbersome.

(b) The Von Neumann Ratio: Von Neumann suggests a useful theoretical test, which is known as the Von Neumann Ratio and defined by

$$\delta^2/s^2 = \frac{1}{n-1}\sum_{t=2}^{n} (e_t - e_{t-1})^2 \Big/ \frac{1}{n}\sum_{t=1}^{n} (e_t - \bar{e})^2 \quad (5)$$

This is a ratio of mean square successive difference to variance. In OLS application $\bar{e}$ = 0. However, this is not possible because the values of the OLS residuals are not independently distributed for small samples, even if the population disturbances are independently distributed.

THE CASE OF MULTICOLLINEARITY

It is interesting to note that the problem of multicollinearity is as old as econometrics itself. Due to being near singularity of $X'X$, the OLS estimate is not obtained. However, $|X'X|$ would be quite close to zero and the variance of $\hat{\beta}$ as well as the estimate of β itself can explode. The term multicollinearity is due to Frisch (1934). The traditional solution of the multicollinearity is through 'collecting more observations' or 'dropping one or more variables', which may often be impracticable in certain situations. Hence, attempts should be made to squeeze out maximum information from whatever data one has at his disposal. First the concept of multicollinearity is reviewed from many non-traditional angles and measures are suggested to quantify it. Then it is proposed that in face of multicollinearity one may use: RR, GIR or PCR.

The ridge estimator (RE) is different from OLSE in that here a small positive increment (called biasing parameter) is made to the diagonal element of the design matrix before inverting it. However, RE is biased; it has smaller mean square error than OLSE. RE is compared with other biased estimators.

The PCR is an alternative to OLS for multicollinear data and is a method of inspecting the design matrix for the directions of variability and using this information to reduce the dimensionality of the estimation procedure. It is contended that if the purpose of analysis is prediction, components having smallest correlation with the criterion variable should be deleted if the emphasis is on multicollinearity.

Another method to combat the multicollinearity is the GI regression (GIR). Moore-Penrose and Rao's generalized inverses could lead to a unified theory of LS estimation when the design matrix is of less than full column rank. The GI estimator is biased and there exists a trade-off between bias and variance, like RE – but here the bias and variance are respectively increasing and decreasing functions of the rank of the design matrix (like biasing parameter is in case of RE). The RE and GI estimators both coincide with OLS estimator when biasing parameter is zero and the rank of the design matrix is equal to number of columns respectively.

CONSEQUENCES AND DETECTION OF MULTICOLLINEARITY

The presence of multicollinearity has a number of potentially serious effects on the least square estimates of the regression coefficients. Some of these effects may be easily demonstrated. It is true that collinearity does not destroy the property of minimum variance. But this does not mean that variance of an OLS estimator will necessary be small (in relation to the value of the estimator) in any given sample. We must see in presence of multicollinearity what happens or is likely to happen in any given samples.

For near multicollinearity, $\lambda^m \to 0$ and MSE ($\hat{\beta}$) tends to infinity, $\hat{\beta}$ is subject to vary large variance. Often this is revealed by the low values of the usual t-ratio whose denominator has the square root of the diagonal elements of $(X'X)^{-1}$, which are termed as variance inflation factor (VIF) by Marquardt (1970). Farrar and Glauber (1967) were the first to suggest looking at the values of r^{ii} to diagnose multicollinearity. Marquardt (1970) suggests a rule of thumb according to which VIF (i) = r^{ii} > 5 indicates harmful multicollinearity.

Bartlett's and Haitovsky's Chi-squares are popular tests for the detection of multicollinearity. Farrar and Glauber (1967) attempted to define a standard of comparison for $|X'X|$ by defining multicollinearity as a departure of the matrix from orthogonality. The estimates of both coefficient vector and its dispersion matrix require this operation. Working from Wishart distribution, Wilks (1932) was able to derive the moments and distribution of the determinant of the sample covariance matrix. However, Bartlett (1950) by comparing the lower moments of the Wilks distribution with those of chi-square distribution, obtained a transformation of |R| as $\chi^2 = -[n - 1 - \frac{1}{6}(2m + 5)] \log |R|$ that is distributed approximately as chi-square with $\frac{1}{2}$ m (m – 1) degrees of freedom,

where n = size of the sample and m = number of variables. A high value of χ^2 indicates the existence of multicollinearity. Cooley and Lohnes (1971) have reported on a Monte Carlo study of this test. For n = 20, m = 10, $\alpha = 0.05$, one is virtually certain to reject the null hypothesis when the elements of R are larger (in absolute value) than 0.36. For n = 200, m = 10, $\alpha = 0.05$, one is virtually sure to reject the null hypothesis when the elements of R are larger (in absolute value) than 0.9. A heuristic statistic, which is consistent with this concept is due to Haitovsky (1969) and is given by

(6) $$\chi^2 = [n - 1 - \frac{1}{6}(2m + 5)] \log (1 - |R|)$$

A small value of χ^2 indicates the existence of multicollinearity; its severity can be measured by the level of significance at which the null hypothesis $H^o : |R| = 0$ is accepted. Klein (1960) suggests that the multicollinearity is said to be harmful If $|r^{ij}| > R^y$ for all $i \neq j$, where r^{ij} is the zero order correlation between two predictor variables. Farrar and Glauber (1967) found some drawbacks in Klein's rule and they have developed a set of three tests for multicollinearity. The first test, based on χ^2, has been discussed above in this section. The second test is based on F test for locating which variables are multicollinear. Yet another test is a t test for finding out the pattern of multicollinearity, that is, for determining which variables are responsible for appearance of multicollinearity.

POSSIBLE SOLUTION OF MULTICOLLINEARITY PROBLEMS

When multicollinearity is present in a set of explanatory variables, the OLS estimates of the individual regression coefficients tend to be unstable and can lead to erroneous inferences. It is contended that multicollinearity essentially arises due to lack of sufficient information in the sample to permit reliable estimation of the individual parameters. In some situations it may be the cases that one is not interested in all the parameters. In such cases we can get estimates for parameters and one is interested in that have smaller mean square errors than the OLS estimators. Usually, one of the highly correlated variables may be dropped. Dropping a variable from the model to alleviate the problems of multicollinearity may lead to the specification bias. Hence, the solution may be worse than the diseases in certain cases. The traditional remedial measures for multicollinearity problem have to collect more data. This was suggested by Ragnar Frisch in his work on confluence analysis. The difficulty with the collection of more data is that it may be expensive or impracticable in many situations. One may be interested to squeeze out maximum information from whatever data he has at his disposal. This has motivated for the development of some very ingenious statistical methods, for example, the RR, GIR and PCR. These could fruitfully be applied to solve the problem. It is intended to discuss these methods in the next section. Incidentally, Frisch is considered as the Father of Econometrics. After detecting its presence, some alternative estimation methods are required to use that provides a more informative analysis of the data than the OLS method.

RIDGE REGRESSION

The technique of RR proposed by Hoerl and Kennard (1970 a, b) has become a popular tool with data analysis faced with a high degree of multicollinearity in their data. Hoerl and Kennard (H-K) have suggested adding a small positive quantity in the diagonal elements of the design matrix, $X'X$ before inverting it. In other words, instead of $\hat{\beta} = (X'X)^{-1} X'Y$, they propose $\hat{\beta}_R = (X'X + kI)^{-1} X'Y$. The genesis of ridge regression lies with a paper by Hoerl (1959) in which he discussed about the optimization from the response surface point of view. Later, Hoerl published another popularized article that explored RR as an approach to multiple linear regression involving 'poorly-conditioned' data, that is, non-orthogonal predictor variable matrices (Hoerl, 1962). The next step in the development of RR was the paper by Draper (1963) which provided the proofs lacking in Hoerl's paper. However, a rigorous statistical basis for the application of RR to the problem of multicollinearity in multiple linear regression models was developed by H-K (1970 a).

Let $\hat{\beta}_R$ is ridge estimator of β in the linear model (1). Then

(7) $$\hat{\beta}_R = (X'X + kI)^{-1} X'Y = W X'Y$$

where $W = (X'X + kI)^{-1}$ and $k \geq 0$.

RR was originally suggested as a procedure for investigating the sensitivity of least squares based on data exhibiting near extreme multicollinearity, where small perturbations in the data may produce large changes in the magnitude of the estimated coefficients. H-K (1970 a, b) introduce the GRR estimator (GRE) as

(8) $$\hat{\beta}_{GR} = [X'X + PDP']^{-1} X'Y$$

where P is the matrix whose columns are orthonormal characteristic vectors of $X'X$ and D is a diagonal matrix of constants $d^i \geq 0$. If the constants d^i are all equal and take the value $d^i = k$, the GRE reduces to the ordinary ridge estimator (ORE or RE) $\hat{\beta}_R = (X'X + kI)^{-1} X'Y$. The procedure of ORE or RE actually defines a family of estimators of which OLS estimator is a member for k = 0, i.e., with k = 0 the ORE reduces to OLS estimator.

Hawkins (1975) outlined a technique named eigenanalysis and used as estimator which is identical with RE. The data matrix D = (Y: X) could be used to form another matrix T = D'D which could be diagonalized through an orthogonal matrix A such that ATA' = diag (λ^i), where λ^i's are eigenvalues of T. Conniffe and Stone (1973) summarized criticisms on the choice of biasing parameter, k and conclude that there is no guarantee for the improvement of OLS estimators in case of a particular choice of k. They further conclude that estimate of k from the data is not a constant and status of H-K approach on choice of k is unclear. Smith, Goldstein, Conniffe and Stone (1975) did not accept the conclusion given by Conniffe and Stone on ridge estimators in 1973 and they believe that RR is a useful addition to the data analyst's tool-box.

RR is closely related to Bayesian estimation. Generally, if prior information about β can be described by a p-variable normal distribution mean vector β_o and variance-covariance matrix V_o, the Bayesian estimator of β is

(9) $$\hat{\beta}_B = [\frac{1}{\sigma^2} X'X + V_o^{-1}]^{-1} [\frac{1}{\sigma^2} X'X + V_o^{-1}\beta]$$

The use of Bayesian method in regression is discussed by many authors like Leamer (1978), Zellner (1971), etc. Two major drawbacks of this method are the data analyst must make an explicit statement about the form of the prior distribution and the statistical theory in this connection is not yet widely understood. However, if we select prior mean $\beta_o = 0$ and $V_o = \sigma_0^2 I$, then

(10) $$\hat{\beta}_B = (X'X + kI)^{-1} X'Y \equiv \hat{\beta}_R$$

reduces to the usual ORE, when $k = \sigma^2 / \sigma_0^2$.

Much controversy concerning RR centres on the choice of the biasing parameter, k. Several authors have suggested methods for selecting the biasing parameter, k. The ORE with a given k is a linear estimator which is biased but which, for values $\hat{\beta}_R$ is a certain interval, has smaller mean square error than the OLS estimator. The optimal constant k was developed by some technique derived from intelligent systems (Genetic Algorithm) and some statistics techniques.

Zellner (1962) proposed the estimation of seemingly unrelated regression (SUR) system having unknown error covariance matrix. Moreover, Firinguetti (1997) pointed out the use of RR in the context of SUR and performed some simulation experiments. Firinguetti and Rubio (2008) discussed asymptotic properties RE and compared it with generalized LS through simulation. Although $\hat{\beta}$ is BLUE, there are a number of conditions under which the OLS estimators are fully efficient. They further discussed that analyzing multicollinearity in a context such as a system of SUR is much more complex than in the classical linear regression model, but it is expected it will adversely affect the generalized LS estimator. They concluded that RR estimators can outperform the operational generalized LS estimator having multicollinear data.

Zou and Hastie (2005) discussed that for usual n > m situations, if there are high correlations between predictors, it has been empirically observed that the prediction performance of the lasso is dominated by RR. Despite more modern approach such as boosting (Buhlmann 2006) RR, henceforth RR continues to be useful in many situations, in particular in chemometrics when it is assumed that all coefficients have approximately the same order of magnitude. Maronna and Yohai (2009) employed robust RR estimator to propose a robust estimator for functional regression based on splines.

GENERALIZED INVERSE REGRESSION

Let us a rewrite OLS estimator of β from (2) $\hat{\beta}$ = A^{-1} X' Y, where A = (X' X)$^{-1}$ is a matrix, termed as the inverse of A such that A A^{-1} = A^{-1} A = I. From time to time, the corresponding problem in the case where A may be non-square or singular has also received attention. Accordingly, attempts were made to define an inverse with properties similar to A^{-1}, leading to concept most often termed as 'generalized inverse' or a g-inverse. The introduction of a g-inverse has made possible a unified treatment both of the theory and practice of OLS fitting to models of both full and nonfull rank cases. This is especially true with regard to multiple regression applied to analysis of variance problems where, due to conventional restriction on the ANOVA model, the X' X matrix is usually singular (Draper and Smith, 1981) However, since practical OLS regression problems rarely involve singular matrices (mostly because of rounding-off errors, even singular matrices are customarily inverted by computer routines utilizing floating point arithmetic), the use of g-inverse in OLS methodology has not attracted much attention from the analysis. However, we believe g-inverse regression has great potentialities in solving the problem of multicollinearity. In least squares notation, (2) is rewritten as

(11) $\hat{\beta}_G$ = (X' X)$^{-}$ X' Y

where (X' X)$^{-}$ is a g-inverse of X' X. It is a remarkable fact that(X' X)$^{-}$ can be treated for statistical purposes almost exactly as if it were an ordinary inverse, in particular, the quantities $\hat{\beta}_G$ = (X' X)$^{-}$ X' Y can be regarded to some extent as estimate of the parameters, and the elements of (X' X)$^{-}$ as their relative variances and covariances. The sum of squares due to regression is $\hat{\beta}_G$ X' Y in usual way, but the degrees of freedom associated with this are equal to rank of X' X.

The concept of g-inverse regression was, presumably, first introduced by Marquardt (1970) who started with an orthogonalized square matrix of order and rank m, i.e., S'AS = D, where A = X' X, S'S = I, D is the diagonal matrix of ordered eigenvalues; $\lambda^1 \geq \lambda^2 \geq \ldots \geq \lambda^m$. A^{+}_{r} is however, a g-inverse in the Moore-Penrose sense.

(12) $A^{+}_{r} = \sum_{j=1}^{r} \frac{1}{\lambda_j} S_j S_j'$ where S^j is the j^{th} eigenvector of S^r

In practice, however, affairs are not so quite straightforward since even when the original observations (regarded as exact) are subject to exact linear relationships, rounding off errors may mean that the X' X matrix is not exactly singular, even when it is, further rounding off errors are involved in forming the elements of (X' X)$^{-1}$. The g-inverse estimator is equivalent to an OLS estimator when the actual data are supplemented by a fictitious set of data points taken according to an experiment $H^r = S^{m-r} \sqrt{(-1)\ D_{m-r}}$, the response Y being set to zero for each of these supplementary data points. g-inverse of matrices has wide range of application in Statistics. Moore (1920), perhaps, made the first major contribution in this direction. Later Penrose (1955) defined g-inverse of a matrix incase of singularity and rectangularity of matrices. Penrose's approach was purely algebraic. Moore's and Penrose's definitions are quite similar – hence they are referred as Moore-Penrose g-inverse. Rao (1962, 1967) gave an inverse of a singular matrix for use in computing least square estimates of parameters in Gauss-Markov model and their variances and covariances. Rao (1962) introduced a general definition of a g-inverse in the form of A A^{-} A = A and in 1967 provides a classification of g-inverses. Moore-Penrose inverse gives unique solution while Rao's g-inverse does not g-inverse estimator looks a better alternative to OLS in case of ill conditioning. The g-inverse solution is especially relevant for precisely zero eigenvalues. For detailed discussion of the different types of g-inverses, their application and generalizations, references could be made to Rao and Mitra (1971), Powel (1969), Don (1982) and Lee, Judge and Zellner (1977).

PRINCIPAL COMPONENTS REGRESSION

The PCR is a method of inspecting the sample data or design matrix for directions of variability and using this information to reduce the dimensionality of the estimation problem. The reduction in dimensionality is achieved by imposing exact linear constraints that are sample specific but have certain maximum variance properties that make their use attractive. The use of principal component estimators (PCE) as an estimating procedure in situations of may be attributed to Kendall (1957), but it has found its recent proponent in McCullum (1970). They demonstrated that Kendall's suggestion of artificial orthogonalization could help to alleviate the problem of multicollinearity in regression analysis. Leaving aside many alternative criteria for specifying PCE, he adopted that of minimizing the mean square error (MSE) of a single parameter and derived the corresponding PCE. Based on the criterion of MSE, he showed that replacement of the correlated regressors by a smaller set of their orthogonal principal components (PC) can often result in better estimation of the regression parameters than OLS estimation. In particular our evaluation formula involves only three factors: the degree of multicollinearity, the relative magnitude of the true regression coefficients, and the tolerable deviation from the true parameters. The independence of the evaluation formula from the unknown variance of the random term is not tri vial. It reduces the analyst's choice between OLS and PC estimators to manageable proposition. In case of strong multicollinearity, the use of regression on PC only hinges upon the analyst's knowledge about the approximate bounds and relative magnitudes of the true regression coefficients. The objective of PC analysis is to find a linear transformation of a sample matrix x of n observations on m variables into a new set, denoted by Z, where the new set has certain desirable properties. The new variables correspond to the principal axes of the hyperellipsoid formed by the scatter

of sample points in the m-dimensional space having the columns of x as basis. The PC transformation is, therefore, a rotation from the original x coordinate system to the system defined by the principal axes of this hyperellipsoid. The properties, which provide the rationale for using the transformed variables in certain multivariate analyses, are: (i) the columns of Z are uncorrelated with each other in the sample (orthogonality), and (ii) each principal axes progressing from $z^1, z^2, \ldots, z^m$, passes through the direction of maximum variance of x's, consistent with being orthogonal to the preceding z's.

The PC can be extracted from either a covariance or a correlation matrix. But if the units of variables are arbitrary (such as scale for tests), then it is best to work with correlation matrix. Consequently, in many instances the covariance matrix is transformed into a correlation matrix before a PC analysis is conducted. A major problem with extracting PC from a sample correlation matrix is that since we are now working with elements such as $\hat{\sigma}_{ij} / \hat{\sigma}_i \hat{\sigma}_j$ instead of $\hat{\sigma}_{ij}$, the sampling distribution theory becomes quite complex. Notice that, $\hat{\sigma}_{ij}$, $\hat{\sigma}_i$ and $\hat{\sigma}_j$ are all sample estimates. Characteristic roots and vectors play an important role in many problems of applied mathematics, dynamics and statistical theory. The numerical analysis literature contains a number of techniques for their computation. Biased estimator of regression coefficients is obtained by using a procedure known as PC regression. The OLS regression model $Y = x\beta + u$ is rewritten in terms of the components as

(13) $Y = x\beta + u = z\alpha + u$

We may duplicate the OLS estimator $\hat{\beta}$ of β by obtaining OLS estimate $\hat{\alpha}$ of α and applying the transformation $\hat{\beta} = A\hat{\alpha}$. The PC estimate is

(14) $\hat{\beta}_{PC} = A^* \cdot \hat{\alpha}$

Where $A^* = A\Delta$ is the matrix obtained by nullifying those columns of the transformed matrix A that correspond to zero elements in δ. A major problem is, 'How do one select components to delete and what are consequences of each choice'? Usually the number of PC, which are extracted from the x's is smaller than the number of the x's. Some of commonly used criteria suggested for the selection of components for deleting are: (i) Fomby, Hill and Johnson criterion (ii) Kaiser's criterion (iii) Cattell's Scree-test (iv) Bartlett's criterion and (v) Tests of hypotheses criterion. Koutsoyiannis (1984, p. 431) has given an empirical test that is actually, rather crude rule of thumb. According to this rule only the loadings which have a value (numerically) greater than 0.3 are to be retained, provided the sample contains at least 50 observations. The use of PC in regression has received wide attention in the literature in the past few years and the topic is now beginning to appear in textbooks too. However, in several recent publications the suggested rule for inclusion is simply based on the variance of the component, i.e. to retain components with large variances and reject those with small variances. Nevertheless, various authors, including Kendall (1957), Jeffers (1967), Massey (1965) and Hawkins (1973) recommended transferring to PC and deleting components with small variances. Mosteller and Tukey (1977, pp. 397 - 398) argue that 'the components with small variance are unlikely to be important in regression, apparently on the basis that nature is tricky, but not downright mean'. On the other hand, Jeffers (1967, p. 230) specially states that the relationship between the dependent variable and all of the components should be examined since it is always possible that one of the components with small variance may be related to the dependent variable. The idea of using PC in regression is not new. Kendall (1957) suggested it in his book on Multivariate Analysis, as did Hotelling (1957) in his paper. Farebrother (1972), Greenberg (1975), Hill, Fomby and Johnson (1977), Johnson, Reimer and Rothrock (1973), Lott (1973) and Massey (1965) used the case of PC regression as a method dealing with ill-condition data.

Pasha, Shah and Ghosia (2004) adopted an unconventional method of PCR for the solution of multicollinearity. They showed some fairly precise estimates of coefficients by the use of this technique and claimed that property of PCR makes it superior to the OLS in case of multicollinear data. Tarvainen et al. (2007) proposed a PCR based method for estimating R- and T-waves (RT) variability. The main benefit of this method is that it does not necessitate T-wave detection. They observed estimate of RT variability accurately and to be less sensitive to noise than the traditional methods exercising on electrocardiogram recordings. The method is simple to apply but it does not directly give absolute values of RT interval.

CONCLUDING REMARKS

The violation of assumptions of normality and zero mean of disturbances do not affect seriously the estimate under OLS. The violation of assumption of homoscedasticity does not destroy the unbiasedness and consistency properties of the usual OLS estimators but estimators are not efficient. The confidence intervals based on them will be unnecessarily wide and tests of significance would be less powerful. White (1980) advised to test directly for the presence of heteroscedasticity and treat them if found. The straightforward method of resolving the problem of heteroscedasticity is by means of the weighted least squares in case of known heteroscedastic variances. It will be better to apply estimated generalized least squares when the form of heteroscedasticity is not known.

Autocorrelation is a problem generally encountered with time series data and it usually does not occur in studies using cross-sectional data. The OLS estimators are unbiased as well as consistent in the presence of autocorrelation but they are no longer efficient. As a result the usual t and F tests of significance can not be legitimately applied. The consequences of autocorrelation are serious for the estimates and the standard errors of the estimates of the parameter vectors.

Multicollinearity is a usual problem under study dealing with several explanatory variables. As a result, the parameter vector is not estimable precisely. The adequate attention is required to give on the problem of multicollinearity after its detection and its solution through some variants of OLS, because it is felt that the traditional solution through 'collecting more observations' and 'dropping few variables' may often be impracticable. Hence, an attempt should be made to squeeze out maximum information from whatever data we have in our possession and this interest has motivated the researchers to the development of some ingenious statistical methods: RR, GIR and PCR. Solution of the problem of multicollinearity is done successfully with the application of above statistical methods.

The ridge estimator (RE) is different from OLS estimator in that a small positive increment (called biasing parameter) is made to the diagonal elements of the design matrix before inverting it. Though RE is biased (but there exists a trade-off between bias and variance through the biasing parameter), it has smaller mean square error than OLS estimator.

The PCR is a method of inspecting design matrix for directions of variability and using this information to reduce the dimensionality of the estimation procedure. It is contended that if the purpose of analysis is prediction, components having smallest correlation with the criterion variable should be deleted while components with smallest eigenvalues should be deleted if the emphasis is on multicollinearity.

Yet another method discussed to combat the multicollinearity is the GIR. After discussing Moore-Penrose and Rao's generalized inverses, a discussion is presented as to how these could lead to a unified theory of least squares estimation when the design matrix is of less than full column rank. The GI estimator is biased and there exists a trade-off between bias and variance, like RE – but here the bias and variance are respectively increasing and decreasing functions of the rank of design matrix (like biasing parameter is in case of RE). The RE and GIR estimators both coincide with OLS estimator when the biasing parameter is zero and the rank of design matrix is equal to number of columns respectively.

Singh's (2011) discussion on giving credit to Gauss and not to Legendre for the discovery of the method of LS seems to be an appropriate and legitimate. Similarly, it is highly appropriate and legitimate to give credit to Tychonoff 's TR and not to Hoerl and Kennard on discovery of RR because of Tychonoff 's TR is more general nature than H-K's RR which is highly contextual in nature.

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I T INFRASTRUCTURE IN CREATING POTENTIAL MARKETING OPPORTUNITIES IN INDUSTRIES: AN EMPIRICAL STUDY OF SELECT INDUSTRIES IN KARNATAKA

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ABSTRACT

Indian Industries is driven by rapid initiations and expansion taken by the Government of India to pace up with the global economic growth. Organizations today are adopting such systems to manage optimal IT infrastructure, so as to foster to dynamic needs of the Industry and the Markets. Karnataka today is among the Top five Industrialized States in the country. The achievements in promoting hi-tech industries while adopting IT infrastructure management in key sectors like Electronics, Telecommunication, Information Technology, Precision Engineering, Automobiles, Readymade garments, Bio Technology and Food Processing industries. The State has also witnessed considerable foreign direct investment (FDI) not only in Bangalore as well in other parts of KarnatakaTop line growth, reduced operational cost, increased demand to deliver customer value are all calling for effective use of information for competitive differentiation. This has been the top priority for the CEOs today. It is thus no surprise that the CIO's focus is surely shifting from techno-centric IT to Business or value-centric IT. To facilitate this journey, it brings together key IT services that address aspects of reducing cost, increasing agility, enabling transformation and creating the marketing opportunities for their business. This paper provides an empirical evaluation of the survey results, conducted in the different organization in Karnataka, providing an insight on the role of IT infrastructure in moderating industrialgrowth, and to provide an insight into the hindrances faced by them and steps that are initiated to improve the usage of I T service in the different industries in Karnataka.

KEYWORDS

IT infrastructure, dynamics, differentiation, techno-centric IT and value-centric IT.

INTRODUCTION

The word technology or technical know-how in today parlance has to do with all such methods the industries are adopting to bring about better efficiency in transforming the very way the people (customers or public) lead their life. Technologies significantly affect human as well as other animal species' ability to control and adapt to their natural environments. The human species' use of technology began with the conversion of natural resources into simple tools. Recent technological developments, including the printing press, the telephone, and the Internet, have lessened physical barriers to communication and allowed humans to interact freely on a global scale. Technology has affected society and its surroundings in a number of ways. In many societies, technology has helped develop more advanced economies (including today's global economy).

In information technology and on the Internet, infrastructure is the physical hardware used to interconnect computers and users. Infrastructure includes the transmission media, including telephone lines, cable television lines, and satellites and antennas, and also the routers, aggregators, repeaters, and other devices that control transmission paths. Infrastructure also includes the software used to send, receive, and manage the signals that are transmitted.

In some usages, infrastructure refers to interconnecting hardware and software and not to computers and other devices that are interconnected. However, to some information technology users, infrastructure is viewed as everything that supports the flow and processing of information. Infrastructure companies play a significant part in evolving the Internet, both in terms of where the interconnections are placed and made accessible and in terms of how much information can be carried how quickly.

Companies need to adapt and evolve their IT systems in response to the constantly changing business environment in order to strengthen their competitive advantage. Every aspect of e-business should be it the user interface, back-end system, technology or process, and must be designed and built for maximum flexibility which allows the organizations to quickly adapt to changes experienced in dynamic business environment reducetime-to-market. Every technologistcomprising of project managers, software architects, engineers, and user-interface specialists, should always be aware of the latest technological developments and processes, and continually seek innovative ways to leverage and deploy technological solutions to support in accomplishments of business goals. The business organizations should open up and try to be flexible in creating such technical architectures that would be geared to meet the business and technology needs of functional and operational management who would then drive the business towards goal accomplishments also providing for utmost delivery of quality and value to its stake holders.

UTILITIES OF TECHNOLOGICAL INFRASTRUCTURE

1) This provides for Market Integration through technological integration. Computer-based information systems can be employed, aiding in a better processing and storage of data. Marketing researchers can use such systems to devise better methods of converting data into information, and for the creation of enhanced data gathering methods. Information technology can aid in improving an KIS (Knowledge Information systems) software providing for improvement in company's marketing decision-making process.
2) Progression and developments in Information technology at a faster rate has leads to marketing managers being cognizant of the latest technological developments. Moreover, the launch of smart phones into the cell phone market is commonly derived from a demand among consumers for more technologically advanced products. A firm can lose out to competitors, should it refrain from noting the latest technological occurrences in its industry.
3) Technological advancements are facilitating to reduce the barriers existing between Countries and Regions these Geographical Integrations has made the entire world Virtually One Market. Via World Wide Web, firms are no able to quickly retrieve as well dispatch information from one country to another, without much restriction/hindrances. Prior to the mass usage of the Internet, such transfers of information would have taken longer time, especially if via snail mail, telex, etc.

Now there has been some debate as to whether IT infrastructure are very much relevant to developing industries as well as Countries focusing on rapid economic growth, the realized reality is that, the question is not whether, but how IT infrastructure can be made beneficial. IT infrastructure has high potential value across all sectors, in both public and private enterprises, and at multiple levels, from software businesses in urban areas, for example, to health delivery in

rural villages. However, the application of IT infrastructure may not always been successful, but challenges remains to tackle these difficulties and to resolve them. A further challenge with respect to IT infrastructure is how industrial people could have access to the updated information technologies for running their business and deliver economic benefits by using these IT infrastructures more efficiently and effectively.

I T INFRASTRUCTURAL MANAGEMENT

The IT infrastructure managements began with small-scale IT outsourcing from Bombay (now Mumbai) based IT companies whose information technology ventures included just supplying trained IT Professionals and Info-tech Solutions to Global Info-tech Enterprises. Even the import tariffs on the IT Hardware and Software were unreasonably high and software technology was not designated the status of an industry thus making them ineligible for Banking Finance.The information technology infrastructure in India has since then progressed even though it has witnessed a set- back in the late Eighties when the Government turned hostile towards the IT Firms in India and the Global Info-tech Conglomerates were forced to move out of India. Today the Indian software industry is a Multi-Billion Dollar Industry with record number of Employment and Recruitment Opportunities. The Info-tech Business Systems have solved the Job problem of many Indian Professionals. The Info-tech careers are among Top Recruitments in the Jobs Sectors in India.

INFRASTRUCTURAL REQUIREMENTS OF THE IT COMPANIES IN INDIA

The gradual booming of India's IT Sector in the last decade has been propelled by a Phenomenal Growth of the IT infrastructure in India. Indian IT industryis growing at a tremendous pace.IT companies of India require the **Exclusive Infrastructures**like Server,Router,Latest software's that should be updated from time to time, Skilled Professionals with suitable training aids, Skilled and Dynamic Manpower, Sound Network and Security Policies. Further, Major IT Companies of India are now investing in Internet Infrastructure to enhance their Revenues and Operational Efficiencies. The core area of focus of the major IT Firms has been Wireless Internet Access that aims towards introduction and development of e-commerce through mobile technology.

THE BUSINESS PERSPECTIVE

IT gives the name "The Business Perspective" to the collection of best practicesthat is suggested to address some of the issues often encountered in understanding and improving IT service provision, as a part of the entire business requirement for high in **Quality Management**. These issues are:

- Business Continuity Management describes the responsibilities and opportunities available to the business manager to improve what is, in most organizations one of the key contributing services to business efficiency and effectiveness.
- Surviving Change. IT infrastructure changes can impact the manner in which business is conducted or the continuity of business operations. It is important that business managers take notice of these changes and ensure that steps are taken to safeguard the business from adverse side effects.
- Transformation of business practice through radical change helps to control IT and to integrate it with the business.
- Partnerships and Outsourcing.

IT ISSUES

The issues aroundapplication and adoption of IT are inter-connected and has to work together to develop greater efficiencies and effectiveness in the delivery of IT services. Each issue mentioned enlisted below warrants a closer look at specific initiatives and projections toward its achievement.

- ***Collaboration & Leveraging of Resources****:* Part of effective resources management between IT service providers across the Industry and with the Organization is the clear demarcation between services and consistent handoffs for seamless and positive end-user experience. The result centrally will be increased focus to reduce burnout and more concentrated training.
- ***Funding IT****:* Funding constraints help manage internal expectations and raise priority of developing revenue generating services, especially from revenue sources outside the organization.
- ***Governance, Organization & Leadership****:* Strengthening and maturing of IT leadership and Governance levels at unique network management need to move toward more conscious IT spending, the seeking of synergies and increase responsibilities for the success of the institution, beyond the success of "silo" interests.
- ***Customer Service and Relationships****:* A consistent, accessible customer face of services is as important in building customer trust via the availability and reliability of what underlies the services. The same responsiveness and consistency of service delivery needs to be guaranteed across the user's spectrum.
- ***IT Quality Process, Standers & Controls****:* How services are delivered, how changes are prioritized, how releases to services are executed, tested and implemented, and how incidents are handled need disciplined process internally to achieve the quality that IT desires and that users would be like.
- ***Business Continuity & IT security****:* Security is not only an IT issue. Rising business continuity issues to institutional awareness is essential for IT success. Business continuity is only one part of a needed broad program of security best practice awareness.
- ***IT infrastructure****:* How the infrastructure of hundreds of servers and the voice, data and the video network or refreshed and kept current is essential to unique network management systems success, as well as strategies for creatively and cost effectively accommodating ever increasing demand.
- ***Identity & Access Management****:* Clear, unique, unambiguous credentials and authorizing of those using unique network managements systems is essential to state, local and organizational objectives.
- ***Scalable Architecture Components****:* IT expenditures can be best leveraged if, regardless of the department acquiring the technology, it is understood that all new technologies need to be able to be deployed organizations- wide. This extends to reducing customization in package applications to reduce maintenance and upgrade costs.

I T INFRASTRUCTURE AND INTEGRATIONSERVICES

Present day business operations are integral with the information technology that supports them in accomplishment of stated objectives. The business infrastructure for this has to provide a secure, resilient and flexible environment that enables execution of processes, applications and enterprise with systematic technological innovations. IT Infrastructure Integration services as such aims at **"Enabling Business Operations with High Performance Infrastructure Solutions"** through a comprehensive set of services to support the design, development, installation and operations of complex networks. Then IT Infrastructure services through a continuous life cycle of "Analyze, Design, Implement, Stage and Manage". Successful implementationof Turnkey IT Infrastructure projects in the various Industrial Segments such as Education and Corporate has brought this into reality.

INDUSTRY'S ROLE IN BUILDING MARKET LINKAGES (RURAL MARKET INTEGRATION)

To make an Effective Market Linkage, Industries have to act as an Engine of Market, which can generate a **Brand Image of the Rural Products**. This initiative of industries will strengthen the **Backward and Forward Linkages of the rural market**, besides, accelerating the innovations of the rural products. This strategy would definitelyprovide for a remarkable dividend to the industries &transform themselves as Sustainable Profit Making Enterprises.

Another very vital rolethese market linkages would provide is, for Agro-Based Rural Products, can become the 'dynamic contract farming'. Moreover, in the current era of Information Technology, Industry and Private Companies can also creatively use ICT (Information and Communication Technology) for building **Sustainable Marketing Linkages.** This approach creatively leverages Information Technology (IT) to set up a Meta-Market in favor of Small and Poor Producers/Rural Entrepreneurs, who would otherwise continue to operate and transact in 'un-evolved' markets where the rent-seeking vested interests exploit their disadvantaged position. ITC's**e-Chou-pal** is the best example in this context. Through creative use of Information Technology, **ITC's e-Chou-pal** has been

creating sustainable stakeholder value by re-organizing both Industries and Agriculture-Commodity Supply Chains Simultaneously improving the competitiveness of industries, then small farmer agriculture and **enhancing rural prosperity**.

MODERN MARKETING

At all points, the Modern Marketing System people have formed Associations and eliminated various middlemen in order to achieve more efficient marketing. Manufacturers often maintain their own wholesale departments and deal directly with retailers. Recent years have seen the development of wholesale clubs, which sell retail items to consumers who purchase memberships that give them the privilege of shopping at wholesale prices. Commodity exchanges, such as those of grain and cotton, enable businesses to buy and sell commodities for both immediate and future delivery. The number of customers, especially for durable goods, has been greatly increased by the practice of extending credit, particularly in the form of installment buying and selling. Customers also buy through mail-order catalogs (much expanded from the original catalog sales business of the late 1800s), by placing orders to specialized "home-shopping" television channels, and through on-line transactions ("e-commerce") on the Internet.

CUSTOMER ORIENTATION

In the Consumer-Driven Approach, consumer wants are the drivers of all Strategic Marketing Decisions. No strategy is pursued until it passes the test of Consumer Research. Every aspect of a markets offering's, including the nature of the product itself, is driven by the *Needs of Potential Consumers*. The starting point is always the consumer. The rationale for this approach is that there is no point spending R&D funds for developing products that people will not buy. History attests to many products that were *Commercial Failures* in spite of being **Technological Breakthroughs.**

A formal approach to this Customer-Focused Marketing is known as **SIVA (Solution, Information, Value, and Access).** This system is basically the four Ps renamed and reworded to provide a customer focus. The SIVA Model provides a demand/customer centric version alternative to the well-known 4Ps supply side model (Product, Price, Placement, and Promotion) of marketing management. Product→ Solution, Promotion→ Information, Price→ Value, Placement→ Access. If any of the 4Ps had a problem or were not there in the marketing factor of the business, the business could be in trouble and so other companies may appear in the surroundings of the company, so the consumer demand on its products will become less.

APPLICATION MANAGEMENT

I T Application Managementset encompass a set of best practices proposed to improve the overall quality of IT software development and support through the life-cycle of software development projects, with particular attention for gathering and defining requirements that meet business objectives.

SOFTWARE ASSET MANAGEMENT

Software Asset Management **(SAM)** is the practice of **integrating people, processes and technology** to allow software licenses and usage to be systematically tracked, evaluated and managed. The goal of SAM is to reduce IT expenditures, human resource overhead and risks inherent in owning and managing software assets. SAM practices include Maintaining Software License Compliance, then Maintaining Standard Policies and Procedures Surrounding Definition, Deployment, Configuration, Use, Retirement of Software Assets and the Definitive Software Library.

REMOTE INFRASTRUCTURE MANAGEMENT A TOOL FOR COST EFFECTIVE IT

Remote Infrastructure Management commonly has known as **RIM** insimple terms means managing Customers IT Infrastructure from low cost remote locations in adherence to various norms, specific guidelines to data security, meeting the service levels with high uptime for the customer's mission Critical IT infrastructure, quality service delivery and round the clock support. This further the adoption by all service level organizations as well as organizations that are carrying out their business at the Small Scale to adopt for reaping all the benefits with the help of shared services provided by the RIM service providers at the most economical price and help them to integrate their business with national and international markets.

NEW INDUSTRIAL POLICY – 2001(MISSION, OBJECTIVES &STRATEGY), GOVERNMENT OF KARNATAKA

Karnataka's Mission is to achieve an economic growth rate of 8% to 9% over the next decade by promoting the rapid growth of a market driven, knowledge based, efficient and competitive industrial sector. This will be done by providing industry access to **High Quality Infrastructure, Extending Institutional Support for Technology Up-Gradation**. The proposed Industrial Policy has therefore aimed to achieve an average industrial growth rate of 10% to 12% per year. The main objectives of this policy say's about Enhanced value addition in products and processes through rapid technology up gradation and provide Industry access to high quality infrastructure.In order to achieve the objectives the following strategy will be adopted.

- Providing for EnhancedPublic and Private Expenditure to build efficient and competitive Industrial IT infrastructure.
- Give impetus to technology up gradation by forging symbiotic and mutually beneficial institutional arrangements between Government Academic - R&D Institutions and Industry.

OBJECTIVES OF THE STUDY

1. To study the level of application of Information Technology in select business units around the study area.
2. Study the level of utilization of IT infrastructure within and one shared.
3. To evaluate the factors that determines the selection of level of IT infrastructure for the organizations.
4. To evaluate the problems faced by the existing IT infrastructure and the risk faced by adoption of the same
5. To appreciate the role played by the IT infrastructure for business transformation.
6. To draw necessary inferences from the study that would help in building requisite solutions for these organizations in utilizing the IT and its tools to optimize the business performance

SCOPE OF THE STUDY

This study focuses on assessing the determinant factors that influences the scope and nature of IT and ITES tools adopted by the selected organizations (both Manufacturing and Services) and administers to evaluate the performance of various IT and ITES tools that act as an integral part of their day to day activities and tries to highlight those factors that act as crucial determinants for assessing the scope of application of these tools in the industries.

SAMPLING TECHNIQUES INCORPORATED

For the purpose of this study Stratified Random Sampling is been incorporated to draw the responses using Questionnaire's and personal discussion with the Organizations where permitted.

STATISTICAL TOOLS USED

Simple Mean, and %ages, are used to study the nature and characteristics of the responses and to test hypothesis t test and paired sample t test are used (as x^2 can not be utilized as there are no equal distribution of responses) and spearman's correlations are used.

HYPOTHESIS TESTED

H_{a0} = Application of IT is independent of Need for its application
H_{a1} = Need for Application of IT drives the company towards application of IT and ITES in their process
H_{b0} = IT doesn't play any role in Business transformation
H_{b1} = IT plays a very important role in Business transformation

LIMITATIONS OF THE STUDY

The Study limits to a sample size of 46 respondent units only and the inferences drawn limits only to the samples surveyed and hence cannot be generalized

ANALYSIS OF DATA

The sample selected for the survey has representation of both Service sector and Manufacturing sectors, and Stratified Random Sampling technique is administered.

TABLE 1 - NATURE OF ORGANIZATION TO ITS LIFE

Nature of Organization	Life of the Organization			
	Less than 5 Years	5 to 10 Years	10 to 20 Years	Total
Manufacturing	8	6	4	18
Services	12	4	6	22
Consultancy		2		2
Others		4		4
Total	20	16	10	46

TABLE 2 - NATURE OF ORGANIZATION TO SCALE OF OPERATIONS

Nature of Organization	Scale of Operations		
	Large Scale	Medium Scale	Small Scale
Manufacturing	8	10	
Services	14	6	2
Consultancy			2
Others	2	2	
Total	24	18	4

TABLE 3 - NATURE OF ORGANIZATION TO LEVEL OF KNOWLEDGE OF IT

Nature of Organization	Level of Knowledge IT					
	Very Good	Good	Fair	Favorable	Not So Good	Total
Manufacturing	6	6	4	2		18
Services	8	6	8			22
Consultancy		2				2
Others				2	2	4
Total	14	14	12	4	2	46

TABLE 4 - LEVEL OF APPLICATION OF IT IN VARIOUS ORGANIZATIONS

Nature of Organization	Application of IT			Total
	Very High	High	Favorable	
Manufacturing	4	6	8	18
Services	6	10	6	22
Consultancy		2		2
Others	4			4
Total	14	18	14	46

From Table 3 and 4 it can be inferred that in case of Service Sectors the need and application of IT and ITES is very sound and further manufacturing sector surveyed opined that even though they have favorable attitude and knowledge on IT and ITES the application of these tools would be to an extent that would facilitate them in smooth functioning of the enterprise and doesn't undertake application at higher end due to its cost and feasibility for complete automation being very low, whereas the services which might include even the Consultancy and Others (allied businesses) where there functional efficiency purely depends on application of sound IT solutions that can help them in optimal delivery of quicker and quality services.

TABLE 5 - NEED FOR IT * APPLICATION OF IT

		Application of IT			Total
		Very High	High	Favorable	
Need for IT	Very Essential	6	8	8	22
	Essential	8	10	6	24
Total		14	18	14	46

When we make a comparative evaluation between need and application of IT we could infer that even though IT requirements have been a very essential factor for integration among various stake holders for the enterprise less than 30% of the respondent units have application of IT at very high levels where as 60% of the respondent units have favorably high level of application at their organizational levels.

TABLE 6 - FACTORS DETERMINING THE LEVEL OF APPLICATION OF IT IN THE ORGANIZATION

	Scale of Operation	Organizational Objectives	Financial Soundness	Market Reach	Market Dynamics	Level of Knowledge	Policies of the Agencies	Others
	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
Yes	30	26	26	18	22	18	14	2
No	16	20	20	28	24	28	32	44
Total	46	46	46	46	46	46	46	46

The factors that determine the essence of IT are the level of business or the scope of their business operations, the financial soundness and the dynamic nature of the markets. Further the level of knowledge and policy measures initiated also plays a very important role.

TABLE 7 - SOURCES OF IT SOLUTIONS

Sources	Frequency	Percent
Own	16	34.8
Shared	18	39.1
Out Sourced	8	17.4
Own and outsourced	4	8.7
Total	46	100.0

This table reveals that most of the organization either have their own sources else utilize their shared sources either by the Governmental organization else from private participants who provide for customized IT Solutions for their clients. But at the same time they avoid outsourcing due to threat they would experience due to loss of strategic information to competitors that can help them to enhance the durability of Strategic advantage.

TABLE 8 - IMPACT OF AGENCY POLICIES ON APPLICATION OF IT

Response		
	Frequency	%
SA	12	26.1%
A	26	56.5%
Neither Agree nor Disagree	8	17.4%

At the same time the respondent units also opine that the agency policies (like government policies, taxation policies, Corporate Governance practices initiated by SEBI) also determines the level of application of IT in their organization (82.6% of the responses).

TABLE 9 - FACTORS DETERMINING FAVORABLENESS OF IT

	Protection of Critical Information		Assuring Credibility		Supply of true and fair information		Economic and Strategic benefit		IT for integrity among Stake holders only		Other factors	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Yes	34	73.9%	24	52.2%	18	39.1%	22	47.8%	8	17.4%	2	4.3%
No	12	26.1%	22	47.8%	28	60.9%	24	52.2%	38	82.6%	44	95.7%

What factors determine the favorableness of application of IT and ITES is the ability of organization to protect the critical information and also assure the credibility of information which would provide for economic and strategic benefits to the organization which would propel its growth by integrating the organizational policies with its stake holders interest, and what delivers the future value is the ability to take instantaneous decisions in real time assuring economic benefits for its efforts.

TABLE 10 – FACTORS DETERMINING THE ROLE PLAYED BY IT AND ITES IN BUSINESS INTEGRATION AND TRANSFORMATION

	Organization Dynamics through IT integration		Government Responsibility to Provide Safety		ITES underutilized in Rural Sector		Reorganization through ITES in Rural Sector	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
SA	24	52.2%	4	8.7%	8	17.4%	16	34.8%
A	18	39.1%	38	82.6%	24	52.2%	20	43.5%
Neither Agree nor Disagree	2	4.3%	4	8.7%	8	17.4%	2	4.3%
DA	2	4.3%			6	13.0%	8	17.4%
SDA	0	0	0	0	0	0	0	0

From this table we can infer that IT and ITES provides for integration among the stake holders and government should also take up necessary steps in developing a mechanism that can provide for safety to the customers and the organization in terms of data security, credibility of information. And the globally realized truth is that the rural markets has the major potential as (in India more than 75% of the population stay in Rural Markets) which call for proper integration of Urban and Rural Markets that can help the organization in propelling growth by optimally utilized their opportunities in the Rural markets. Further the IT and ITES in Indian Market are favorably well developed but underutilized due to either Lack of Knowledge or due to huge cost factor.

TEST OF HYPOTHESIS

H_{a0} = Application of IT is independent of Need for its application

H_{a1} = Need for Application of IT drives the company towards application of IT and ITES in their process

PAIRED SAMPLES STATISTICS

	Mean	N	Std. Deviation	Std. Error Mean
Need for IT	1.52	46	.505	.074
Application of IT	2.00	46	.789	.116

PAIRED SAMPLES CORRELATIONS

Need for IT & Application of IT	N	Correlation	Sig.
	46	-.112	.460

PAIRED SAMPLES TEST

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Need for IT - Application of IT	-.478	.983	.145	-.770	-.186	-3.300	45	.002

There lies a high degree of –ve correlation and as the calculated value of t is less than the t standard value at 5% level of significance we can infer and conclude that the application of IT is free or independent from this need. It becomes inevitable for every organization to adopt IT though the organization as it policy might not willing to adopt the same. This is because the environmental factors and their dynamism calls for every organization to adopt IT to pace up with the development of the industry.

ESSENTIAL OF IT FOR BUSINESS TRANSFORMATION

H_{b0} = IT doesn't play role any role in Business transformation

H_{b1} = IT plays a very important role in Business transformation

ONE-SAMPLE STATISTICS

	N	Mean	Std. Deviation	Std. Error Mean
Business transformation IT essential	46	1.70	.963	.142

ONE-SAMPLE TEST

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Business transformation IT essential	11.941	45	.000	1.696	1.41	1.98

ONE-SAMPLE TEST

	Test Value = 0					
	T	df	Sig. (2-tailed)	Mean Difference	99% Confidence Interval of the Difference	
					Lower	Upper
Business transformation IT essential	11.941	45	.000	1.696	1.31	2.08

Both at 99% and 95% Confidence Level t_{cal} value is more than the standard value and hence we can say that IT plays a very significant role in business transformation as it provides for better evaluation of opportunity with the help of market integration and thereby propels its growth.

SUGGESTIONS

1. There is a major demand for economical IT and ITES service providers which calls for these organizations to take up initiatives for developing customized software solutions that can facilitate all the sections of the Industries to Capitalize on potential opportunities available in the markets.
2. IT and ITES facilities will have to directed to various selected market niches by educating and orienting the customers/clients regarding the application and their potential utilities
3. Though India is a major exporter of IT and ITES solutions abroad which no doubt has significantly contributed towards Economic Growth and Development and also has created Employment opportunities for its inhabitants, there lies a great potential in unexplored Indian markets where either due to huge cost or lack of skilled manpower requirements man Organizations have failed to adopt these solutions in their organizations. These service providers hence can utilize these opportunities by extending ITES solutions for such organizations which in turn would make them less exposed to International Economic risk and make them more self-sustainable.
4. No doubt the Government has taken up various steps in providing information security by introduction of Cyber Laws a proper surveillance mechanism has to be developed that can provide for continuous monitoring and provide utmost integrity and credibility for the data management process
5. Introduction of ITC's **e-Chou-pal** has created a major utility in the hands of the rural markets to integrate themselves with the urban market has facilitated in minimizing or removing the arbitrary opportunities in the rural markets assuring the delivery of optimum economic value in the hands of the farmers. Lots such tools will have to be developed by the IT organizations as a part of their Social Responsibility which could help in Rural Market Transformation.

CONCLUSION

With the help of information technology the business enterprises cut down their costs and maximize their benefits. Information technology plays a major role in reengineering of most of their business process. The speed, information processing capabilities, and connectivity of computers and internet technologies can substantially increase the efficiency of business processes, as well as communications and collaboration among the people responsible for their operation and management. IT has been used to assist in making competitive decisions to develop price to win strategies.

The growth in the IT sector is attributed to increased specialization, and an availability of a large pool of low cost, but highly skilled, educated and fluent English-speaking workers, on the supply side, matched on the demand side by an increased demand from foreign consumers interested in India's service exports, or those looking to outsource their operations. The CIO can use IT to evaluate Total Cost of Ownership Cost, schedule and effort of new IT projects in a systematic, logical fashion while capturing the corporate knowledge of its ongoing activities. It can help allocate scarce resources to the most critical requirements. In addition, it can help the organization to develop price to win strategies to seize new opportunities for new business and also realize economies of scale for hardware and software purchases for its own projects.

"There can be but one criterion for development in the coming years: how much high technology is used in the life of our common man." - Rajiv Gandhi

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THE IMPACT OF KNOWLEDGE MANAGEMENT ON BUSINESS ORGANIZATION

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ABSTRACT

Knowledge management is the process of systematically and actively managing and leveraging the knowledge in an organization which encompasses identifying and mapping intellectual assets within the organization. Today importance of knowledge management is increasing since marketplaces are increasingly competitive and the rate of innovation is rising. Efforts of knowledge management focus on organizational objectives, such as improved performance, competitive advantage, innovation and continuous improvement of the organization. It involves the design, review and implementation of both social and technological processes to improve the application of knowledge in the collective interest of stakeholders. Nonaka's model of knowledge creation and transformation is concerned with tacit knowledge and explicit knowledge. Knowledge management architecture provides the ways to developing, distributing, consolidating and combining available knowledge. This paper discusses the need of knowledge management, organizational knowledge and its components, Nonaka's Model of knowledge creation and transformation and architecture of knowledge management.

KEYWORDS

Knowledge, knowledge management architecture, Knowledge Management, Nonaka's model of knowledge creation.

INTRODUCTION

Knowledge is the human understanding of a specialized field of interest that has been acquired through study and experience. Knowledge management is the process of gathering a firm's collective expertise in database, on papers or in people's head and distributes it where it is required. Knowledge management comprises a range of practices used by organizations to identify, create, represent and distribute knowledge for reuse, awareness and learning. The basic aim of creating knowledge in management system in any organization is to collect, store and disseminate knowledge among its employees to improve bottom line performance. The goal of knowledge management is to provide the right knowledge at the right time to the right person. Knowledge management is the set of processes that seeks to change the organization's present pattern of knowledge processing to enhance its outcomes. The paper stresses the importance of individuals in knowledge creation.

ORGANIZATIONAL KNOWLEDGE AND ITS COMPONENTS

In today's global organization, because of increasingly competitive marketplaces, reduction in staff, increase in competitive pressures and early retirement schemes, knowledge management is necessary to collect, disseminate and application of knowledge towards organizational sustenance and survival. Organizational knowledge is the knowledge captured by the organizations system's processes, products, rules and culture. The focus of knowledge management is on 'doing the right thing' instead of 'doing things right'. It provides a framework within which the organization views all its processes as knowledge processes. Knowledge management can transform the organization to new levels of effectiveness, efficiency, and scope of operation. Knowledge management caters to the critical issues of organizational adoption, survival and competence in face of increasingly discontinuous change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings. Knowledge management is bringing people together and collecting ideas from the group that can provide success for the company and personally for the employees. If the employees and the organization as a whole come together, and grasp a new idea, it ultimately can lead to new inventions of products and services. Organizational knowledge consists of five different type's knowledge :

- Know-what : Knowing which information is needed.
- Know-how : Knowing how information must be processed.
- Know-why : Knowing why information is needed.
- Know-where : Knowing where information can be found to achieve a specific result.
- Know-when: Knowing when which information is needed.

Fundamental research on knowledge creation revolves around the interplay of tacit knowledge and explicit knowledge.

i)Tacit Knowledge : Tacit knowledge is the knowledge embedded in the human mind through experience and jobs. It includes intuitions, values and beliefs that stem from years of experience. Tacit knowledge is heuristic, perceived, personal, experience based, hard to formalize and difficult to articulate. It is communicated personally through dialogue and scenarios in direct and effective way. Hence codification of the knowledge into explicit knowledge is the only way for preserving a tacit knowledge.

ii) Explicit knowledge: Explicit knowledge is the knowledge codified and digitized in books, reports, articles and patents. It can be retrieved and transmitted more easily than tacit knowledge and easy for documentation. It is formally articulated, elucidated, fixed, codified, and shared with others. Explicit knowledge is stored as a written procedure which is reusable for decision making purpose.

Knowledge management is a discipline that promotes an integrated approach to the creation, capture, organization, access, and use of an enterprise's information assets. These assets include structured databases, textual information such as policy and procedure documents, and most importantly, the tacit knowledge and expertise resident in the heads of individual employees.

NONAKA'S AND TAKEUCHI MODEL OF KNOWLEDGE CREATION AND TRANSFORMATION

Knowledge creation and transformation is possible by using Nonaka's model. Nonaka coined the terms tacit knowledge and explicit knowledge as the two main types of human knowledge. The conversion of knowledge between tacit and explicit knowledge is shown in Fig. 1.

FIG. 1: NONAKA'S & TAKEUCHI MODEL FOR KNOWLEDG CONVERSION

Tacit to Tacit (Socialization)	Tacit to Explicit (Externalization)
Explicit to Tacit (Internalization)	Explicit to Explicit (Communication)

I) Tacit to Tacit Communication (Socialization) : It takes place between people in meeting or in team discussion. Experience among people in face to face business situation is mostly shared.

II) Tacit to Explicit Communication (Externalization) : Here knowledge transfer takes place through dialogue. With the help of brainstorming, a team carries out discussions around a specific topic and comments and suggestions are entered into the computer. After the knowledge has been made explicit, and has been stored in a repository, persons facing the similar problem can consult the database at their convenience. i.e. knowledge sharing.

III) Explicit to Explicit Communication (Communication): In communication phase, explicit knowledge can be easily captured and transmitted to the worldwide audience. For ex. sending a document via e-mail expedites knowledge sharing in an efficient and effective way. Here technology helps to capture and share the knowledge among the people.

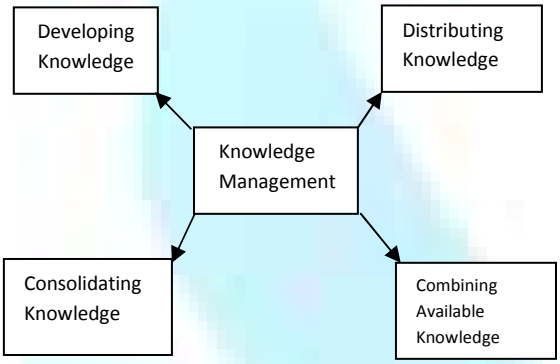
IV) Explicit to Tacit Communication (Internalization) : With the help of technology, explicit knowledge is converted to tacit knowledge. By searching and finding associations, technology makes information more useful to derive new tacit knowledge from it. For ex. By using data mining technology, the store can derive the number of new ideas regarding the kind of a product that is often purchased by customers by age, location or price. Such tacit knowledge is critical for competitive advantage.

In short, Nonaka's model divides knowledge creation processes into four categories. It focuses on tacit knowledge and by using the technology, it is possible to generate or transmit such knowledge to others. Human knowledge continues to be a valuable resource and technology is expected to trickle slowly into a human domain where knowledge creation and knowledge transfer can be expedited for human decision making regardless of time or location. Nonaka and Takeuchi put forward the proposition, embodied in the diagram, that 'tacit knowledge' is somehow derived from explicit knowledge and, by other means, is made explicit.

KNOWLEDGE MANAGEMENT ARCHITECTURE

The four basic knowledge processes are development, distribution of knowledge, knowledge consolidation and combination of knowledge. The analysis, plan and action are usually formulated in terms of the four basic operations on knowledge that can be found in the organization. The organization structure can significantly affect the pace of knowledge sharing.

FIG. 2: KNOWLEDGE MANAGEMENT ARCHITECTURE



I. Developing Knowledge: In today's global competition, it is necessary to develop new knowledge based on creative ideas, analysis of failure, daily experience and work in R& D department. Corporate memories can support these processes by recording failures and successes. It is necessary to give more explicit recognition to tacit knowledge and related human aspects, such as ideas, values, or emotions, for developing a richer conceptualization of knowledge management

II. Consolidating Knowledge: Knowledge must be safeguarded against loss due to different causes such as retirement, transfer, death etc. Consolidation of knowledge is supported by corporate memories and knowledge transfer programs. The knowledge thus stored must be available at the right time and at right place.

III. Distributing Knowledge: Knowledge must be actively distributed to those who can make use of it. The turnaround speed of knowledge is crucial for the competitiveness of companies. To distribute the knowledge implement new, flexible technologies and systems that support and enable communities of practice, informal and semi-informal networks of internal employees and external individuals based on shared concerns and interests.

IV. Combining available knowledge: An organization can only perform at its best, if all available knowledge areas are combined in its new products.

A good knowledge management system should involve the continuous streamlining of the above four basic knowledge processes to improve the organizational learning capability. The value of knowledge management relates directly to the effectiveness with which the managed knowledge enables the members of the organization to deal with today's situations and effectively envision and create their future.

CONCLUSIONS

In order to survive in today's knowledge based economy, firms need to manage knowledge efficiently and effectively. Organizations continually organizing and disseminating tacit and explicit knowledge for use throughout the organization. Through knowledge management efforts, the enterprise wishes to manage knowledge effectively to make people and the whole enterprise act intelligently to sustain its long term viability by developing, building and deploying highly competitive knowledge assets. Nonaka argues that organizations play a crucial role in promoting this knowledge. Knowledge management is rooted in many disciplines including business, economics, education, information management, psychology, and sociology among others. These areas have developed perspectives on the workings of individual and systemic knowledge. Though knowledge management has already been embraced as a source of solutions to the problems of today's business, but it is still a new concept and company employees have difficulty for sharing the knowledge. Since data and information can be managed but it is difficult to manage knowledge which is heuristic and stored in subconscious mind.

In the future, only those organizations that are able to create a culture of knowledge management will survive and grow. For the success of knowledge management, it is necessary that organization should implement new, flexible technologies and systems that support and enable communities of practice, informal and semi-informal networks of internal employees and external individuals based on shared concerns and interests. To tap intellectual asset, an organization must implement a successful knowledge management program in a culture that supports innovation, learning and knowledge sharing. The modern business manager is able to discover and learn new measures, new technologies, and new opportunities, but this requires the ability to gather information in usable formats and disseminate knowledge to achieve the organization's objectives.. We can conclude that knowledge management is all about making those interventions more frequent, more natural, more instinctive, more expected and role-modeled by leaders of organizations.

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LOCUS OF CONTROL AMONG HIGH SCHOOL TEACHERS

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ABSTRACT

Locus of control is a term in psychology which refers to a person's belief about what causes the good or bad results in his or her life, either in general or in a specific area such as health or academics. The present study aims to study locus of control among government and private high school teachers. The sample consisted of 30 government high school teachers and 30 private high school teachers which were further divided into 15 male and 15 female teachers in both the sectors. Levenson's Locus of control scale developed by Vohra consisting of 24 items was used. The scale consists of three areas namely powerful others, individual control and chance control. The data thus collected were statistically analyzed using t test. The results revealed Government school female teachers are controlled by powerful others compared to Government school male teachers. Government school male teachers have individual control compared to Private school male teachers. On the area chance control no significant gender differences were found, neither differences were found among teachers on this area whether they were employed in government or private sector.

KEYWORDS

Government school, High school, Locus of control, Private school and Teacher.

INTRODUCTION

TEACHER

A teacher is a person who educates others. A teacher who educates an individual student may also be described as a personal tutor. The role of teacher is often formal and ongoing, carried out by way of occupation or profession at a school or other place of formal education. Teachers may use a lesson plan to facilitate student learning, providing a course of study which covers a standardized curriculum. A teacher's role may vary between cultures. Other teachers may provide instruction in craftsmanship or vocational training, the arts, religion as spirituality, civics, community roles or life skills. In some countries, formal education can take place through home schooling.

Teachers act as facilitators or coaches, using classroom presentations or individual instruction to help students learn and apply concepts in subjects such as science, mathematics, or English. They plan, evaluate, and assign lessons; prepare, administer, and grade tests; listen to oral presentations; and maintain classroom discipline. Teachers observe and evaluate a student's performance and potential and increasingly are asked to use new assessment methods. They then can provide additional assistance in areas in which a student needs help. Teachers also grade papers, prepare report cards, and meet with parents and school staff to discuss a student's academic progress or personal problems.

HIGH SCHOOL TEACHERS

High school teachers help students delve more deeply into subjects introduced in elementary school and expose them to more information about the world. Middle and secondary school teachers specialize in a specific subject, such as English, Spanish, mathematics, history, or biology. They also may teach subjects that are career oriented. Additional responsibilities of middle and secondary school teachers may include career guidance and job placement, as well as follow-ups with students after graduation.

GOVERNMENT AND PRIVATE SCHOOL TEACHERS

Education in India is provided by government sector and private sector. Government sector teachers are generally better paid. In government school more emphasis is given to core subjects and teachers get diverse student population. Adding to this there is less control, larger classes, lack of facilities for teachers, outdated equipments and complaints are not addressed quickly.

Teachers in private schools generally enjoy smaller class sizes and more control over establishing the curriculum and setting standards for performance and discipline. Their students also tend to be more motivated, since private schools can be selective in their admissions processes. Teachers are sometimes isolated from their colleagues because they work alone in a classroom of students. However, some schools allow teachers to work in teams and with mentors to enhance their professional development. Teachers are paid less and there is lack of students from diverse population.

LOCUS OF CONTROL

Locus of control is a term in psychology which refers to a person's belief about what causes the good or bad results in his or her life, either in general or in a specific area such as health or academics. Understanding of the concept was developed by Julian B. Rotter in 1954, and has since become an important aspect of personality studies.

One's "locus" (Latin for "place" or "location") can either be internal (meaning the person believes that they control their life) or external (meaning they believe that their environment, some higher power, or other people control their decisions and their life).

If a person has an internal locus of control, that person attributes success to his or her own efforts and abilities. A person who expects to succeed will be more motivated and more likely to learn. This person will seek out information and is more likely to have good study habits and a positive academic attitude. People with internal locus of control are less susceptible to attempts to influence them, place a higher value on their skills, and are more alert to environmental cues that they use to guide behavior. They report lower anxiety and higher self esteem, are more responsible for their actions, and enjoy greater mental and physical.

A person with an external locus of control**,** who attributes his or her success to luck or fate, will be less likely to make the effort needed to learn. In other words they are convinced that they are powerless with respect to outside forces. People with external locus of control are also more likely to experience anxiety since they believe that they are not in control of their lives. External locus of control people believe that their behaviors and abilities make no difference in the reinforces they receive.

In the present study Levenson's locus of control scale which consists of 3 areas is used. The areas are as follows

POWERFUL OTHERS

Belief about control by powerful others. High score indicates that other people control our outcomes

CHANCE CONTROL

Belief about chance control. High scores indicate that unordered, chance or random events control our outcomes.

INDIVIDUAL CONTROL

Belief about individual control. High scores indicate we believe that our outcomes are controlled by ourselves- which our current situations and our rewards are direct outcomes of things we control.

REVIEW OF LITERATURE

Kesici and Sahin (2008) explored the variations in democratic beliefs among teachers based on gender and locus of control. The study groups comprised of 286 teachers. The results demonstrated that the level of adherence to democratic beliefs on the part of female teachers was significantly higher than those of male

teachers, especially in terms of equality and justice. This study found that teacher's gender has an effect on their democratic beliefs and this effect was found statistically low for equality, very low for freedom, average for justice, and low for the overall dimensions. Observance of democratic values was found to be significantly higher for teachers with internal locus of control than for those with external locus of control in terms of freedom. And, in terms of locus of control, teacher's democratic belief was found statistically low for equality, average for independence, low for justice, and average for the overall dimensions.

Flanagan (2005) examined the locus of control orientations of US rural teachers, the attitudes of rural teachers toward in-service education, and looks for relationships between in-service attitude and locus of control. Categorical variables, including age, gender, years of experience in education, level of educational preparation, teaching level, school site, and location of undergraduate degree institution were examined to see if grouping teachers by specified patterns was useful to differentiate with regard to in-service attitude or locus of control. The rural teacher population completed the Attitude towards in-service scale and the Rotter internal-external locus of control scale. Data were analyzed using chi-square analysis, analysis of variance, the Turkey WSD technique, and the Pearson-Product Moment correlation. An alpha level of 0.50 was used to determine statistical correlation. Classification of teachers into three locus of control categories (internal, moderate, and external) and into three in-service attitude categories (positive, mid-range, and negative) were two research procedures found to be useful for differentiating among teachers populations. The relationship between locus of control and attitude toward in-service was statistically significant (r = -0.292). Males and secondary teachers tended to be significantly more internally oriented and significantly more negative toward in-service than females and elementary teachers. School site was useful in differentiating locus of control, as teachers at a more isolated rural site tended to be significantly more external than those at a less isolated sited. No statistically significant differences were found with regard to locus of control or in-service attitude for the other four categorical variables. *Post hoc* analysis indicated that secondary males tended to be significantly more negative towards in-service than elementary males.

Sunbul (2003) conducted a study to analyze relationship between Locus of control, burnout and job satisfaction in Turkish High school teachers. The aim of this study was to see how teacher's burnout is related to different aspects of locus of control, job satisfaction and demographic characteristics such as age and gender. The Job Satisfaction Scale was used to measure the subject's job satisfaction level. In addition, the Maslach Burnout Inventory which was used to measure dimensions of teacher's burnout consisted of three subscales: emotional exhaustion, personal accomplishment and depersonalization. The Internal-External Locus of Control Scale was used to measure the extent to which teachers had an internal or external locus of control. The findings showed that all burnout dimensions were either positively or negatively related to independent variables. All variables were statistically significant in predictive effect on depersonalization. External locus of control and age (predictor variables) were positively and directly related to emotional exhaustion dimension of burnout. Only one variable-age (predictor variable) was significantly predictive of personal accomplishment.

Anand (1996) conducted a study to explore the relationship between locus of control and occupational stress. A sample of 100 teachers of higher secondary schools and intermediate colleges was administered the Locus of control scale (Kumar and Srivastava, 1980) and The Teacher's Occupational stress Questionnaire (Srivastava, 1996). On the basis of their score on the locus of control scale, the subjects were categorized as either internally controlled or externally controlled. Comparison of the groups revealed that teachers with internal and external locus of control differed significantly as far as occupational stress was concerned. The externally controlled group reported higher occupational stress.

Soh and Kay cheng (1988) conducted a study to find the relationships between teacher's attitudes toward responsibility and locus of control and other characteristics such as stress, educational attitudes, and attitudes toward change were studied in 54 (35 female and 19 male) experienced primary and secondary school teachers taking a course on classroom-based research. Attitude toward responsibility and locus of control were determined with instruments adapted for this purpose. Teacher stress was measured by an adapted version of the Wilson Stress Profile for Teachers, and educational attitude and attitude toward change were measured by scales previously developed. Responsibility correlated with teacher stress in the predicted direction, and there were significant correlations with educational attitude and attitude toward change. Correlations between locus of control and the criterion measures were not as high as expected. Teacher locus of control was thus a weaker predictor of the criterion measures than was responsibility.

Halpin et al (1985) conducted a study designed to test the hypothesis that a feeling of being in control will make potentially stressful environmental events less so. Subjects were practicing teachers about whom little was known regarding the relationship between locus of control and stress. They responded to the Teacher Locus of Control Scale and the Teacher Occupational Stress Factor Questionnaire. A multivariate and bivariate analysis of their responses showed that locus of control was related to teacher stress. As hypothesized, teachers who felt that they were in control reported less stress in their world of work than did those who did not feel influential in their educational environment. Neither sex nor age moderated this relationship.

Mistry (1985) conducted a study with an attempt to fill some of the gaps in the existing field of knowledge regarding job satisfaction, job involvement and need for achievement as outcome variables of locus of control, motivational climate, participation in academic climate and various types of role stresses the teaching population faced. In the study, six different research tools were employed to collect the data: The satisfaction-dissatisfaction Employer's Inventory developed and standardized by Pestonjee, used to assess job satisfaction; the Social Relation Inventory developed by Rotter and adapted by Hasan, used to assess the internality-externality dimensions of personality, "Your feelings about your role" scale developed by Pareek, used to measure the extent of role stress, a Motivational Analysis of Organizations (MAO) questionnaire developed by Pareek, used to assess organizational academic climate, a Psychological Participation Index developed andstandardized by Pestonjee, used to assess the extent of psychological participation, and a General Inventory prepared for the study to gather general information about age, tenure, socioeconomic condition, etc and information pertaining the job. 202 subjects were selected from colleges and secondary schools of Ahmedabad. Multiple regression analysis was carried out to estimate the contribution of various independent variables to three dependent variables-job satisfaction, job involvement and n-achievement. The major findings of the study were Locus of control and various dimensions of job satisfaction were not related. The climate of academic motivation was found to be significantly associated with such dimensions as job satisfaction, involvement as well as overall satisfaction. The climate of control was found to be negatively correlated with aspects of job satisfaction and with total job satisfaction. The climate of dependency had no effect on various aspects of job satisfaction and job involvement. Job involvement was found to be significantly and positively related with different aspects of job satisfaction. Self-role distance was found to be significantly but negatively correlated with all the dimensions of job satisfaction. Inter-role distance, role-stagnation, role- ambiguity, role-overload, role-inadequacy and overall indices of role- stress had been found to be negatively associated with all but not with social relations dimension of job satisfaction.

Thus an overview of the above studies show that Males and secondary teachers tended to be significantly more internally oriented and significantly more negative towards in-service than females and elementary teachers. School site was useful in differentiating locus of control, as teachers at a more isolated rural site tended to be significantly more external than those at a less isolated sited. Comparison between teachers of higher secondary schools and intermediate colleges revealed that teachers with internal and external locus of control differed significantly as far as occupational stress was concerned. The externally controlled group reported higher occupational stress. One study found that locus of control was related to teacher stress; teachers who felt that they were in control reported less stress in their world of work than did those who did not feel influential in their educational environment.

NEED OF THE STUDY

Teacher's personality, attitude, interest influences students and also shapes their personality. People with internal locus of control have positive academic attitude, higher self esteem and enjoy greater physical and mental well being. People with external locus of control feel powerless; experience anxiety and believe others control their lives. So in the present study researcher wants to assess the locus of control among teachers and analyse how being internally controlled or externally controlled influences their job, their students and also the institution.

STATEMENT OF THE PROBLEM

To assess locus of control among high school teachers employed in government and private schools.

OBJECTIVES

1. To identify the difference in different areas of locus of control among government and private high school teachers
2. To identify gender differences in different areas of locus of control among government and private schools.

HYPOTHESES

1. There is no significant difference in different areas of locus of control among government and private high school teachers
2. There is no significant gender difference in different areas of locus of control among government and private schools.

RESEARCH METHODOLOGY

DESIGN

The present study is ex post facto- in nature.

SAMPLE

Convenient sampling method was used. Sample of 30 teachers employed in private schools and 30 teachers employed in government schools, further divided into males and females were selected for the study.

TOOL

LEVENSON'S SCALE FOR LOCUS OF CONTROL

Levenson's Scale for Locus of Control developed by Vohra (1999) was administered. The locus of control scale contains 24 statements covering the areas like Powerful others, Individual control and Chance control.

SCORING

This test is a 5 point Likert type scale which is to be hand scored with a stencil scoring key. Each answer scores 1, 2, 3, 4 or 5 points.

RELIABILITY

The split-half reliability of the scale with N=380 was found to be 0.72 for Powerful others, 0.79 for Chance control and 0.65 for Individual control, using Spearman-Brown method Further, with the odd-even method it has 0.69 for Powerful others, 0.72 for Chance control and 0.66 for Individual control. The test re-test reliability coefficient was found to be 0.76.

VALIDITY

The present scale was validated against the Rotter's Locus of control scale i.e. the concurrent validity was established. The present scale was validated by correlating it with Rotter's Locus of Control Scale (I-E Scale). This was done by giving both the scales one after another with very little time interval in between. Scores of both the scales were then correlated with each other and the correlation co-efficient was found to be 0.54 (with N=220).

PROCEDURE

The permission was obtained from the Headmaster/Headmistress of the school and the subjects were approached personally. The purpose of the study was explained. After obtaining their consent Levenson's Scale for Locus of Control scale was distributed and subjects were asked to follow the instructions as per the instructions typed in the scale. Subjects were assured that their responses will be kept confidential. Doubts were clarified. After the subjects answered the questions, the questionnaires were collected back and were thanked for their co-operation.

RESULTS AND DISCUSSION

TABLE 1: MEAN, STANDARD DEVIATION AND t VALUE ON POWERFUL OTHERS OF LOCUS OF CONTROL SCALE BETWEEN DIFFERENT GROUPS

Groups	Powerful others		t value
	Mean	SD	
Government school teachers	23.60	4.85	0.21 NS
Private school teachers	23.33	4.66	
Government school male teachers	21.80	4.66	0.82 NS
Private school male teachers	23.33	5.48	
Government school female teachers	25.40	4.48	1.35 NS
Private school female teachers	23.33	3.86	
Government school male teachers	21.80	4.66	2.15*
Government school female teachers	25.40	4.48	
Private school male teachers	23.33	5.48	0 NS
Private school female teachers	23.33	3.86	

* p< .05 , NS: Not significant

The t value between government school male and female teachers is 2.15 which is significant at 0.05 level. Mean for government school male teachers is 21.80 and for government school female teachers is 25.40 which shows that government school female teachers locus of control is controlled by powerful others compared to government school male teachers. The t value for powerful others between government and private school teachers is 0.21, which is not significant; hence government and private school teachers do not differ in this area. The t value for powerful others between government and private school male teachers is 0.82, which is not significant hence government and private school male teachers do not differ in this area. The t value between government and private school female teachers is 1.35 which is not significant; hence government and private school female teachers do not differ in the area powerful others. The t value between private school male and female teachers is 0 which is not significant hence private school male and female teachers do not differ in the area powerful others.

Study conducted by Anand (1996) revealed that teachers with internal and external locus of control differed significantly as far as occupational stress was concerned. The externally controlled group reported higher occupational stress.

TABLE 2: MEAN, STANDARD DEVIATION AND t VALUE ON CHANCE CONTROL OF LOCUS OF CONTROL SCALE BETWEEN DIFFERENT GROUPS

Groups	Chance control		t value
	Mean	SD	
Government school teachers	25.03	4.90	0.69 NS
Private school teachers	24.17	4.69	
Government school male teachers	24.80	5.48	0.45 NS
Private school male teachers	23.93	4.86	
Government school female teachers	25.27	4.43	0.52 NS
Private school female teachers	24.40	4.68	
Government school male teachers	24.80	5.48	0.25 NS
Government school female teachers	25.27	4.43	
Private school male teachers	23.93	4.86	0.26 NS
Private school female teachers	24.40	4.68	

The t value for chance control between government and private school teachers is 0.69 which is not significant; hence government and private school teachers do not differ in this area. The t value between government and private school male teachers is 0.45, which is not significant hence government and private school male teachers do not differ in this area. The t value between government and private school female teachers is 0.52 which is not significant; hence government and private school female teachers do not differ in the area chance control. The t value between government school male and female teachers is 0.25 which is not significant hence government school male and female teachers do not differ in the area chance control. The t value between private school male and female teachers is 0.26 which is not significant hence private school male and female teachers do not differ in the area chance control.

TABLE 3: MEAN, STANDARD DEVIATION AND t VALUE ON INDIVIDUAL CONTROL OF LOCUS OF CONTROL SCALE BETWEEN DIFFERENT GROUPS

Groups	Individual control		t value
	Mean	SD	
Government school teachers	30.73	3.32	
Private school teachers	29.30	4.27	1.45 NS
Government school male teachers	31.47	2.44	
Private school male teachers	28.73	4.11	2.21*
Government school female teachers	30.00	3.96	
Private school female teachers	29.87	4.50	0.08 NS
Government school male teachers	31.47	2.44	
Government school female teachers	30.00	3.96	1.22 NS
Private school male teachers	28.73	4.11	
Private school female teachers	29.87	4.50	0.72 NS

* p< .05 , NS: Not significant

The t value between government and private school male teachers is 2.21, which is significant. Mean for government school male teachers is 31.47 and for private school male teachers is 28.73 which shows that government school male teachers have individual control compared to private school male teachers. The t value for individual control between government and private school teachers is 1.45 which is not significant; hence government and private school teachers do not differ in this area. The t value between government and private school female teachers is 0.08 which is not significant; hence government and private school female teachers do not differ in the area individual control. The t value between government school male and female teachers is 1.22 which is not significant hence government school male and female teachers do not differ in the area individual control. The t value between private school male and female teachers is 0.72 which is not significant hence private school male and female teachers do not differ in the area individual control.

FINDINGS

1. Government school female teachers are controlled by powerful others compared to Government school male teachers.
2. Government school male teachers have individual control compared to Private school male teachers.

SUGGESTIONS

1. Comparative study between primary, high school and college teachers can be done.
2. Locus of control can be studied with other variables like job satisfaction, teaching effectiveness in the same group.

CONCLUSIONS

1. Government and private school teachers do not differ in the three areas of locus of control.
2. Male teachers both from Government and private schools do not differ in the area powerful others and chance control.
3. Government school male teachers have individual control compared to Private school male teachers.
4. Female teachers both from Government and private schools do not differ in the area powerful others, chance control and individual control.
5. Government school female teachers are controlled by powerful others compared to Government school male teachers.
6. Male and female teachers from Government school do not differ in the area chance control and individual control.
7. Male and female teachers from Private school do not differ in the area powerful others, chance control and individual control.

SCOPE FOR FURTHER STUDY

Other methods of data collection like interview, observation, case study can be used.
Impact of other variables like years of experience in teaching, age, domicile and income can be studied.

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I express my acknowledgment to the Headmasters/Headmistress and High school teachers who co-operated with me for collecting the required data for this investigation.

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APPENDIX

LEVELSON'S SCALE FOR LOCUS OF CONTROL

Name:_____ **Age:** _____

Occupation:_____ **Sex:** _____

INSTRUCTIONS

Below are some statements that pertain to general life outcomes. Please indicate how much you agree or disagree with each statement on a five points are: Strongly Agree (SA), agree (a), Undecided (U), disagree (D), strongly disagree (SD). You have to put a (x) mark on point which best indicates how closely you agree or disagree with the feeling expressed in each statement AS IT CONCERNS YOU.

Example:

1. Becoming successful is a matter of hard work; luck has nothing to do with it.

1	2	3	4	5
Strongly agree	Agree	Undecided	Disagree	Strongly disagree

There are no "right" or "wrong answers as everyone has right to his or her own views. To be able to get best advice from your results, please answer them exactly and truly. When you answer, keep following four points in mind:

1. Give the first, natural answer as it comes to you. Do not spend too much time thinking about your answers.
2. Try not to fall back on the middle, "undecided" answers except when the answer at either ends are really impossible for you.
3. Be sure not to skip anything and answer every statement, somehow.
4. Answer as honestly as possible what is true for you. Do not merely mark what seems "the right thing to say" just to impress the examiner.

If you have understood the instructions clearly, please turn the page and start, if not please feel free to ask for any clarifications.

Sl No	Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1	Whether or not get to be a leader depends on my ability					
2	My life is controlled by accidental happenings.					
3	I feel like what happens in my life is determined by powerful people.					
4	Whether or not I get into an accident depends on how good driver I am.					
5	When I make plans, I am certain to make them work.					
6	There is no chance of protecting my personal interests from bad luck happeings.					
7	When I get what I want, it's because I am lucky					
8	Although I might have good ability, I will not be given leadership responsibility without happening to those in positions of power.					
9	How many friends I have depends on how nice person I am.					
10	I have found that what I think is going to happen will happen.					
11	My life is controlled by powerful others.					
12	Whether or not I get into a car accident is a matter of luck.					
13	People like myself have no chance of protecting our personal interests when they conflict with those of strong pressure groups.					
14	It is not wise for me to plan too far ahead, because many things turn out to be a matter of bad fortune.					
15	Getting what I want requires pleasing people above me.					
16	Whether or not I get to be a leader depends on whether I am lucky enough to be in the right place at the right time.					
17	If important people were to decide they didn't like me, I probably wouldn't take many friends.					
18	I can pretty much determine what will happen in my life.					
19	I am usually able to protect my personal interests.					
20	Whether or not I get into a car accident depends mostly on the other driver.					
21	When I get what I want, it's usually because I worked hard for it.					
22	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.					
23	My life is determined by my own actions.					
24	It's a matter of fate whether or not I have a few friends or many.					

L.O.C PROFILE SHEET

Name: ---------- Sex: ----------Age: ---------- Occupation: ----------

(For examiners use only)

Raw scores			
Sten scores			
10	-	-	-
9	-	-	-
8	-	-	-
7	-	-	-
6	-	-	-
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
	Powerful Others	**Chance control**	**Individual control**

KNOWLEDGE MANAGEMENT: A CONCEPTUAL UNDERSTANDING

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ABSTRACT

To overcome the pressure of increasing competition, organizations are finding ways on how better they can manage their intellectual capital. Knowledge management is one key aspect which helps in managing the intellectual assets of an organization in a proper manner. It is playing a key role in an organization and helping it to reach its pre-set goals and objectives. To understand the importance and prominence of knowledge management, having a clear understanding of the principles and dimensions of knowledge management is needed. This article concentrates on the principles and various dimensions of knowledge management.

KEYWORDS

Knowledge management, Personal knowledge management, Team knowledge management, Organizational knowledge management, Inter-organizational knowledge management, knowledge management processes, Knowledge management strategy, Knowledge management system and tools.

INTRODUCTION

The 17th century is marked by scientific revolution, 18th century by political revolution, 19th century by industrial revolution, 20th century by information revolution and the 21st century by knowledge revolution. Knowledge has become a crown jewel of every business firm and organization. With the increasing number of knowledge assets available with an organization, efficient management of these assets has become a critical issue and the knowledge management has proved a key to the issue.

Knowledge management is applied around the world in all industrial sectors, public and private organizations, humanitarian institutions and international charities today. To understand how knowledge management is helping in an organization's success, it is important to first know what is 'Knowledge' and 'Knowledge management'.

UNDERSTANDING DATA, INFORMATION AND KNOWLEDGE

Data includes facts and figures that convey something specific but it is not organized into a proper understandable form.

For data to become information, it has to be contextualized, categorized, calculated and condensed. Information helps in conveying the data in a proper manner. This includes indicating patterns of sales in yearly reports.

Knowledge is a theoretical and practical understanding of a subject and it forms the core essence of an organization's assets.

COMPONENTS ADDING UPTO KNOWLEDGE ASSETS

The staff, customers and partners of an organization add up to what is called the knowledge asset or knowledge base.

TYPES OF KNOWLEDGE

Knowledge is of the following three types:

- **EXPLICIT KNOWLEDGE**: is knowledge in formal language which can be transmitted among individuals synchronously and asynchronously.
- **TACIT KNOWLEDGE**: is the personal knowledge gained out of individual experience and is affected by personal beliefs, instincts and values.
- **IMPLICIT KNOWLEDGE**: Certain knowledge can be retrieved from its owner and transformed into a more readily sharable knowledge. The third type of knowledge created in an organization using such a process is called implicit knowledge.

UNDERSTANDING KNOWLEDGE MANAGEMENT

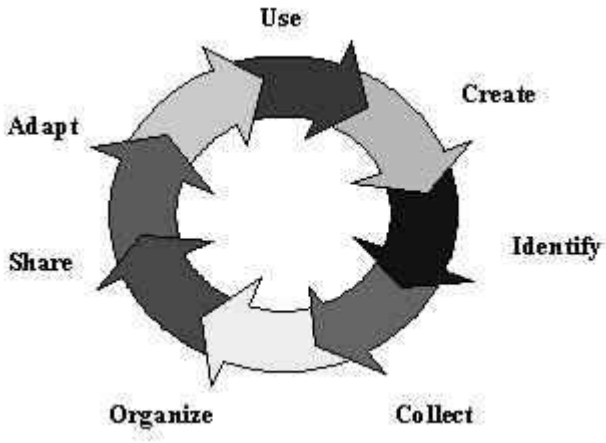
Knowledge management is about making the right knowledge available to the right people at the right time. Knowledge management ensures that every member of the organization learns and uses the knowledge assets available in current applications to increase the results of the organization. Peter Drucker has given a statement about knowledge management which says that "the coordination and exploitation of organizational knowledge resources, in order to create benefit and competitive advantage" (Drucker 1999).

A definition is presented by Davenport & Prusak (2000), which states that KM "is managing the corporation's knowledge through a systematically and organizationally specified process for acquiring, organizing, sustaining, applying, sharing and renewing both the tacit and explicit knowledge of employees to enhance organizational performance and create value."

Knowledge management is responsible for understanding

- What an organization knows?
- Where this knowledge is located? Eg: mind of specific expert, old files, specific department or specific team
- What form is this knowledge stored? Eg: on paper, in system
- How well this knowledge can be transferred to relevant people to use it to best advantage? Eg: setting up a mentoring system between experienced and new employees
- The need to assess the organization's knowledge assets and the actual needs of the organization and act accordingly. Eg: by hiring or firing, organizing constant meetings to review the current situation of the organization.

Knowledge management is a branch which enables individuals, teams, organizations and communities to systematically create, identify, collect, store, organize, share, adapt and apply their knowledge to meet the organizational goals and objectives. Knowledge management is more about action than being.



CONCEPT OF KNOWLEDGE MANAGEMENT

To understand how knowledge management is helping the business firms to fight the competition and withstand the pressure of competitors, study of principles and dimensions of knowledge management is necessary.

WHY KNOWLEDGE MANAGEMENT IS USEFUL?

Knowledge management is useful to an organization because it assesses the current knowledge available and how this knowledge can be exploited and applied to the advantage of the organization. In other words:

- It helps firms to learn from past mistakes and successes.
- It helps in exploiting the current knowledge available and using it in another department.
- It promotes a long term focus on developing the right skills and removing obsolete knowledge.
- It enhances innovative ability of the firm.
- It increases the firm's ability to protect its knowledge from being lost or copied.

ASPECTS THAT MAKE KNOWLEDGE MANAGEMENT POSSIBLE

The following are the aspects which make knowledge management possible:

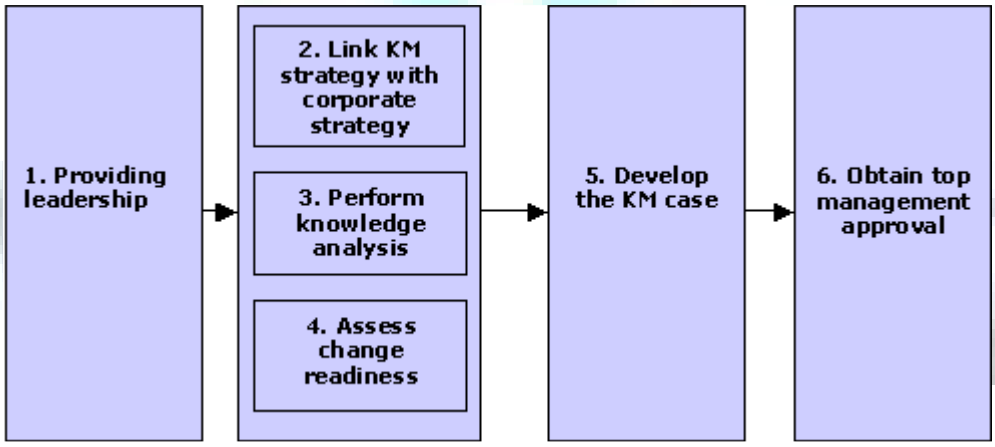
- **Culture:** One which is supportive of knowledge management, and the processes it implies - particularly knowledge sharing.
- **Infrastructure:** Support systems, teams, structures, and collaboration.
- **Measures:** Developing a process and design for managing change.
- **Technology:** Can offer great advantages in certain areas. Similarly, if misused, it can sabotage the KM process.

KNOWLEDGE MANAGEMENT METHODOLOGY

The KM methodology proposes a stage-wise approach to enable creative thinking, planning and implementation of knowledge management in an organization. It creates awareness about the benefits of knowledge management.
The various stages involved in knowledge management methodology are:

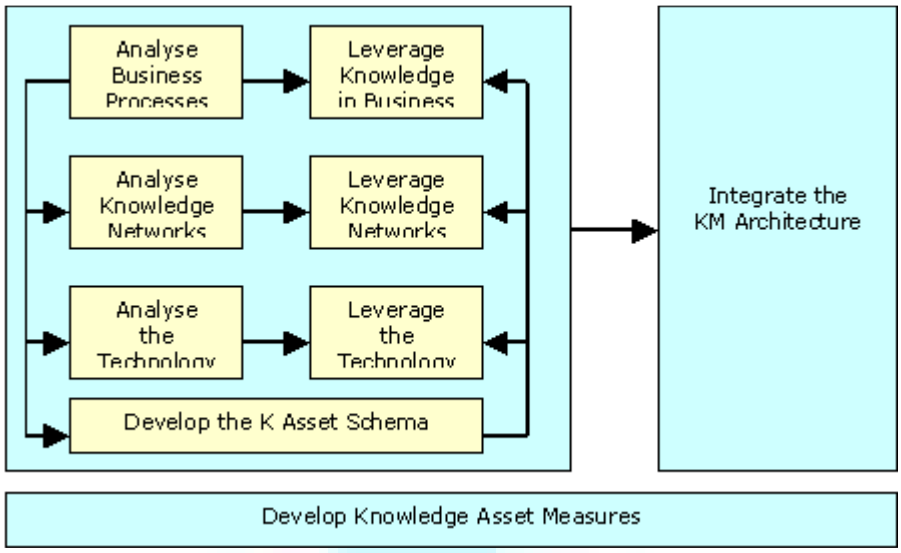
- **STAGE 1**: Strategic planning for knowledge management:

In this stage, the organization takes an initiative to implement knowledge management readily.



- **STAGE 2**: Developing the knowledge enabled organization:

An organization develops itself into a knowledge based organization. The knowledge management process in embedded into the projects of the organization.



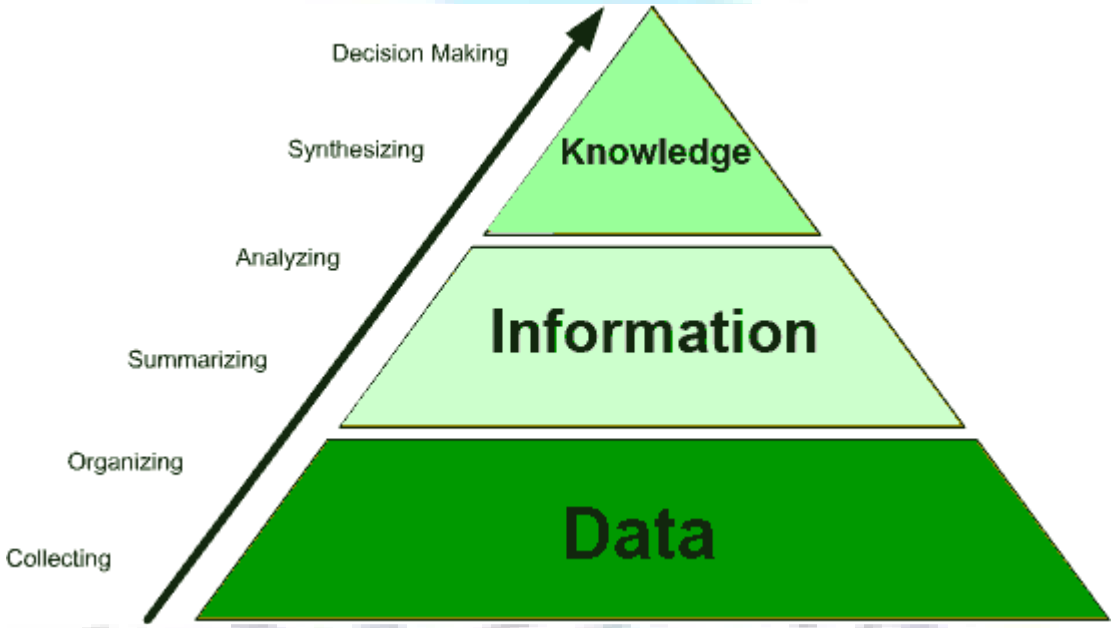
- **STAGE 3**: Operate and measurements:

This stage involves the company wide implementation of the KM initiative. It also involves measuring of creation, sharing and use of knowledge assets of an organization.

KNOWLEDGE MANAGEMENT PROCESS

The knowledge management process includes 6 steps in which data is transformed in to knowledge.

KNOWLEDGE MANAGEMENT PROCESS



STEP 1: COLLECTING

The data collected by organizations should be correct and relevant. If irrelevant data is collected, the decisions made by the organization based on such data will be incorrect. The data collection process is important step involved in knowledge management process.

Data collection includes data collection points, data extraction techniques and data storage. Data collection can be in the form of daily and monthly sales reports, daily attendance reports, etc. The collection process is followed by data extraction tools and techniques. For example, the sales reports on paper are entered into a database i.e., the collected data is converted into a more accessible form. Finally, the data has to be stored. This storage of data is done by software programs adopted by the respective organizations.

STEP 2: ORGANIZING

The raw data that has been collected and stored should now be processed into useful information. This conversion of data into useful information is called organizing the data. The data organization is done based on certain rules which are specific to that business firm. The organization of data in a proper manner without any repetitions is important.

STEP 3: SUMMARIZING

The information obtained is now summarized i.e., lengthy information is expressed as tabular columns and readable charts. The essence is extracted and presented. There are various tools such as software programs which can help in summarizing the information.

STEP 4: ANALYZING

The analysis of the summarized information is done by a team of experienced professionals to identify any characteristic relationships, patterns or similarities. The analysis is finally created.

STEP 5: SYNTHESIZING

In this step, the information turns in to knowledge. The results of the analysis are put together to synthesize and derive new theories and concepts. The pattern shown by any one entity can be applied to other entities and knowledge base can be extended to all the products.

STEP 6: DECISION MAKING

The knowledge derived from the results of analysis is used in the decision making process of the organization. If decision has to be taken about a project, the analysis reports of the previous projects are studied thoroughly and decisions are made in a proper manner. This saves time. Wastage & misuse of resources is decreased.

KNOWLEDGE MANAGEMENT STRATEGY

Knowledge management strategy includes managing organizational structures, organizational culture change, managing core competencies, managing external networks and knowledge management systems.

- **Managing organizational structures:**

Organizational structure refers to the layout of the company and the bodies existing within it. There are two types of organizational structure which are dependent on each other: formal and informal.

1. Formal structure: The official structure of the organization displayed on an organizational chart and which denotes the hierarchical relationships between the members of the firm. The formal organizational structure should not be enforced rigidly so as to suppress the informal structures. This structure impacts knowledge flow in an organization.
2. Informal structure: The unofficial organizational structures are the ones which are created through informal networks working within an organization. They represent the way how people interact.

- **Organizational culture change:**

Organizational culture represents the way in which tasks are accomplished in an organization, including the values, beliefs and attitude that generates a common way of interpreting the events. Hence knowledge sharing and knowledge management depend upon organizational culture.

Trust is an important aspect where workers need to feel secure that they are not at a risk by indulging themselves in knowledge sharing. Knowledge management must create a culture where knowledge sharing is beneficial to both individual and the organization. Managing organizational culture is a key role of knowledge management.

There is a continuous change in organizational culture depending on the needs of the organization. Organizational culture can be managed by acknowledging the existence and influence of organizational culture, having a clear and visible idea of what culture is and what changes need to be applied and consciously manage culture.

- **Manage core competencies:**

Core competencies refer to the firm's primary expertise. Knowledge management helps in turning core competencies into profitable products. To understand role of knowledge management, it is important to know how core competencies are managed. Core competencies are managed in the following manner:

1. Identifying and assessing the core competencies:

The firm should understand its key competencies, analyse and assess what the firm is having and what it actually needs. KM is responsible to identify where the required knowledge is located and to identify the knowledge gaps.

2. Sustaining core competencies:

The role of KM is to keep a stock of knowledge assets and transfer this knowledge across the organization. This will help in sustaining the core competencies of an organization.

3. Building core competencies:

Knowledge assets must be built, enhanced, combined and coordinated in the organization where there is a scope for innovation and experimentation. The KM helps in building up of tacit knowledge and expertise in various sections or departments of the organization.

4. Unlearning core competencies:

Organizations keep following older methods to which they get accustomed. But for the growth of the organization it is necessary to unlearn the core competencies which are no more useful to the organization. The KM plays an important role in unlearning core competencies. It identifies and manages the firm's knowledge assets in an efficient manner.

- **Manage external knowledge network:**

The major potential external knowledge sources were identified as customers, suppliers, competitors, partners, mergers and acquisitions. Each of these sources offer a different set of potential knowledge. The general steps for extending external knowledge networks are as follows:

- **Identification of potential partner/target:** It is important to identify a potential partner in which both of them are benefitted to reach the organizational goals.
- **Evaluation of potential partner/target:** In joint ventures, it is necessary to evaluate the potential partner, estimate the cost contributions, estimate cost of establishing a relationship and estimate cost of acquiring the same knowledge from a different source.
- **Establishing the relationship/ Acquisition of target:** For establishing a relationship with customers and suppliers, procedures and rules should be set up about the nature of relationship and what things will be shared should also be noted. For establishing a relationship with the mergers and acquisitions, creation of new organizational structure can take place.
- **Knowledge transferral/integration:** This includes the processes that gather and use knowledge and the know-how about the various relationships of the firm with different sources.

The role of KM in managing the external knowledge networks are as follows:

- Provide all information about internal knowledge assets
- help in the evaluation process
- encourage knowledge sharing and integration
- gather, integrate and share relevant external knowledge and information

- **Knowledge management systems:**

Knowledge management systems refer to any kind of IT system that stores and retrieves, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge, or in some other way enhances the KM process. To design and create a knowledge management system, there are two types of knowledge which are required:

1. Technical programming and design know-how
2. Organizational understanding of knowledge flow

But the problem is that one person has no information about both types of knowledge. Hence, there is a failure of knowledge management systems. The failure factors include:

- Thinking that technology is itself knowledge management.
- Failure to understand the needs of the organization
- Inappropriate quality measures.
- Inadequate managerial and technical support during implementation as well as use of the technology.
- Inability to understand the specific function and limitation of each system.
- Lack of organizational acceptance.

- Lack of understanding the knowledge dynamics and difficulty in transferring the tacit knowledge.

PROMOTING ACCEPTANCE AND USEFULNESS

The following are the steps needed while introducing knowledge management system:

- **Knowledge management system organizational fit:**
  - Start with internal analysis of the firm.
  - Evaluate information/knowledge needs so that the system needed to supplement them can be created.
  - Make a cost-benefit analysis such as analyse the size of the firm, number of users, frequency of use, type of use, security issues, training costs, etc.
  - Analyze the existing practices and determine if the system will enhance or hinder the process.
- **Knowledge management system acceptance:** Acceptance depends on the following factors:
  - Include the users in the design and implementation process.
  - Involve the user in evaluation of the system
  - Make the system use-friendly
  - Support different forms of stored knowledge
  - Provide adequate managerial and technical support
  - Product champions are used to promote the new systems throughout the organization
- **Knowledge management system continued use:**

The continues use of knowledge management system depends on perceived attractiveness of the system and the content management issues. These factors donot apply to all systems. Some of them are readily accepted these days such as email.

KNOWLEDGE MANAGEMENT ROLES AND RESPONSIBILITIES

To implement knowledge management effectively and efficiently, some new roles and responsibilities are required:

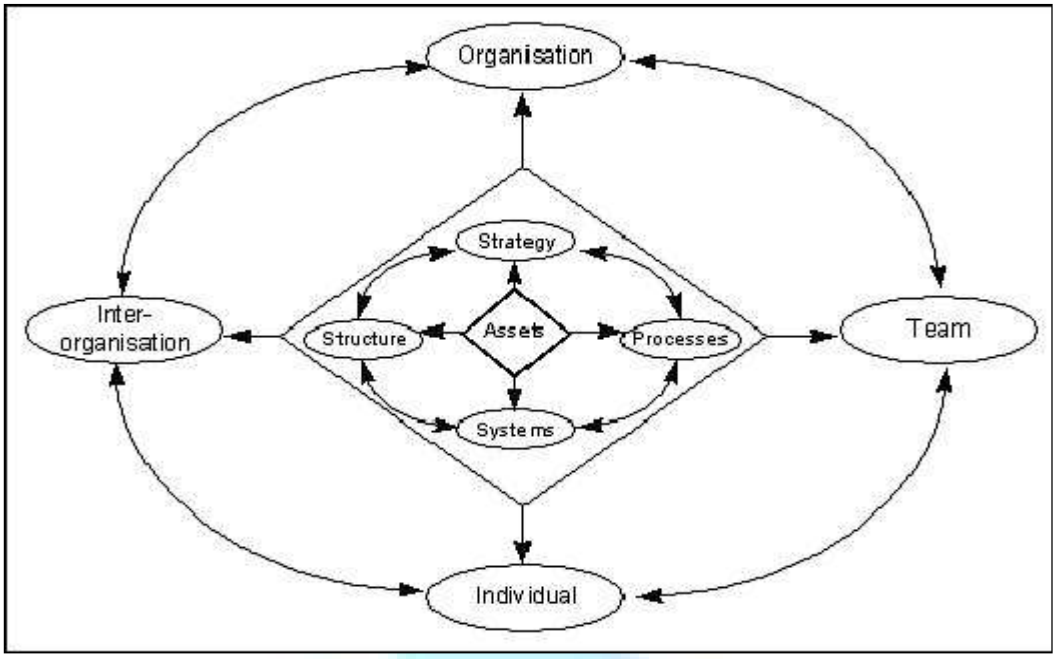
- **Chief knowledge officer**:
  The chief knowledge officer manages the organizational knowledge effectively to reach the organizational goals and objectives.
- **Knowledge base owner**:
  The knowledge base owner is responsible for conducting the best knowledge processes and reviews new knowledge.
- **Knowledge manager:**
  The knowledge manager is aware of the benefits of knowledge management and knowledge assets. The knowledge manager is responsible for harvesting knowledge and ideas and transferring them to the knowledge base owner. The role is to identify and assess the knowledge and intellectual capital of the organization and putting it to maximum use for the benefit of the organization.
- **Knowledge worker:**
  Knowledge worker assesses and effectively manages knowledge at individual and team level.
- **Knowledge management consultant:**
  The knowledge management consultant assesses the risk of knowledge sharing, carries audits to revise and check the current knowledge management processes and intellectual capital. The knowledge management consultant innovates and experiments and shows creativity in organizational knowledge management.

UNDERSTANDING THE DIMENSIONS OF KNOWLEDGE MANAGEMENT

A successful knowledge management has 4 critical dimensions: personal knowledge management, team knowledge management, organizational knowledge management and inter-organizational knowledge management.

- **Personal knowledge management:** Knowledge management at personal level includes an individual's personal knowledge, capabilities and experiences. This dimension of knowledge management involves strategies used at personal level for capture, creation, innovation, application, analysis, synthesis, communication and sharing of knowledge.
  Personal knowledge management has been increased by mobiles, cameras, camcorders, ipads, personal computers, search engines, etc. The concept of personal knowledge management will reduce pressure and stress, increase personal productivity and creativity and will improve the work environment.
- **Team knowledge management:** A team of individuals having good collaboration and cooperation among themselves will transfer knowledge faster and more efficiently. The team leader can produce new knowledge along with the transfer of existing knowledge. The entire team has to work in coordination to achieve the targets and pre-set goals.
- **Organizational knowledge management:** It starts by identifying the critical knowledge assets of the organization that are needed to achieve its objectives and then sets out to develop those assets as fast as possible. To do this, the organization sets up an infrastructure throughout the organization to enable the identification, capturing, storing, sharing and applying of knowledge, retention and the re-use of knowledge assets. More continuous and collective processes, to capture new learning's and ideas before, during, and after work events, and then turn them into good practice and knowledge repositories are implemented. Organization-wide expert locators, and communities of practice, to accelerate knowledge flows, are developed. The tools used for organizational knowledge management include intranets, network and community tools, powerful searches, blogs, tweets, etc.
- **Inter-organizational knowledge management:** This refers to inter-enterprise relationship and partnerships, knowledge networks with customers, suppliers, partners, competitors, sub-contractors, etc. Inter-Organizational knowledge management is based on the identification of most valuable knowledge resources which can be outside the organization. Commercial organizations and educational establishments are increasingly co-partnering with customers, suppliers and even competitors, to collaborate, share and develop new knowledge and innovative products and services, together as one.

KNOWLEDGE MANAGEMENT FRAMEWORK



For the implementation of knowledge management principles, knowledge management framework is essential.

PRINCIPLES OF KNOWLEDGE MANAGEMENT

A principle is a fundamental truth which has four characteristics:

- They are timeless.
- They donot undergo any change. Knowledge changes but not principles.
- They are universal and are applied everywhere.
- They are scaleable i.e., the same principles are applicable at all levels (individual, team, organization, intra-organization).

The following are the principles of knowledge management which are linked to various aspects of the KM framework:

Principles linked to KM strategy:

- Shared vision and values will help people to focus and work efficiently and the knowledge management strategy as such should be designed.
- As a learning organization, it is important to analyse what has been learnt rather than what tasks were performed.
- Knowledge management is situational.
- The organization should be both a learning and knowledge driven organization.
- Competitive collaboration and cooperation should be practised in an organization

Principles linked to KM process:

- The wheel of knowledge management process should not be re-invented.
- The same mistakes should not be repeated.
- For effective and efficient knowledge management, work processes and strategies must be improved to reach the organizational goals.
- Every time a work is repeated, care should be taken to do it better than the last time.

Principles linked to KM structure:

- Knowledge naturally resides and grows in an organization which is knowledge driven.
- Knowledge is created best and applied in federal organizations.
- Knowledge society is an "organization of organizations".

Principles linked to systems and tools:

The knowledge systems and tools should support knowledge driven organizations and strategies.

Principles linked to inter-organizational-KM:

Partners, customers and stakeholders donot know anything unless it is needed.

Principles linked to organizational-KM:

- If the organization knows what knowledge it is having, it can become three times better than what it is today.
- Effective organizational KM is a result of effective personal and team knowledge management.
- Demonstration of KM principles, managing the risks, gaining success and implementing KM in the organization is the main principle.

Principles linked to team KM:

Team Knowledge Management is concerned with creating, sharing and applying knowledge as a team, by working more effectively together as one.

Principles linked to personal KM:

- Organizations benefit only from people who learn and enhance knowledge.
- What gets rewarded gets done.
- Naturally trust, communicate, learn and share knowledge.
- People should be taught to learn new things.

PRINCIPLES OF KNOWLEDGE MANAGEMENT IN GENERAL

The principles of knowledge management linked to various aspects of KM framework have been discussed above. But it is also essential to understand the principles of KM in general. There are 10 general principles of knowledge management which are necessary to implement knowledge management in an organization:

1. **Knowledge management is expensive:**
   Knowledge is an organizational asset but its management requires the investment of other assets such as money and labour. Employees of an organization need to be trained to capture, organize and categorize knowledge for which many tools are required.

2. **Effective knowledge management requires people and technology:**
   A knowledge driven organization should use both humans and machines to effectively manage knowledge. The machines such as computers, laptops help in processing information readily and converting into knowledge. But the final interpretation is done by people working in the organization and decisions are made accordingly.
3. **Knowledge management is highly political:**
   Since knowledge is associated with power, money and success, there will also be some amount of political influence. Managers will acknowledge the value of politics and cultivate its use.
4. **Knowledge management requires knowledge managers:**
   Knowledge management deals with key aspects of the organization such as labour, money and capital. Hence, managers who can effectively manage the capital and resources of the organization are needed. The role of a knowledge manger is collecting and categorizing knowledge, establishing a knowledge-oriented technology infrastructure and monitoring the use of knowledge.
5. **Knowledge management benefits more from maps than models, more from markets than hierarchies:**
   Letting the market work means that knowledge managers try to make knowledge as attractive and accessible as possible, and then observe the results.
6. **Sharing and using knowledge are often unnatural acts:**
   Knowledge is not shared or used naturally. The knowledge sharing is uncommon and the knowledge coming from others is also looked upon suspiciously.
7. **Knowledge management means improving the knowledge work processes:**
   It is important to address and improve the generic knowledge management process, but knowledge is generated, used and shared intensively through a few specific work processes. While the details vary by company and industry, these include market research and product design and development, and even more transactional processes like order configuration and pricing. If real improvements are to be made in knowledge management, gains must occur in these key business processes.
8. **Access to knowledge is only the beginning:**
   Access and attention are required for successful knowledge management.
9. **Knowledge management never ends:**
   Knowledge management is a never-ending process. This is because knowledge is constantly changing and different categories of knowledge are developing. Companies also change their strategies and organizational structure from time to time depending on the organization's needs and requirements in order to stand the competition in the market.
10. **Knowledge management requires a knowledge contract:**
    Knowledge is really becoming a more valued resource in organizations. Hence, attention to the legalities of knowledge management has increased.

BASIC APPLICATIONS OF KNOWLEDGE MANAGEMENT

The basic applications of knowledge management are:

- Intermediation – connecting knowledge owner to knowledge seeker
- Externalization – capturing and categorizing knowledge
- Internalization – retrieving knowledge in a personal manner
- Cognition – applying knowledge to the business process

CONCLUSION

The understanding of knowledge and knowledge management is possible by analysing the methodology, process and strategy of knowledge management. A clear knowledge about the roles and responsibilities, dimensions and principles of knowledge management helps in further assessment of various aspects of knowledge management. From the above study, it is clear that for an organization to run effectively and efficiently, managing knowledge is essential. For a firm to stand in the competitive market, the company has to identify, categorize and manage its knowledge assets. The company has to keep changing the strategies it uses based on the situational needs of the organization to achieve its goals.

FURTHER RESEARCH SCOPE

These principles, dimensions and strategies of knowledge management can be extended to understand the knowledge management applications in the various industries.

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A STUDY ON EFFECTIVENESS OF ORGANIZATIONAL HEALTH IN SMALL SCALE INDUSTRIES

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ABSTRACT

Efficient management of human resources is a crucial factor in determining the growth and prosperity of business enterprises. This is particularly true in the case of small industry where the owners are forced to have a close and more personal association with their employees. In order to build up loyal, efficient and committed work force, small scale organizations should pay adequate attention to hiring, training and employee development activities and undertake systematic human resource practices on a long term basis. Healthy organizations have conditions which satisfy individual as well as organizational goals. Organizational health can be understood through certain indicators such as absenteeism, labour turnover and grievances. This paper explains three major areas from my research study. The first one is absenteeism of employees in small scale industries, the second one is labour turnover of human resource and third one is in grievances of employees in small scale industries. This paper describes that how the Organization Health is influenced on the efficiency and commitment of the employees in small scale industries. The main source of information, however, is primary data collected through the questionnaires meant for employees and employers. In view of the large number of small scale units in Visakhapatnam, it has been decided to go for a sampling method.*

KEYWORDS
Absenteeism, Labour turnover, Grievances.

INTRODUCTION

Human beings are very complex in their psychological makeup and hence, managers cannot influence employees' inner states directly. They can, however, create work environments that encourage quality performance. Physical working conditions and reward systems should therefore be designed carefully and used effectively to encourage individuals to reach organizational goals. In the present chapter, an attempt has been made to examine. Healthy organizations have conditions which satisfy individual as well as organizational goals. Healthy organizations have conditions which satisfy individual as well as organizational goals. Organizational health can be understood through certain indicators such as absenteeism, labour turnover, grievances etc. When ignored, these may lead to crisis situations and may force the organization to draw the shelters. The focus of the present chapter is on the selected indicators of organizational health.

REVIEW OF LITERATURE

The literature relating to small scale industries is plenty. Most of the studies relate to structure and organization, entrepreneurship, financial aspects and marketing aspects of small scale industries. The studies covering HR aspects of small scale industries are relatively less. A review of some of the studies has been attempted below:

Raghurama A(2004 has stated that in Kerala especially after globalization there has been a decelerating trend in the number of small scale units registered, investment made and employment generated, despite the fact that the state is gifted with abundant natural resources and favorable industrial climate. Small scale industries must be promoted on a larger scale considering the fall in investment and increase in unemployment in the state. This requires initiative on the part of the entrepreneurs, change in the attitude of entrepreneurs and motivation and incentive from the government. For the actual development of small scale industries commitment, dedication and hard work are required on the part of the entrepreneurs. The small scale industries must be competitive in the context of globalization for their survival and growth. Otherwise they will perish resulting in colossal waste of resources and unemployment.

Inder Jeet Dagar (2005) studied on Electronics Industry located in NCR Delhi, to analysis labour turnover and steps to bring the turnover to the minimum extent , which is a vital part of manpower management, though certain degree of employee turnover is healthy and inevitable, excessive turnover is a set back both to the employees and the organization. The present study is based on the collection of data from 50 Small Scale Electronic Industries. It is concluded that, either excessive

turnover is among recent starters or among trained and experienced employees, reduce turnover among recent new starters by paying particular attention to recruitment, induction and training.

Murali Krishna S(2006) had studied about different socio-economic factors such as age, education, parental occupation, caste system, inter-alia, influence the entrepreneurial behavior. Majority of the entrepreneurs started their ventures at a relatively early age and were still continuing as entrepreneurs. The level of technical education as well as previous job experience in the same line of activity prompted many respondents to start up an industry. Most of the entrepreneurs, finding it difficult to secure their livelihood in their native place, migrated to places where they can find better business opportunities.

David Amirtha Rajan S. & Gnana Soundari P(2007) have found that well qualified married male dominates the small business in Madurai. They are mostly above 30 years, and also well experienced in their fields. The spouses are also qualified and good earners. It is a self-motivated business. Their properties are not inherited from their forefathers. They feel that they gained a new culture from their business with the qualities of "self confident and optimistic", "take initiative", "responsive to criticisms and suggestions", "Create need to achieve" and "good memory". Therefore, these qualities helped them survive in their fields successfully for a long period.

D.Nagayya and B.Sobha Rani **(**2007**)** have studied about Credit flow for small enterprises had a chequered career, particularly during the fiscal years 2000-2004. From 2005 onwards, the picture is distinctly better. It is important to bring about change in the mindsety of banks and financial institutions to strengthen the hands of SMEs through a liberal approach for SME credit by looking at the sector as one with very high potential, deeserving encouragement.

Saif Siddiqui & Saud Illahi (2008) had showed the role of non-monetary support in the growth of the organization. Firms which were using non-monetary support were better in every respect than those not using the support. The increase in investment was 182 per cent among the former group while those not using support registered only 113 per cent increase. The average profit ratio of the firms using support and not using support was 62 per cent which means that the firms using support had 62 per cent more profits. The average sales ratio of both types of firms was 51 per cent, implying that the firms using support had 51 per cent more sales. The average export ratio of the firms was 51.4 per cent, implying 51.4 per cent increment in exports. The difference between net profit ratios of both categories of firms was 69.4 per cent, which means higher earnings by the firms using support. Export to sales ratios of both the categories of firms showed a difference of 6.9 per cent, also indicating better performance by the firms using support. The firms using support were producing 7.7 varieties of goods, while their counter-parts were producing only 6.26 varieties. The average unutilized capacity (less than 25%)of the firms using support was 92 percent, while the forms not using support it was 42.5 percent, showing means that the firms using support were utilizing the capacity in a better manner than those not using it. It can also be seen that the respondents were predominantly male and education played a very important role in entrepreneurs of Hindu religion and persons belonging to trading caste. Proprietary firm was the predominant organizational form. Entrepreneurial development programmes were found to be useful by

majority of the entrepreneurs. The final result makes clear the impact and importance of non-monetary support for the organizational growth. It is also concluded that non-monetary support enhances the performance and operating efficiency of the firm.

V.N. Prasad (2008) had stated that it has been recognized world over that MSMEs provide the most jobs and many of them are in service activities. It has already been noted elsewhere above how important the segment is in generation of employment in the country. Ignoring the welfare of MSMSEs can prove counter-productive to the success of various poverty alleviation and employment generation programmes. Unable to face challenges several of them may pull down their shutters; and the public funds spent on them would eventually go waste. Such enterprises, therefore, need support of stakeholders to become viable business entities, able to survive in the end. The long-term survival of these enterprises largely hinges on the availability of targeted support in specific areas such as indicated above.

NEED OR IMPORTANCE OF THE STUDY

The study has been conducted in Visakhapatnam – an emerging industrial city in the state of Andhra Pradesh. Visakhapatnam is the second biggest urban complex in the State, next to the capital city of Hyderabad. Visakhapatnam city, popularly called "The City of Destiny' has been witnessing phenomenal growth in terms of industrial development and infrastructure facilities. Visakhapatnam, the rising steel city, throbbing with maritime activity, is fast developing into one of the premier industrial centers in the world. Besides, the first ever port based Steel Plant, it also houses some of the major private and public sector units viz., Hindustan Shipyard, Bharat Heavy Plate and Vessels Limited, Hindustan Zinc Limited, Hindustan Polymers, Coromandel Fertilizers and Hindustan Petroleum Corporation Limited. The city's location as strategic port endowed it with all the requisites for the establishment of Naval Project and Eastern Naval Command.

Progress in respect of small industry has been no less impressive, the first Industrial Estate was established in the city way back in 1957, developing an area of about 50 acres with an investment of Rs. 29.71 lakhs near Anantagiri Road and all the 33 units constructed at the time were allotted to industrialists who had come forward to set up units. To meet the increased need of the infrastructure to develop new industries in Visakhapatnam, an area of 15.95 acres has been acquired in the year 1958 to create Marripalem Estate that was developed into 54 plots, and allotted to various industrialists. The Andhra Pradesh Industrial Infrastructural Corporation (APIIC) has developed 182 plots in an area of 39.90 acres around the same time for various industries in Autonagar in order to accommodate industrialists and entrepreneurs from various parts of the state. In response to increased Government support and assistance, the small scale industry has grown by leaps and bounds in several parts of the country, and Visakhapatnam is no exception to this general trend. A number of small scale units have come up in Visakhapatnam As on 31st March 2008 there are 14,290 SSI units in Visakhapatnam with an investment of Rs. 12,488 lakhs providing employment to more than one lakh people. Visakhapatnam not only occupies a unique place in the industrial map of Andhra Pradesh but also offers brighter prospects for further industrial development.

Keeping the strategic role of small scale units in our country and the contribution this sector is making to the growth of the economy, it is considered important to make them more competitive and effective through well designed and appropriate HR policies and practices. But unfortunately HR element in small scale industries has not received the attention it deserved by the researchers. The review of literature suggests that there is preponderance of studies focusing on marketing, finance and entrepreneurship aspects of small scale industries. Comprehensive studies covering the important HR practices in small scale industries are few and far between. A modest attempt, therefore, is made in the present study to fill this research gap to some extent. The scope of the study is confined to small scale industries located in the industrial city of Visakhapatnam. While there are plenty of HR studies made in relation to various large scale organizations, no comprehensive study has yet been carried out covering the human element in small scale units that have grown enormously in this growing city in recent years.

OBJECTIVES OF THE STUDY

The present study has been carried out with the following specific objectives:

i) To diagnose the organizational health of the units with the help of select indicators like absenteeism, labour turnover, grievance redressal and

ii) To offer suggestions for creating a good HR culture in small scale units by practicing sound and effective HR practices

METHODOLOGY AND SAMPLING

In view of the large number of small scale units in Visakhapatnam, it has been decided to go for a sampling method.

SELECTION OF SAMPLE EMPLOYERS

For the purpose of administering the questionnaire among the Employers, we have taken as many employers as there are sample units. Since 54 units are taken as sample units from the five dominant industrial groups, 54 employers are taken to represent their respective units and the questionnaire has been administered among them. All the employers responded to the questionnaires.

Selection of Sample Employees There are 624 employees totally working in the 54 sample units covered in the study.

The number of employees working in each category of the industrial groups is shown in the Table1.1.

TABLE 1.1: SAMPLE SIZE OF RESPONDENT EMPLOYEES

Industry Groups	Sample Units	No. of Employees	5 0% Sample Size of Employees	Actual No. of Employees Responded
Agro based	7	78	39	32*
Food	7	114	57	57
Chemical & Engineering	20	230	115	115
Electrical	14	142	71	51*
Electronics	6	60	30	30
Total	**54**	**624**	**312**	**285***

*A few employees not responded to the questionnaire

Source: Records of DIC, Visakhapatnam.

TABLE 1.2: SAMPLE SIZE OF SMALL SCALE UNITS

Industry Groups	Small Units in the Universe	Sample Units of 10 percent
Agro based	65	7
Food	70	7
Chemical & Engineering	200	20
Electrical	140	14
Electronics	60	6
Total	**540**	**54**

Source: Records of DIC, Visakhapatnam.

Since only a few employees work in each unit, a sample size of 50 percent was considered reasonable and accordingly sample size of respondents has been arrived at and shown in the table. However, the actual number of respondents was slightly short of the required sample size because of the failure of seven employees in Agro-based industry and 20 employees in Electrical industry to respond to the questionnaires due to their personal reasons and due to their non availability in spite of repeated visits of the researcher. As a result the final sample size of employees remained at 285 in all the categories of units covered viz., Agro-based, Food, Chemical & Engineering, Electrical and Electronics. In selecting the respondents from each unit, stratified sampling method has been followed.

First the workers were classified on the basis of their skill into skilled, semi-skilled and unskilled categories. Following stratified sampling method, the respondent employees were selected from all the categories to ensure representation of all employees.

TOOLS OF ANALYSIS

For analyzing and interpreting the data so collected from different sources, simple statistical techniques like averages and percentages are used.

ORGANISATIONAL HEALTH

Healthy organizations have conditions which satisfy individual as well as organizational goals. Organizational health can be understood through certain indicators such as absenteeism, labour turnover, grievances etc. When ignored, these may lead to crisis situations and may force the organization to draw the shelters. The focus of the present chapter is on the selected indicators of organizational health.

1. ABSENTEEISM

Absenteeism is one of the important human problems in industry which results in loss of production, increased labour cost and reduced operational efficiency. Very few enterprises in India have been able to handle this problem in a systematic and effective manner due to lack of awareness and proper appreciation of its ill-effects. A far inadequate attention is paid to this problem in the small scale sector. Apart from passing observations on absenteeism in small industry, no systematic effort has been made to bring out the nature, extent and effects of absenteeism in small scale sector. In view of this, the problem of absenteeism has been examined at length in relation to selected units in the following pages.

REASONS FOR ABSENTEEISM – EMPLOYERS' VIEW

In view of the high magnitude of absenteeism in small scale industries under study, it is important to examine the reasons thereof in order to be able to consider measures for grappling with the problem. In this regard, an attempt is made to elicit the reasons for absenteeism both from employers as well as employees. In Table 1.3 the reasons offered by employers are shown.

TABLE 1.3: REASONS FOR ABSENTEEISM – EMPLOYERS' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Agricultural operations/Visits to native place	2 (33.33)	2 (33.33)	9 (52.94)	5 (50.00)	2 (50.00)	20 (46.51)
Sickness	—	1 (16.67)	2 (11.77)	1 (10.00)	1 (25.00)	5 (11.63)
Social Festivals/ Functions	1 (16.67)	2 (33.33)	3 (17.64)	2 (20.00)	1 (25.00)	9 (20.93)
Advance pay/next day of payday/ Gambling, Alcohol	2 (33.33)	1 (16.67)	2 (11.77)	1 (10.00)	—	6 (13.95)
Availability of lucrative jobs outside	1 (16.67)	—	1 (5.88)	1 (10.00)	—	3 (6.98)
Total	**6 (100)**	**6 (100)**	**17 (100)**	**10 (100)**	**4 (100)**	**43 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

We can understand from the Table that 'Agricultural operations / Visits to native places' was the most important reason cited by 46.51 per cent of employers in all small scale industries. However, 'Social festivals and functions' was another important reason cited by 20.93 per cent of employers while, 'Advance pay' was the next important reason for absenteeism cited by 13.95 per cent of employers. ''Sickness 'was another reason for absenteeism of employers cited by 11.63 per cent of employers. 'Availability of lucrative jobs outside' was offered by 6.98 per cent of employers.

Against this is the overall position, industry wise differences could be noticed. It may be seen that majority of (52.94 per cent) the employers in Chemical & Engineering industry, half of employers in Electrical industry as well as Electronics industry felt that "Agricultural operations" at their native villages was the main reason for absenteeism of employees. "Sickness" was another important reason for absenteeism as cited by one-fourth of the employers in Electronics industry. This is followed by Food industry (16.67 per cent), Chemical & Engineering industry (11.77 per cent) and Electronics industry (10.00). It is also observed that "Social Festivals and Functions" was relatively a more important reason for the absenteeism as stated by 21.21 per cent of employers in Electronics industry followed by Food industry (20.34 per cent) and Electrical industry (19.61 per cent). One–third of the employers in Agro-based industry stated that Advance pay/ next day of pay day/ gambling, Alcohol is another important reason for absenteeism of employees in small scale industries.

From the above analysis, we can sum up that the major factors contributing for employee absenteeism are the frequent visits to the native places for attending agricultural operations, social functions and festivals, advance pay/ gambling & alcohol, sickness and availability of lucrative jobs outside. Across the industry groups also, the dominant reasons are the employee visits to their native places for attending agricultural operations, the social festivals / functions and sickness they are often falling a prey to.

REASONS FOR ABSENTEEISM – EMPLOYEES' VIEW

Having examined the employers view on absenteeism, now let us find out the reasons from the employee respondents also. These are shown in Table 1.4.

TABLE 1.4: REASONS FOR ABSENTEEISM – EMPLOYEES' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Sickness	13 (39.39)	19 (32.20)	21 (19.27)	13 (25.49)	10 (30.30)	76 (26.67)
Social Festivals/ Functions.	2 (6.06)	12 (20.34)	16 (14.68)	10 (19.61)	7 (21.21)	47 (16.49)
Debts/Financial problems	2 (6.06)	4 (6.78)	7 (6.42)	3 (5.88)	2 (6.06)	18 (6.32)
Agricultural operations/Visits to native place	8 (24.24)	13 (22.03)	43 (39.45)	15 (29.41)	7 (21.21)	86 (30.18)
Transport problem	4 (12.12)	6 (10.16)	12 (11.01)	5 (9.80)	4 (12.12)	31 (10.87)
Family responsibilities/Worries	4 (12.13)	5 (8.47)	10 (9.17)	5 (9.80)	3 (9.10)	27 (9.47)
Total	**33 (100)**	**59 (100)**	**109 (100)**	**51 (100)**	**33 (100)**	**285 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

The Table 1.4 reveals the various reasons given by employees for absenteeism. We can understand that "Agricultural operations / Visits to native place" was most important reason cited by 30.18 per cent of the employees out of the total sample. "Sickness" was another important reason cited by 26.67 per cent of the employees. "Social Festivals and Functions" was cited as the next important reason by 16.49 per cent of employees. "Lack of Transport facilities" was cited

as another reason by 10.87 per cent of the employees. "Family responsibilities/Worries" was cited by 9.47 per cent of the employees and "Financial problems" was shown as a reason by 6.32 per cent of the employees.

Among the different industry groups, it may be seen that 39.45 per cent of the employees in Chemical & Engineering and 29.41 per cent in Electrical industries expressed that "Agricultural operations" was the main reason for absenteeism of employees. "Sickness" was the most important reason cited by 39.39 per cent of the employees in Agro-based industry followed by Food industry (32.20 per cent) and Electronics industry (30.30 per cent). It is also observed that "Social Festivals and Functions" was relatively a more important reason for the absenteeism of employees in Electronics industry (21.21 per cent) followed by Food industry (20.34 per cent) and Electrical industry (19.61 per cent).

It may finally be concluded that the major factors contributing for employee absenteeism are the frequent visits to the native places for attending agricultural operations, sickness, social functions and festivals, transport problems and family responsibilities. However, between the two groups of respondents viz., the employers and employees, we can observe a few differences of opinion. For example, according to employer's perception, 'Social festivals & functions' is the second dominating factor whereas according to employees' perception, the second dominating factor is 'Sickness'. Further, employers pointed out that absenteeism is there on the days following the pay day, and also due to alcoholism and gambling on the part of employees which was not mentioned by any of the employees. Similarly, some of the reasons offered by employees like transport problems, family responsibilities/worries and financial difficulties for absenteeism were not mentioned by any of the employers. Irrespective of these differences, the fact remains that the small scale industries are very much in the grip of the problem of absenteeism. Hence it is necessary on the part of employers to study the reasons carefully as perceived by them as well as the employees and accordingly take appropriate steps to contain this problem of absenteeism.

LABOUR TURNOVER

Labour turnover is the rate of change in the working staff of a concern during a definite period. It is a measure of the extent to which old employees leave and new employees enter the service of a concern in a given period. In a constantly changing work force, there can be little co-operation among the workers themselves or between the workers and the supervisory and managerial personnel. Further, when the employees in an undertaking are always in search of opportunies available out side, they are not likely to have any interest in their work. The constant change in personnel entails a certain amount of cost to the employer. The time, energy, and resources invested on a new employee in engaging and training him on a job and making him. Adjusted to a new work situation will all have been wasted if he is not going to stick on to the job for a reasonable length of time. In every way, labour turnover is a double edged malady. While the employer suffers the heavy monetary loss owing to an excessive rate of resignations, the employees incur the loss in the form of sacrificing the benefits of continued employment.

CAUSES OF LABOUR TURNOVER – EMPLOYERS' VIEW

Having examined the extent of labour turnover, now an attempt is made to look into the causes of labour turnover as opined by the employers. Table 1.5 shows the opinions of the employers.

TABLE 1.5: CAUSES OF LABOUR TURNOVER – EMPLOYERS' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Low pay	----	1 (14.29)	1 (5.00)	--	1 (16.67)	3 (5.56)
Inadequate Benefits / facilities	1 (14.29)	---	1 (5.00)	1 (7.14)	---	3 (5.56)
Low promotional opportunities	1 (14.29)	1 (14.29)	2 (10.00)	1 (7.14)	1 (16.67)	6 (11.11)
Personal reasons	3 (42.86)	2 (28.56)	12 (60.00)	3 (21.43)	3 (50.00)	23 (42.59)
Dislike of Job	2 (28.56)	3 (42.86)	4 (20.00)	9 (64.29)	1 (16.67)	19 (35.18)
Total	**7 (100.00)**	**7 (100.00)**	**20 (100.00)**	**14 (100.00)**	**6 (100.00)**	**54 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

It can be observed from the above Table 1.5 that a large segment of the employers (42.59 per cent) expressed that 'personal reasons' of employees is one of the most important causes for labour turnover. 'Dislike of job' is another important cause for labour turnover as felt by more than one-third of the respondents (35.18 percent). At the next level of importance 'Low promotional opportunities' is cited by about one-tenth (11.11 per cent) of the employers under study. A few employers also pointed out that labour turnover is taking place on account of 'Low pay' (5.56 per cent) and 'Inadequate benefits/facilities (5.56 percent) in their units. While this is the overall position, notable differences can be seen across the industry groups. It may be observed from the Table that in Chemical & Engineering industry group 60.00 per cent of employers trotted out 'Personal reasons' as the important cause of labour turnover whereas in Electrical industry group, as many as 64.29 percent of the employers mentioned 'Dislike of the job' as the important cause of turnover. Similarly, in Electronics industry (50.00 per cent) and Agro-based industry (42.86 per cent) 'Personal reasons' is the cause of turnover in the opinion of employers whereas 'dislike of job' is the cause of labour turnover as opined by sizeable number of employers in Food industry (42.86 per cent) and Agro-based industry (28.56 per cent).

On the whole, we can conclude that in the opinion of employers it is not the dissatisfaction of employees with pay or benefits or promotional avenues that is responsible for the turnover. Their main contention is that it is largely because of the employees' dislike of the job and due to their personal reasons, the employees are leaving the organisations.

CAUSES OF LABOUR TURNOVER – EMPLOYEES' VIEW

Now let us turn our attention to examine the views of employees regarding the causes of labour turnover which are shown in Table 1.6.

We can observe from the above Table that majority of the employees (51.23 per cent) out of the total expressed that 'low pay' is the most significant cause of labour turnover. This is followed by 'Inadequate benefits/facilities' as opined by 18.95 per cent of the employees. The other causes are 'personal reasons' (10.18 percent) 'low promotional opportunities' (8.42 percent) 'rude behaviour/harassment of employer' (6.67 percent) and 'dislike of the job' (4.56 percent).

TABLE 1.6: CAUSES OF LABOUR TURNOVER – EMPLOYEES' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Low pay	20 (60.61)	30 (50.85)	79 (72.48)	10 (19.61)	7 (21.21)	146 (51.23)
Inadequate benefits/ facilities	3 (9.09)	9 (15.25)	18 (16.51)	21 (41.18)	3 (9.09)	54 (18.95)
Low promotional opportunities	4 (12.12)	6 (10.17)	3 (2.75)	5 (9.80)	6 (18.18)	24 (8.42)
Employer's Rude Behaviour / harassment	1 (3.03)	4 (6.78)	3 (2.75)	7 (13.73)	4 (12.12)	19 (6.67)
Personal reasons	3 (9.09)	7 (11.86)	4 (3.67)	5 (9.80)	10 (30.31)	29 (10.18))
Dislike of Job	2 (6.06)	3 (5.09)	2 (1.84)	3 (5.88)	3 (9.09)	13 (4.56)
Total	**33 (100.00)**	**59 (100.00)**	**109 (100.00)**	**51 (100.00)**	**33 (100.00)**	**285 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

While this is the overall position, industry-wise we can find that majority of employees in Chemical and Engineering (72.48 percent) Agro-based industry (60.61 percent) and Food industry (50.85 percent) felt that 'inadequate pay' is the reason for turnover whereas in Electrical industry a large chunk of employees (41.18 percent) held the view that 'inadequate benefits/facilities' is the reason. What is more interesting here is a few employees, constituting a small percentage (6.67) though, are of the opinion that 'rude behaviour of employers or their harassment' is a reason for turnover of employees.

After analyzing the reasons offered by employers as well as employees, we can notice marked differences in their perceptions about the causes of labour turnover. While employees attribute labour turnover largely to reasons like low pay and inadequate facilities and benefits, employers argue that it is largely due to personal reasons of employees and their dislike of the job. It is to their own benefit, the employers should understand the reasons given by employees for turnover.

EFFECTS OF LABOUR TURNOVER – EMPLOYERS' VIEW

Having examined the extent and causes of labour turnover, now an attempt is made to analyse the effects of labour turnover as opined by the employers in the first instance. Table 1.7 shows the opinions of the employers.

TABLE 1.7: EFFECTS OF LABOUR TURNOVER – EMPLOYERS' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Low production	2 (28.57)	2 (28.57)	8 (40.00)	5 (35.71)	1 (16.67)	18 (33.33)
Increased cost of recruitment	1 (14.29)	2 (28.57)	7 (35.00)	4 (28.57)	2 (33.32)	16 (29.63)
Increased costs of training	1 (14.28)	1 (14.28)	1 (5.00)	1 (7.14)	1 (16.67)	5 (9.26)
Low morale/ productivity.	2 (28.57)	1 (14.29)	2 (10.00)	2 (14.29)	1 (16.67)	8 (14.82)
Adverse impact on production plans/schedule	1 (14.29)	1 (14.29)	2 (10.00)	2 (14.29)	1 (16.67)	7 (12.96)
Total	**7 (100)**	**7 (100)**	**20 (100)**	**14 (100)**	**6 (100)**	**54 (100.00)**

Note: Figures in parentheses indicate percentages.

We can observe that one-third of employers in all the units expressed that labour turnover would lead to 'low production'. Almost the same number of respondents felt that it will lead to 'increased cost of recruitment'. 'Low morale / productivity' is cited as another important effect of labour turnover by 14.82 per cent of the employers. The other consequences of labour turnover are 'adverse impact on production plans/schedules' (9.26 per cent) and 'increased costs of training' (9.26 per cent) as expressed by a few employers. If we look at this industry-wise, we may observe that low production was the problem expressed by a sizeable section of respondents in Chemical & Engineering industry and Electrical industry. It may also be seen that increased cost of recruitment is the result of labour turnover as felt by a large section of employers not only in Chemical & Engineering industry (35.00 per cent) but also in Electronics industry.

It can be concluded from the above analysis that there are serious consequences of labour turnover in terms of low production, increased cost of recruitment and training, reduced morale/ productivity, impacting production plans and schedules adversely. Among these effects, the first two consequences viz., low production and increased costs of recruitment are reported by a large number of employers.

EFFECTS OF LABOUR TURNOVER – EMPLOYEES' VIEW

Now let us turn our attention to the views of employees regarding the effects of labour turnover which are shown in Table 1.8.

It may be observed from the above Table that majority of the employees (61.40 per cent) expressed that 'low production' is the most important effect of labour turnover. About one-fifth of the employees felt that labour turnover will lead to 'increased costs of training.' 'Low morale/ productivity' is cited as another important effect of labour turnover by 8.07 per cent of the employees while 7.02 per cent of the employees mentioned the problem of 'increased cost of recruitment'. Those that complained of 'adverse impact on production plans/schedules' constituted a small per centage (3.16 per cent).

TABLE 1.8: EFFECTS OF LABOUR TURNOVER – EMPLOYEES' VIEW

Reasons	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Low production	20 (60.61)	38 (64.41)	76 (69.73)	19 (37.25)	22 (66.67)	175 (61.40)
Increased cost of recruitment	2 (6.06)	4 (6.78)	7 (6.42)	6 (11.77)	1 (3.03)	20 (7.02)
Increased costs of training	6 (18.18)	12 (20.33)	14 (12.84)	20 (39.22)	6 (18.18)	58 (20.35)
Low morale/productivity	4 (12.12)	3 (5.09)	9 (8.26)	4 (7.84)	3 (9.09)	23 (8.07)
Adverse impact on production plans/ schedules	1 (3.03)	2 (3.39)	3 (2.75)	2 (3.92)	1 (3.03)	9 (3.16)
Total	**33 (100.00)**	**59 (100.00)**	**109 (100.00)**	**51 (100.00)**	**33 (100.00)**	**285 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

It is interesting to note that the opinions of employers and employees over the effects of labour turnover appear to be more or less similar. Therefore, it is necessary that appropriate measures should be taken to deal with the problem of labour turnover, so that these small units can ward off the ill effects like low production, increased costs of recruitment and training, low level of employee morale and productivity and adverse impact on the plans and schedules.

GRIEVANCES

The term 'grievance' implies any dissatisfaction or feeling of injustice in connection with one's employment situation that is brought to the attention of management. Generally speaking, grievances are manifestations of employee dissatisfaction that affect organizational health and performance. As indicators of organizational health, grievances are very important for the small business owner as well because they can be aware of employee frustrations, problems and expectations through this medium. A detailed study of the grievances, therefore, has been attempted in the following pages.

i) Nature of Grievances

The nature of grievances of employees was enquired into. The responses of employees are shown in Table 1.9.

TABLE 1.9: EMPLOYEE GRIEVANCES

Grievances	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Low pay	10 (30.30)	15 (25.42)	24 (22.02)	12 (23.53)	8 (24.24)	69 (24.21)
Bonus	3 (9.09)	5 (8.48)	10 (9.17)	6 (11.76)	4 (12.12)	28 (9.83)
Leave	4 (12.12)	4 (6.78)	8 (7.34)	4 (7.84)	3 (9.09)	23 (8.07)
Absence of welfare facility	2 (6.06)	2 (3.39)	4 (3.67)	8 (15.69)	2 (6.06)	18 (6.31)
Overtime payments	3 (9.09)	1 (1.69)	6 (5.51)	2 (3.92)	3 (9.09)	15 (5.26)
Heavy work	8 (24.25)	20 (33.90)	27 (24.77)	10 (19.61)	9 (27.28)	84 (29.47)
Others *	3 (9.09)	12 (20.34)	30 (27.52)	9 (17.65)	4 (12.12)	58 (20.35)
Total	**33 (100.00)**	**59 (100.00)**	**109 (100.00)**	**51 (100.00)**	**33 (100.00)**	**285 (100.00)**

Multiple Responses

Note: Figures in parentheses indicate percentages to totals.

*Include: supervisors ill treatment, management indifference in disposing off cases, poor working conditions, No loans when needed or irregular increments, ' No medical attention'.

The above Table shows the grievances as expressed by employees in small scale units. We can observe that 29.47 per cent of employees in small scale units cited 'Heavy work' as an important grievance. 24.21 per cent of employees voiced concern over their 'low wages'. It may be noticed that 'Absence of bonus' was cited as another grievance by 9.83 per cent of employees. 'Absence of Leave' was the next grievance ventilated by 8.07 per cent of employees. While 'Absence of welfare facilities' was cited by 6.31 per cent of the employees, 5.26 per cent of employees in small scale units cited 'No O.T payments' as their grievance. Apart from these, a few 'other' grievances were also nurtured by some employees (20.35 per cent). They include grievances such as 'supervisors ill-treatment, management's indifference in disposing of the cases, poor working conditions, not giving loans when needed, irregular increments, no medical attention etc.

If we analyze industry-wise, we can observe that 33.90 per cent of employees in Food industry cited 'Heavy work' as a very important grievance followed by Electronics industry (27.28 per cent), Chemical & Engineering industry (24.77 per cent), Agro-based industry (24.25 per cent) and Electrical industry (19.61 per cent). It may also be noticed from the study that 30.30 per cent of employees in Agro-based industries voiced concern over their 'low pay'. This is followed by Food industry (25.42 per cent), Electronics industry (24.24 per cent), Electrical industry (23.53 per cent) and Chemical & Engineering industry (22.02 per cent). We can observe from the study that 'absence of bonus is cited as another grievance by 12.12 per cent of employees in Electronics industry followed by Electrical industry (11.76 per cent), Chemical & Engineering (9.17 per cent), Agro-based industry (9.09 per cent) and Food industry (8.48 per cent).

It may be concluded that a large per cent of the employees in Agro-based (30.30 per cent) and Electrical (23.53 per cent) industries voiced their concern over their low wages. A large section of the employees in Food (33.90 per cent) and Electronics industries (27.28 per cent) cited heavy work as an important grievance. A few employees in Agro-based (6.06 per cent), Chemical & Engineering (3.69 per cent) and Electronics (6.06 per cent) industries cited lack of welfare facilities as an their grievance. Therefore, we can understand that employees in the small scale units are aggrieved in respect of several matters that have to be paid attention by management.

ii) Employee Satisfaction with Grievance Redressal

In units where formal procedures were followed, employees were asked further about their satisfaction with grievance redressal which is shown in Table 1.10

TABLE 1.10: EMPLOYEE SATISFACTION WITH GRIEVANCE REDRESSAL

Employee Opinion	Agro based	Food	Chemical & Engg	Electrical	Electronics	Total
Satisfied	4 (12.12)	35 (59.32)	66 (60.55)	20 (39.22)	3 (9.09)	128 (44.91)
Neutral	8 (24.24)	7 (11.87)	9 (8.26)	8 (15.68)	10 (30.30)	42 (14.74)
Dissatisfied	21 (63.64)	17 (28.81)	34 (31.19)	23 (45.10)	20 (60.61)	115 (40.35)
Total	**33 (100)**	**59 (100)**	**109 (100)**	**51 (100)**	**33 (100)**	**285 (100.00)**

Note: Figures in parentheses indicate percentages to totals.

We can observe from the above Table 1.10 that nearly forty five percent of employees expressed satisfaction with the functioning of the grievance redressal mechanism in their organizations. About two-fifth of employees (40.35 per cent), however, are dissatisfied. A small percent (14.74 per cent) of employees preferred to take a middle position i.e., neutral. While this is the overall position in the small scale units, industry-wise, it may be noticed that majority of employees (63.64 per cent) in Agro-based industry are dissatisfied with the functioning of the grievance procedures in their organizations. This is followed by Electronics industry (60.61 per cent), Electrical industry (45.10 per cent), Chemical & Engineering industry (31.19 per cent) and Food industry (28.81 per cent). We can further observe that majority of the employees (60.55 per cent) in Chemical & Engineering and Food industries (59.32 per cent) are satisfied with the functioning of the grievance procedures in their organizations. However, maximum per cent of employees in Chemical & Engineering and Food industries found the functioning of grievance procedures to be satisfactory. Thus, institution of formal grievance procedures does not automatically guarantee employee satisfaction.

CONCLUSION (MAJOR OBSERVATIONS)

In view of the high percentage of employees remaining dissatisfied, much attention needs to be paid for the adoption of right grievance procedures in the respective organizations. Informal discussions with employees had revealed that management took nearly a week to redress their grievances. Though management claimed that the procedure adopted was formal and systematic, employees felt that the procedures adopted were not uniform always. A certain amount of informality crept into the way of redressal. Prompt redressal of grievances through a formal grievance procedure is one of the essential requirements for good labour–management relations. If grievances are allowed to accumulate, they create a sense of frustration, disloyalty and non-cooperation among employees who may lose interest in work and produce far below their capacities. Further, if grievance is handled in a haphazard fashion, without employing a formal procedure, it may become a bone of contention between labour and management leading to serious consequences. In the absence of a formal mechanism through which workers can freely ventilate their grievances from time to time, workers tend to keep their problems bottled up inside themselves, and when they go unattended for a long time, these issues culminate in the form of violent demonstrations and strikes causing incalculable harm to organizational performance. Absence of a formal grievance redressal mechanism, thus, in every way brings in untold hardships for the management. But many small business employers tend to discount the value of a formal grievance procedure, as the foregoing analysis showed believing that problems of a serious nature do not arise there in. Management therefore, should go for instituting formal, uniform and transparent grievance redressal mechanisms. There is ample evidence available to make an inference that employees in the small scale industries are not very much committed. In the face of competition from large industry for skilled and talented employees, the task of employers in small industry is more challenging. They should be able to carve out a niche market of their own within which they should be able to lure and retain employees. Absenteeism was found to be a serious malady existing in several small scale industries. Two-thirds of the employers in all the sample units stated that employees were absent to a large extent. In view of the high magnitude of absenteeism in small scale industries, it is important to examine the reasons thereof in order to be able to consider measures for grappling with the problem. Coupled with the problem of absenteeism is the problem of labour turnover. Majority of employers expressed that the labour turnover in their units was high. A large segment of the employers attributed this to personal reasons of employees, dislike of job, lack of promotional opportunities and low wages. Majority of employers in small scale units reported lack of a formal grievance procedure in their units. Broadly speaking, formal grievance procedures were not instituted in majority of the units. A high percentage of employees also expressed their unhappiness. Much attention needs to be paid for the adoption of right grievance procedures in the respective organizations.

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JOB SATISFACTION DURING RECESSION PERIOD: A CASE STUDY OF PUBLIC & PRIVATE INSURANCE IN PUNJAB

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ABSTRACT

This study is on the public and private sector employees of insurance sector to measure the job satisfaction level. The co- existence of two sectors public and private has become demand of the time. The excellence in marketing and customer satisfaction of some extent depends on the employee's job satisfaction. This study is conducted for study the factors which affect the motivation level of employees and effect of monetary and non monetary rewards and job satisfaction level in the public and private insurance sector. Structured questionnaire shall be used to collect data. Stratified quota sampling has been done to have representing from managerial and non- managerial public and private sector insurance companies. The questionnaire consists of 30 questions. It is found that the job satisfaction level differ in some select variable in public and private sectors. If the factors identified through variable are properly redesigned the job satisfaction level can be enhance in the interest of organizational effectiveness.

KEYWORDS

Pay Level, job satisfaction, insurance sector, public and private sector employees.

INTRODUCTION

MEANING OF JOB SATISFACTION

Job satisfaction can be approached by identifying related underlying and motivational theories. These theories can be grouped into two categories: content theories and process theories (Chung, 1977: 14; Carlisle, 1982: 411; Dyer *et al*., 1990: 422). Content theories provide an account of the factors influencing job satisfaction. Included in the content category are: need-fulfillment theory and Herzberg's two-factor theory. Content theories attempt to specify the particular needs or values which must be satisfied or attained (respectively) for an employee to be satisfied with a given job. In the second category are: equity theory and valence theory. The process theories provide an account of how variables such as employees' needs and expectations interact with job environmental characteristics to produce worker satisfaction (Hopkins, 1983: 9; Bennett, 1994:104).Process theories attempt to specify the types or classes of variables (need, values, expectations, and perceptions) considered causally relevant to satisfaction, as well as how these variables combine to determine job satisfaction (Locke, 1976). All variables in a given work situation are considered because of the significant relationship they have with each other (Bennett, 1994: 104).

The concepts of "incentive", "reward" and "recognition" are quite interrelated and complementary in the context of employee motivation. The broadest category is the "incentive" which refers to any means that makes an employee desire to do better, try harder and expand more energy.

It may be divided into following two categories:

- Monetary incentives
- Non-monetary incentives.

Monetary incentives involve granting of reward in terms of money such as commissions, bonuses, base pay, variable pay and benefits.

Non-monetary or non-cash incentives do not involve direct payment of cash and they can be tangible or intangible. Non monetary rewards are the satisfaction that an individual derives from job in which he/she performs the job. These incentives are assigning challenging duties, improving working conditions, recognizing good work through small gifts, letters of appreciation, tickets to restaurant etc., providing some services for the employees, organizing social activities in the work place, etc. The difference between an incentive and reward may be noted as while incentive aims to motivate future and encourage certain behavior, reward is the appreciation for the accomplished behavior. Recognition is the addition of monetary and non-monetary rewards and it refers to crediting, encouraging and appreciating individuals and teams who contribute, through their behavior and their efforts, to the success of the organization.

To explore the impact of the factors described above, a comparative study for the insurance companies in public & private sector has been undertaken based on certain select factors as given in the table.

TABLE FACTORS INCLUDED IN STUDY

Motivation	Monetary & Non monetary Rewards
Training	Perks like Laptops & mobiles
Job Security	Pay
Position	Salary
Supervision	Benefits
Colleagues Relationship	Bonus
Career planning	Incentives
Appraisal	

The job satisfaction of an employee is a complex phenomenon which depends upon a variety of job intrinsic and job extrinsic sector. The present study is limited to the employees working in the geographical areas of Jalandhar, Nawanshahar, Mohali and Ludhiana. For research purpose the sample has been drawn from the public sector insurance company, life insurance Corporation of India and private Sector insurance companies HDFC Standard life insurance, ICICI prudential company and Kotak Mahindra - the companies operating in these areas. The research is designed to have a comparative assessment of job satisfaction level in the two sectors. For this purpose appropriate statistical tools will be applied to the data collected by using a structured questionnaire developed with the help of job satisfaction questionnaire. Privatization of the insurance sector has encouraged many overseas insurance companies to open their branch in our country. Introduction of the sector has been changed the employment pattern. The private sector has to compete with the existing public sector companies in terms of the employee satisfaction and retention.

OBJECTIVES OF THE STUDY

1) To study the factors which affect the motivation level of employees.
2) To study the effect of monetary & non monetary rewards on the employees.
3) To study the job satisfaction level in public and private insurance sector

SURVEY DESIGN

The questionnaire consists of 30 items. The items have been evaluated by respondents on five points Likert response scales ranging from 1=strongly agree to 5=strongly disagree.

HYPOTHESIS

Ho 2(null) Perception of employees of public and private sector regarding various factors causing job satisfaction is independent of their Grade.
HA 2(Alternate) Perception of employees of public and private sector regarding various factors causing job satisfaction is dependent of their Grade.
Ho3 (null) Perception of employees of public and private sector regarding various factors causing job satisfaction is independent of their Gender
HA 3(Alternate) Perception of employees of public and private sector regarding various factors causing job satisfaction is dependent of their Gender.
Ho4 (null) Perception of employees of public and private sector regarding various factors causing job satisfaction is independent of their Qualifications.
HA 4(Alternate) Perception of employees of public and private sector regarding various factors causing job satisfaction is dependent of their Qualifications.
Ho5 (null) Perception of employees of public and private sector regarding various factors causing job satisfaction is independent of their Age.
HA 5(Alternate) Perception of employees of public and private sector regarding various factors causing job satisfaction is dependent of their Age.
Ho 6(null) Perception of employees of public and private sector regarding various factors causing job satisfaction are similar
HA 6(Alternate) Perception of employees of public and private sector regarding various factors causing job satisfaction are not similar

RELIABILITY OF THE QUESTIONNAIRE

The internal reliability of the scales used to evaluate the attitude and behaviour regarding the jobs was tested by the calculation of Cronbach's alpha for each scale. The questionnaire has a reliability measure of 0.79

FACTOR ANALYSIS

In the present study, 30 attributes which are likely to affect the job satisfaction in the employees of insurance sector where selected on the basis of questionnaire and to ascertain the factors that really have an impact on the job satisfaction. The factor analysis has been carried out. The result of factor analysis is shown in the table.

RESULT:- The result of factor analysis as illustrated in the table shows that the variables act in such a tandem that nine groups are created .The groups are summarized below.Factor analysis has been applied on the responses provided by respondents. Factor `analysis is a good way of under laying factors from an array of important variables. (Nargundkar, 2005).Measures of sample adequacy such as Barlett's test of Sphericity and KMO value (refer table 4.2) showed that data was fit for factor analysis. Principal component analysis was used for extracting factors and nine factors were retained depending upon eigen values and variance explained .Eigen value represents the total variance explained by each factor. The standard practice normally used is that all the factors with an eigen value of 1 or more should be extracted. Table 4.3 clearly shows that there are nine factors having eigen values more than 1.Thus, nine factors have been extracted. Total variance explained by extracted nine factor was 65%.The results were obtained through rotations with varimax and all the factors loadings greater than 0.40 were retained. thus, table 4.5 clearly depicts that Factor 1 is linear combination of variable number 5,7,9,11,14,19,22,23,26.Factor 2 is linear combination of variable number 2,4,10,20,30.Factor 3 is linear combination of variable number 12,16,18.Factor 4 is linear combination of variable number25,28.Factor 5 is linear combination of variable number1,21.Factor 6 is linear combination of variable number8,13,27.Factor 7 is linear combination of variable number 3,6,29.Factor 8 is linear combination of variable number 15,17.Factor 9 is linear combination of variable number 24.

SALARY AND FRINGE BENEFITS:-The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 16.041%.Nine out of thirty variables load on significantly to this factor. Researcher named this factor as salary and fringe benefits as it includes

- For the work I do, the pay is good.
- I am satisfied with the way that this organization is managed.
- I am satisfied with my income
- I make pretty good money compared to others in this field.
- My job is a good use and application of my skills, experience and qualifications
- Services of the career planning and development cell can be gainfully availed to plan career in the organization.
- Perks like mobile phones, car, laptop helps to perform better.
- I am satisfied with the bonuses or incentives available to me.
- I am satisfied with the benefits offered to me through this job**.**

Hence, it can be concluded that salary and fringe benefits effect on employees job satisfaction**.**

TRAINING AND REWARDS:- The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 10.471%.Five out of thirty variables load on significantly to this factor. Researcher named this factor as Training and rewards as it includes

- I receive adequate training to do my job well.
- The orientation I received prepared me well for this work
- If I felt that I needed extra training, it would be made available for me.
- I regularly think/worry about work issues when I am at home.
- Whenever I receive any reward by the organization, then it boosts my morale.

SUPERVISOR'S ATTITUDE AND INCENTIVES: The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 7.130%.Three out of thirty variables load on significantly to this factor. Researcher named this factor as Supervisor's attitude and incentives as it includes

- I receive adequate support from my supervisors
- I believe that my supervisors care deeply for me.
- I receive good bonus, salary, incentives from the organization.

RECOGNIZATION AND JOB SECURITY: The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 5.898%.Two out of thirty variables load on significantly to this factor. Researcher named this factor as recognization and job security as it includes

- I have no need to worry about the termination of job anytime.
- In this organization, hard work and achievements are recognized appropriately in various ways.

SELF ESTEEM AND REWARDS: The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 5.571%.two out of thirty variables load on significantly to this factor. Researcher named this factor as self esteem & rewards as it includes

- I feel that I am valued by this organization.
- Any kind of reward increases my efficiency level**.**

INDIVIDUALISTIC FACTOR: The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 5.456%.three out of thirty variables load on significantly to this factor. Researcher named this factor as salary and fringe benefits as it includes

- Motivation affects my performance.
- I am fully able to use my skills in this position.

- Incentives and perks given by the organization, it boost my morale

JOB EVALUATION AND PERFORMANCE: The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 5.425%.three out of thirty variables load on significantly to this factor. Researcher named this factor as job evaluation and performance as it includes

- Other people view my job as a valuable profession.
- I feel that evaluation by the supervisor affects my motivation.
- I believe that my position at work is a professional position.

Inner drive to performance The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 4.737%.two out of thirty variables load on significantly to this factor. Researcher named this factor as inner drive to performance as it includes

- I receive appreciation whenever I perform better.
- I am generally satisfied with the kind of work I do in this job.

Relationship with colleagues The rotated matrix has revealed that respondents have perceived this factor to be the most important with the highest explained variance of 4.474%.one out of thirty variables load on significantly to this factor. Researcher named this factor as salary and fringe benefits as it includes

- Positive working relationship of my colleagues helps me to perform better.

In the conducted study ,it is found in table 4.6 that the null hypothesis H0(2) indicating no difference in the perception of employees for above mentioned factors cannot be accepted for the factors 1,2,and 7. These three factors are significantly causing perceptual differences in the employees. Other factors are found to be inert in their effectiveness in differentiating the perception of the employees according to the grade. Table 4.7 indicates that HO (3) null hypothesis is accepted. Table 4.8 indicated that the null hypothesis H0 (4) indicating no difference in the perception of employees for above mentioned factors cannot be accepted for the factors 7. This one factors are significantly causing perceptual differences in the employees. Other factors are found to be inert in their effectiveness in differentiating the perception of the employees according to the qualification. Table 4.9 indicates that the null hypothesis H0 (5) indicating no difference in the perception of employees for above mentioned factors cannot be accepted for the factor 8. This factor is significantly causing perceptual differences in the employees. Other factors are found to be inert in their effectiveness in differentiating the perception of the employees according to the age. Table 4.10 indicates that the null hypothesis H0 (6) indicating no difference in the perception of employees for above mentioned factors cannot be accepted for the factor 1, 2, 3, 4, 5. These factors are significantly causing perceptual differences in the employees. Other factors are found to be inert in their effectiveness in differentiating the perception of the employees.

CONCLUSION

In the research, it is found that in some variables private sector employees are highly satisfied and in some variables public sector employees are highly satisfied. On the basis of the study, it can be concluded that the employees in public sector have the opinion that they don't get enough opportunities to upgrade their skills by giving the training .The employees of private sector have more opportunities to upgrade their skills as compared to public sector. The training should be available for all the employees because training is directly co related with job satisfaction. In the conducted study, it is found that private sector employees are highly satisfied than the public sector employees regarding their satisfaction with the income. Income is directly concerned with job satisfaction. Pay level satisfaction, or satisfaction with salary amount is primarily based upon the perceived discrepancy between the salary amount an individual receives and the employee should receive. It is also noted that Subordinate getting adequate support from the supervisor and employees are satisfied from the supervisor.Private sector employees got high training than the public sector employees. In other words, we can say that private sector employees are highly satisfied with the factor of training than public sector employees.

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TABLES

TABLE 4.1: RELIABILITY STATISTICS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.790	.792	30

TABLE 4.2: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.692
Bartlett's Test of Sphericity	Approx. Chi-Square	1694.920
	Df	435
	Sig.	.000

TABLE 4.3: TOTAL VARIANCE EXPLAINED

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.812	16.041	16.041
2	3.141	10.471	26.513
3	2.139	7.130	33.643
4	1.770	5.898	39.541
5	1.671	5.571	45.112
6	1.637	5.456	50.568
7	1.627	5.425	55.993
8	1.421	4.737	60.730
9	1.342	4.474	65.204

Extraction Method: Principal Component Analysis.

TABLE 4.4: ROTATED COMPONENT MATRIX

	Component								
	1	2	3	4	5	6	7	8	9
For the work I do, the pay is good.	.811	.021	.044	-.165	.046	-.116	.168	.143	.033
I am satisfied with the way that this organization is managed.	.772	.120	.036	.003	.255	-.059	-.175	-.095	.030
I am satisfied with my income	.736	-.128	.133	-.074	-.209	-.145	-.109	.028	.185
I make pretty good money compared to others in this field.	.721	-.018	.239	.028	-.136	.349	.042	.030	.213
My job is a good use and application of my skills, experience and qualifications	.708	.183	-.052	.194	.090	.002	-.029	.149	-.079
Services of the career planning and development cell can be gainfully availed to plan career in the organization.	.699	-.100	-.017	.060	.008	-.047	.087	-.271	-.046
Perks like mobile phones, car and laptop helps to perform better.	.533	.327	-.075	.011	-.479	.151	.182	-.074	-.155
I am satisfied with the bonuses or incentives available to me.	.531	.151	.015	.383	-.416	.031	.110	-.009	-.082
I am satisfied with the benefits offered to me through this job.	.477	.247	.408	-.216	.176	-.052	.096	.073	-.281
I receive adequate training to do my job well.	.128	.832	.089	.079	-.073	-.050	.119	.104	.022
The orientation I received prepared me well for this work	.049	.745	.160	-.075	.273	.168	-.123	.184	.052
If I felt that I needed extra training, it would be made available for me	.387	.686	.067	.230	-.158	.085	.101	-.012	.155
I regularly think/worry about work issues when I am at home	-.182	.631	-.041	.189	-.093	-.321	-.218	-.191	-.089
Whenever I receive any reward by the organization, then it boosts my morale.	-.077	.580	-.014	-.345	-.233	.317	.188	-.054	.058
I believe that my supervisors care deeply for me.	-.002	.055	.848	.054	.008	.117	.071	.087	.035
I receive adequate support from my supervisors	.065	.002	.749	.050	.111	-.076	.111	-.098	.294
I receive good bonus, salary, incentives from the organization.	.163	.263	.500	-.333	-.074	.133	-.188	.153	-.228
I have no need to worry about the termination of job anytime	.015	.040	.144	-.651	.048	-.190	.058	-.130	.052
In this organization, hard work and achievements are recognized appropriately in various ways	.097	.284	.307	.634	.149	-.143	.100	-.126	-.005
I feel that I am valued by this organization.	.072	-.027	.085	.093	.777	.116	.184	.027	.109
Any kind of reward increases my efficiency level.	-.099	.385	-.007	.343	-.386	-.029	.191	.305	-.080
Motivation affects my performance	-.196	.070	.116	.161	.167	.680	.026	.116	.050
I am fully able to use my skills in this position.	.488	.174	-.063	-.018	.025	.537	.065	-.150	-.105
Incentives and perks given by the organization, it boost my morale	.271	.221	.279	.343	.182	-.408	.017	.247	-.115
Other people view my job as a valuable profession.	-.070	.070	.169	.058	.104	-.029	.760	-.022	-.233
I feel that evaluation by the supervisor affects my motivation.	.138	-.020	.024	-.030	-.051	.107	.636	.025	.291
I believe that my position at work is a professional position.	-.037	.107	-.182	.039	.160	-.366	.391	.226	.263
I receive appreciation whenever I perform better.	-.123	.091	.077	.139	-.012	-.073	-.054	.776	.116
I am generally satisfied with the kind of work I do in this job.	.233	-.046	-.042	-.184	.072	.172	.296	.529	-.311
Positive working relationship of my colleagues helps me to perform better	.082	.104	.166	-.103	.177	.022	.053	.029	.773

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization a rotation converged in 10 iterations.

TABLE NO. 4.5: IDENTIFICATION OF FACTORS

Factor no.	Factor name	Statement included	Factor Mean
1	Salary and fringe benefits(Q1)	For the work I do, the pay is good.	.811
		I am satisfied with the way that this agency is managed.	.772
		I am satisfied with my income.	.736
		I make pretty good money compared to others in this field.	.721
		My job is a good use and application of my skills, experience and qualifications.	.708
		Services of the career planning and development cell can be gainfully availed to plan career in the organization.	.699
		Perks like mobile phones, car, and laptop helps to perform me better.	.533
		I am Satisfied with the bonuses or incentives available to me.	.531
		I am satisfied with the benefits offered to me through this job.	.477
2.	Training (Q2)	I receive adequate training to do my job well.	.832
		The orientation I received prepared me well for this work.	.745
		If I felt that I needed extra training, it would be made available for me.	.686
		I regularly think/worry about work issues when I am at home.	.631
		Whenever I receive any reward by the organization, then it boosts my morale.	.580
3	Supervisors attitude and incentives(Q3)	I believe that my supervisors care deeply for me.	.848
		I receive adequate support from my supervisors.	.749
		I receive good bonus, salary, incentives from the organization.	.500
4	Recognization & job security(Q4)	I have no need to worry about the termination of job anytime.	-.651
		In this organization, hard work and achievements are recognized appropriately in various ways.	.634
5	Self esteem and rewards(Q5)	I feel that I am valued by this agency.	.777
		Any kind of reward increases efficiency level.	.386
6	Individualistic factor(Q6)	Motivation affects on my performance.	.680
		I am fully able to use my skills in this position.	.537
		I feel some kind of incentives and perks given by the organization, then it boost my morale.	.408
7	Job evaluation and performance(Q7)	Other people view my job as a valuable profession.	.760
		I feel that evaluation by the supervisor affects on my motivation.	.636
		I believe that my position at work is a professional position.	.391
8	Inner drive to performance(Q8)	I receive appreciation whenever I perform better.	.776
		I am generally satisfied with the kind of work I do in this job.	.529
9	Relationship with colleagues(Q9)	Positive working relationship of my colleagues helps me to perform better.	

TABLE 4.6: ANOVA & F TEST (BETWEEN GRADE AND FACTOR)

		Sum of Squares	Df	Mean Square	F	Sig.
Salary & Fringe Benefits	Between Groups	1.754	1	1.754	4.396	.038
	Within Groups	59.055	148	.399		
	Total	60.809	149			
Training	Between Groups	4.458	1	4.458	6.626	.011
	Within Groups	99.573	148	.673		
	Total	104.031	149			
Supervisors attitude & Incentives	Between Groups	.041	1	.041	.137	.712
	Within Groups	43.885	148	.297		
	Total	43.926	149			
Recognization & Job Security	Between Groups	.323	1	.323	.415	.520
	Within Groups	114.938	148	.777		
	Total	115.260	149			
Self esteem & rewards	Between Groups	.412	1	.412	.768	.382
	Within Groups	79.362	148	.536		
	Total	79.773	149			
Individualistic factor	Between Groups	.186	1	.186	.935	.335
	Within Groups	29.476	148	.199		
	Total	29.662	149			
Job evaluation & Performance	Between Groups	.760	1	.760	5.213	.024
	Within Groups	21.569	148	.146		
	Total	22.329	149			
Inner drive to performance	Between Groups	.090	1	.090	.487	.487
	Within Groups	27.259	148	.184		
	Total	27.348	149			
Relationship with colleagues	Between Groups	.361	1	.361	1.752	.188
	Within Groups	30.499	148	.206		
	Total	30.860	149			

TABLE 4.7: ANOVA (BETWEEN GENDER AND FACTOR)

		Sum of Squares	df	Mean Square	F	Sig.
Salary & Fringe Benefits	Between Groups	.144	1	.144	.351	.555
	Within Groups	60.665	148	.410		
	Total	60.809	149			
Training	Between Groups	.633	1	.633	.906	.343
	Within Groups	103.398	148	.699		
	Total	104.031	149			
Supervisors attitude & Incentives	Between Groups	.644	1	.644	2.202	.140
	Within Groups	43.282	148	.292		
	Total	43.926	149			
Recognization and job security	Between Groups	.003	1	.003	.003	.954
	Within Groups	115.257	148	.779		
	Total	115.260	149			
Self esteem & Rewards	Between Groups	.046	1	.046	.086	.769
	Within Groups	79.727	148	.539		
	Total	79.773	149			
Individualistic factor	Between Groups	.702	1	.702	3.587	.060
	Within Groups	28.960	148	.196		
	Total	29.662	149			
Job evaluation & performance	Between Groups	.356	1	.356	2.401	.123
	Within Groups	21.972	148	.148		
	Total	22.329	149			
Inner drive to performance	Between Groups	.023	1	.023	.126	.724
	Within Groups	27.325	148	.185		
	Total	27.348	149			
Relationship with colleagues	Between Groups	.045	1	.045	.218	.641
	Within Groups	30.815	148	.208		
	Total	30.860	149			

TABLE 4.8: ANOVA & F TEST (BETWEEN QUALIFICATIONS & FACTORS)

		Sum of Squares	Df	Mean Square	F	Sig.
Salary & Fringe benefits	Between Groups	.841	2	.420	1.030	.359
	Within Groups	59.968	147	.408		
	Total	60.809	149			
Training	Between Groups	7.939	2	3.970	6.073	.003
	Within Groups	96.092	147	.654		
	Total	104.031	149			
Supervisors attitude & Incentives	Between Groups	.954	2	.477	1.631	.199
	Within Groups	42.972	147	.292		
	Total	43.926	149			
Recognization & job security	Between Groups	2.459	2	1.230	1.602	.205
C	Within Groups	112.801	147	.767		
	Total	115.260	149			
Self esteem & rewards	Between Groups	.316	2	.158	.292	.747
	Within Groups	79.457	147	.541		
	Total	79.773	149			
Individualistic factor	Between Groups	.450	2	.225	1.133	.325
	Within Groups	29.212	147	.199		
	Total	29.662	149			
Job evaluation & performance	Between Groups	.068	2	.034	.223	.800
	Within Groups	22.261	147	.151		
	Total	22.329	149			
Inner drive to performance	Between Groups	.435	2	.218	1.188	.308
	Within Groups	26.913	147	.183		
	Total	27.348	149			
Relationship with colleagues	Between Groups	.080	2	.040	.192	.825
	Within Groups	30.780	147	.209		
	Total	30.860	149			

TABLE 4.9: ANOVA & F TEST (BETWEEN AGE AND FACTOR)

		Sum of Squares	df	Mean Square	F	Sig.
Salary & Fringe Benefits	Between Groups	.789	2	.394	.966	.383
	Within Groups	60.020	147	.408		
	Total	60.809	149			
Training	Between Groups	3.814	2	1.907	2.797	.064
	Within Groups	100.217	147	.682		
	Total	104.031	149			
Supervisor's attitude & Incentives	Between Groups	.084	2	.042	.141	.869
	Within Groups	43.842	147	.298		
	Total	43.926	149			
Recognization & job security	Between Groups	.961	2	.480	.618	.541
	Within Groups	114.299	147	.778		
	Total	115.260	149			
Self esteem & rewards	Between Groups	1.451	2	.726	1.362	.259
	Within Groups	78.322	147	.533		
	Total	79.773	149			
Individualistic factor	Between Groups	.078	2	.039	.194	.824
	Within Groups	29.584	147	.201		
	Total	29.662	149			
Job evaluation & performance	Between Groups	.408	2	.204	1.368	.258
	Within Groups	21.921	147	.149		
	Total	22.329	149			
Inner drive to performance	Between Groups	1.591	2	.795	4.539	.012
	Within Groups	25.758	147	.175		
	Total	27.348	149			
Relationship with colleagues	Between Groups	.296	2	.148	.711	.493
	Within Groups	30.564	147	.208		
	Total	30.860	149			

TABLE 4.10: ANOVA & F TEST (BETWEEN ORGANIZATION AND FACTOR)

		Sum of Squares	df	Mean Square	F	Sig.
Salary & Fringe Benefits	Between Groups	21.497	1	21.497	80.930	.000
	Within Groups	39.312	148	.266		
	Total	60.809	149			
Training	Between Groups	37.335	1	37.335	82.848	.000
	Within Groups	66.696	148	.451		
	Total	104.031	149			
Supervisors attitude & incentive	Between Groups	1.273	1	1.273	4.418	.037
	Within Groups	42.653	148	.288		
	Total	43.926	149			
Recognization & Job security	Between Groups	3.341	1	3.341	4.418	.037
	Within Groups	111.919	148	.756		
	Total	115.260	149			
Self esteem & rewards	Between Groups	5.644	1	5.644	11.268	.001
	Within Groups	74.130	148	.501		
	Total	79.773	149			
Individualistic factor	Between Groups	.207	1	.207	1.042	.309
	Within Groups	29.455	148	.199		
	Total	29.662	149			
Job evaluation & performance	Between Groups	.010	1	.010	.064	.800
	Within Groups	22.319	148	.151		
	Total	22.329	149			
Inner drive to performance	Between Groups	.119	1	.119	.646	.423
	Within Groups	27.230	148	.184		
	Total	27.348	149			
Relationship with colleagues	Between Groups	.442	1	.442	2.150	.145
	Within Groups	30.418	148	.206		
	Total	30.860	149			

BANKING SECTOR REFORMS IN INDIA

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ABSTRACT

As economy grows and becomes more sophisticated, the banking sector has to develop pari pasu in a manner that it supports and stimulates such the growth. The banking sector reforms in India were started as a follow up measures of the economic liberalization and financial reforms in the country. Financial sector reforms in India introduced as a part of the structural adjustment and economic reforms programme in the early 1990s have had a profound impact on the functioning of the financial institutions, especially banks. The reforms were aimed at to make the Indian banking industry more competitive, versatile, efficient and productive to follow international accounting standard and to free from the government's control. Although many improvements have been effected, this paper argues that the scope of many of these changes has been relatively narrow and predominantly mechanistic. The paper is presenting financial sector reforms in India, identify the emerging issues and explore the prospects for further reform.

KEYWORDS

Bank Rate, Cash Reserve Ratio, Financial Reforms in Banking Sector in India, Liberalization, Statutory Liquidity Ratio.

INTRODUCTION

Until the early 1990s, the role of the financial system in India was primarily restricted to the function of channeling resources from the surplus to deficit sectors. Whereas the financial system performed this role reasonably well, its operations came to be marked by some serious deficiencies over the years. The banking sector suffered from lack of competition, low capital base, low productivity and high intermediation cost. After the nationalisation of large banks in 1969 and 1980, the Government-owned banks have dominated the banking sector. The role of technology was minimal and the quality of service was not given adequate importance. Banks also did not follow proper risk management systems and the prudential standards were weak. All these resulted in poor asset quality and low profitability. Among non-banking financial intermediaries, development finance institutions (DFIs) operated in an over-protected environment with most of the funding coming from assured sources at concessional terms. In the insurance sector, there was little competition. The mutual fund industry also suffered from lack of competition and was dominated for long by one institution, viz. the Unit Trust of India. Non-banking financial companies (NBFCs) grew rapidly, but there was no regulation of their asset size. Financial markets were characterized by control over pricing of financial assets, barriers to entry, high transaction costs and restriction on movement of funds/participants between the market segments. This, apart from inhibiting the development of the markets, also affected their efficiency. It was in this backdrop that wide-ranging financial sector reforms in India were introduced as an integral part of the economic reforms initiated in the early 1990s (Ahluwalia, 2002).

Financial sector reforms in India were grounded in the belief that competitive efficiency in the real sectors of the economy will not be realized to its full potential unless the financial sector was reformed as well. Thus, the principal objective of financial sector reforms was to improve the allocative efficiency of resources and accelerate the growth process of the real sector by removing structural deficiencies affecting the performance of financial institutions and financial markets. The main objective, therefore, of the financial sector reform process in India initiated in the early 1990s had been to (i) remove financial repression that existed earlier; (ii) create an efficient, productive and profitable financial sector industry; (iii) enable price discovery, particularly, by the market determination of interest rates that then helps in efficient allocation of resources; (iv) provide operational and functional autonomy to institutions; (v) prepare the financial system for increasing international competition; (vi) open the external sector in a calibrated fashion; and (vii) promote the maintenance of financial stability even in the face of domestic and external shocks (RBI, 1991).

The initiation of financial reforms in the country during the early 1990s was to a large extent conditioned by the analysis and recommendations of various Committees/ Working Groups set up to address specific issues. The process has been marked by 'gradualism' with measures being undertaken after extensive consultations with experts and market participants. From the beginning of financial reforms, India has resolved to attain standards of international best practices but to fine tune the process keeping in view the underlying institutional and operational considerations (Reddy, 2002).

The major aim of the reforms in the early phase of reforms, known as first generation of reforms, was to create an efficient, productive and profitable financial service industry operating within the environment of operating flexibility and functional autonomy. While these reforms were being implemented, the world economy also witnessed significant changes, coinciding with the movement towards global integration of financial services (Government of India, 1998). The focus of the second phase of financial sector reforms starting from the second-half of the 1990s, therefore, has been the strengthening of the financial system and introduction of structural improvements.

REVIEW OF LITRATURE

Reddy and Reddy (2003) are of the view that the new challenges faced by the banks are forcing to attempt all new things with the same old rigid structure and system. What required is more managerial and administrative freedom to the management with commensurate and result oriented accountabilities. They stressed that the banks should move towards professional banking with requisite freedom to operate freely in the market within the regulatory and prudential framework prescribed by the Reserve Bank of India

Aggarwal and Sharma (2005) analyzed the existing banking environment and suggested the strategies to build up a more strong and vibrant banking system. They stated that the evolution of banking sector in India is likely to take the form of emergence of universal or quasi-universal banks and therefore, risk management and development of an appropriate regulatory system will remain the main challenge to be faced by the banking industry in future. Higher provisioning norms, tighter asset classification norms, lowering of ceiling on exposure to a single borrower and group exposure etc. are among important measures initiated by the RBI in order to improve the banking sector.

Chakrabarti (2005) has examined that since the beginning of liberalization, the banking industry in India is undergoing a transformation. It has been observed that interest rate have declined considerably but there is evidence of under-lending by the banks. He has found that over time the performance of banks improved slightly, while the public sector banks are doing the worst among all banks. He has also investigated that the banking sector as a whole particularly the public sector banks still suffered from considerable NPAs, but the situation has improved over time. The study revealed that over time, the Indian banking industry has become more competitive and less concentrated. He has concluded that the new private sector banks are the most efficient though the recent collapse of Global Trust Bank has raised issues about efficiency and regulatory effectiveness.

Das and Ghosh (2006) investigated the performance of Indian commercial banking sector during the post-reform period. They have evaluated several efficiency estimates of individual banks using non-parametric data envelopment analysis. They have employed three different approaches, viz. intermediation approach, value-added approach and operating approach in defining inputs and outputs of banks. It has been observed that different approaches of measuring inputs and outputs of banks produced divergent sets of efficiency estimates. They have suggested that medium-sized public sector banks performed reasonably well and

are more likely to operate at higher levels of technical efficiency. The study has observed a close relationship between efficiency and soundness as determined by bank's capital adequacy ratio. They have investigated that technically more efficient banks are those that have, on an average, less non-performing loans. They concluded that most of the inefficiency has stemmed from the under-utilization of valuable resources as well as from current scale of operations.

Misra and Dhal (2010) analyzed the pro-cyclicality of bank indicators with a focus on the non performing loans (NPAs) of India‟s public sector banks. The analysis demonstrates that banks NPAs are influenced by three major sets of factors, i.e., terms of credit, bank specific indicators relating to asset size, credit orientation, financial innovations (non-interest income) and regulatory capital requirement and the business cycle shocks. The study found that the terms of credit variables such as interest rate, maturity and collateral and bank specific variables had significant effect on the banks' non-performing loans in the presence of macro-economic shocks.

OBJECTIVES

The major objective of the research paper is to make a simple assessment of the banking sector reforms in India. The thrust of the study is to examine the reform measures initiated in the banking sector on the recommendations of the Narasimham Committee-I and II (1991 and 1998) and the impact of those measures on the Indian banking system. The study also analyse the impacts of reforms upon prudential norms, Cash Reserve Ratio (CRR), Statutory Liquidity Ratio, Bank Rate. Therefore the important objective of the study is to analyse the impact of banking sector reforms on the advances disbursed to various sectors of the economy.

HYPOTHESIS

The study is carried out with the hypothesis that the reforms in banking sector transformed the regulated environment into a market-oriented one and induced competitiveness in banking industry. The introduction of prudential norms improved the financial health and credibility of banks.

RESEARCH METHODOLOGY

The methodology of the present study is very simple and straight one. To achieve the objectives of the study, the use is made of secondary data. The secondary data has been collected chiefly from the various RBI Bulletins, Statistical Tables relating to Banks in India, Trend and Progress Reports of Banking in India, Annual Reports of Commercial Banks, Banking Reports on Currency and Finance, Banking Statistics – Basic Statistical Returns (all brought out by the Reserve Bank of India, Mumbai).

FIRST GENERATION REFORMS

The first phase of reforms, which were introduced in 1992 subsequent to the report of the Committee on the Financial System (CFS), 1992 (Chairman : Shri M. Narasimham), brought about reduction in statutory pre-emption levels, dismantled the administered interest rate structure, laid down capital adequacy requirements and other prudential norms such as income recognition, asset classification, provisioning, exposure norms, etc. These recommendations are a landmark in the evolution of banking system from a highly regulated to more market-oriented system. These reforms introduced since 1992-93 breathed fresh air in the banking sector. The Reserve Bank of India (2004b) grouped the first phase of reform measures into three main areas: Enabling measures, Strengthening measures and Institutional measures. They can also be classified into five different groups (a) liberalization measures, (b) Prudential norms, (c) Competition directed measures, (d) Supportive measures, and (e) Other measures.

(a) Liberalization Measures

(i) Reduction of Pre-emptions

As part of the financial sector reforms, reductions in CRR were effected in April 1992, October 1992 and April 1993. In view of the strong expansionary impact of the increase in the net foreign exchange assets, Reserve Bank of India had increased CRR from 14 per cent to 15 per cent in three phases: 14.5 per cent on June 11, 1994; 14.75 per cent on July 9, 1994; and 15 per cent on August 6, 1994. As a result of increase in the CRR, resources of scheduled commercial banks to the tune of Rs. 3700 crore were impounded during 1994-95 thereby moderating excessive monetary expansion. In 1996-97, as inflation rate decreased to single digit level, the Reserve Bank placed emphasis on the growth objective. Therefore, the CRR was brought down by as much as 4 per cent points. There was further reduction in CRR by 2 percentage points in eight phases of 0.25 percentage point and each phase released about Rs. 1200 crore into banking system. The CRR was further raised to 10 per cent on December 6, 1997 and to 10.5 per cent from January 17, 1998.

These increase in CRR impounded resources by about Rs. 5000 crore. In response to the growing pressure on the rupee in the forex exchange market, the Reserve Bank increased CRR to 11.0 per cent on August 29, 1998. After 1998, there was continuous reduction in CRR and it reached its minimum level of 4.75 per cent on November 16, 2002 (RBI, 2004b). There was a surge in inflation following the rise in international oil and metal prices. Therefore, RBI increased the CRR by 50 basis points, in two stages, to 5.0 per cent, thus, brining down the liquidity in the banking system by about Rs. 9,000 crore (Table 1).

TABLE 1: CASH RESERVE RATIO (CRR)

Effective	CRR (%)
April, May 1993	14.00
July, August 1994	15.00
November 1995	14.50
December 9, 1995	14.00
April 27, 1996	13.50
May 11, 1996	13.00
July 6, 1996	12.00
October 26, 1996	11.50
November 9, 1996	11.00
January 4, 1997	10.50
January 18, 1997	10.00
October, November 1997	9.50
January 17, 1998	10.50
April 1998	10.00
August 29, 1998	11.00
May 5, 1999	9.00
April 1, 2000	8.00
July 29, 2000	8.50
August 12, 2000	8.00
March 19, 2000	7.50
December 2001	5.50
June 15, 2002	5.00
November 16, 2002	4.75
June 2003	4.50
January 21, 2005	5.00
December 29, 2006	5.25
January 12, 2007	5.50
November 23, 2007	7.50
October 17, 2007	6.50
October 31, 2007	6.00
November 14, 2008	5.50
January 17, 2009	5.00
November 19, 2010	6.00
February 3, 2012	5.50
March 23, 2012	4.75

Source: RBI Bulletin (Monthly), various issues, published by RBI, Mumbai.

In line with government's objective of reducing fiscal deficit to a level consistent with macro-economic stability, the Narsimham Committee recommended that the SLR be brought down in a phased manner to 25 per cent over a period of 5 years. Consistent with the anticipated decline in the center's borrowing programme, the SLR was reduced to 30 per cent on an incremented basis in April 1992 and a further reduction of 0.75 per cent point in the SLR of 38.50 per cent on the base net demand and time liabilities were announced in October 1992. SLR further reduced from 34.75 per cent to 33.75 per cent in two phases: 34.25 per cent from 20 August, 1994 and 33.75 per cent from 17 September, 1994. The SLR further reduced to 25 percent in October, 1997 (RBI, 2004b) and it remains stable for rest of the period (Table 2).

TABLE 2: STATUTORY LIQUIDITY RATIO

Effective	SLR (%)
April 3, 1992	38.50
January 9, 1993	38.25
February 6, 1993	38.00
March 6, 1993	37.75
August 21, 1993	37.50
September 18, 1993	37.25
October 16, 1993	34.75
August 20, 1994	34.25
September 17, 1994	33.75
October 29, 1994	31.50
End of March, 1995	29.30
October 1997	25.00

Source: RBI Bulletin (Monthly), various issues, published by RBI, Mumbai.

In order to control inflation, which arose because of Gulf crisis, Bank rate was increased from 11 per cent to 12 per cent effective from October 1991. In the context of changes in the various economic parameters since raising of the Bank Rate in October 1991 from 11 per cent to 12 per cent and with a view to make Bank Rate an effective signal rate as well as reference rate, with effect from the close of business on April 15, 1997, the Bank Rate was decreased by 1 per cent point to 11 per cent per annum and further to 9 per cent in October 1997. The Bank Rate was increased by 2 percentage points to 11 per cent with effect from the close of business on January 16, 1998. This measure was designed to address specifically the unusual movements in the foreign exchange market. After 1998, Bank Rate was decreased continuously to 6.0 per cent on April 29, 2003 (RBI, 2004b). Again In order to control inflation, Bank rate was increased from 6 per cent to 9.50 per cent effective from March 2012.This measure was mainly introduced to increase the growth rate of the economy (Table 3).

TABLE 3: BANK RATE

Effective	Bank Rate (%)
July 1991	11.00
October 1991	12.00
April 1997	11.00
June 1997	10.00
October 1997	9.00
January 16, 1998	11.00
March 19, 1998	10.50
April 3, 1998	10.00
April 29, 1998	9.00
April 3, 1999	8.00
January 1, 2000	7.00
October 23, 2001	6.50
October 29, 2002	6.25
April 29, 2003	6.00
March 16, 2012	9.50
April 20, 2012	9.00

Source: RBI Bulletin (Monthly), various issues, published by RBI, Mumbai.

(ii) Deregulation of Interest Rates

Prior to the reforms, interest rates were a tool of cross-subsidization between different sectors of the economy. To achieve this objective, the interest rate structure had grown increasingly complex with both lending and deposit rates administered by the RBI. As far as advances are concerned, there were as many as 20 administered rates in 1989-90. In regard to the regulated interest rate structure, the basic thrust of Narasimham Committee was that real rates of interest should be positive and concessional interest rates are a vehicle for subversion. Following reform measures, the various rates of interest are now market determined.

The lending rate for loans in excess of Rs. 200,000 that account for over 90 per cent of total advances was abolished in October 1994. Banks were at the same time required to announce a prime lending rate (PLR) which according to RBI guidelines had to take the cost of funds and transaction costs into account. For the remaining advances up to Rs. 200,000 interest rates can be set freely as long as they do not exceed the PLR (Arun and Turner, 2002; RBI, 2004a; Shirai, 2002).

On the deposit side, there has been a complete liberalization for the rates of all term deposits, which account for 70 per cent of total deposits. The deposit rate liberalization started in 1992 by first setting an overall maximum rate for term deposits. From October 1995, interest rates for term deposits with a maturity of two years were liberalized. The minimum maturity has subsequently lowered from two years to 15 days in 1998. Thus, the term deposit rates were fully liberalized in 1997 (RBIs, 2004a). Scheduled Commercial Banks have now the freedom to set interest rates on their deposits subject to minimum floor rates and maximum ceiling rates. The four per cent differential interest scheme has been officially withdrawn. Though the Committee recommended reduction of target for priority sector advances from 40 per cent of total credit to 10 per cent, the Government did not agree to it.

(b) Prudential Norms

The report of the Narasimham Committee was the basis for the strengthening of prudential norms and the supervisory framework. Starting with the guidelines on income recognition, asset classification, provisioning and capital adequacy the RBI issued in 1992-93, there have been continuous efforts to enhance the transparency and accountability of the banking sector. The improvements of the prudential and supervisory framework were accompanied by a paradigm shift from micro-regulation of the banking sector to a strategy of macro-management (RBI, 2004a). The main objective of prudential norms is the strengthening financial stability of banks.

Adequate capital is one of the pre-requisites for the efficient working of banks. In the pre-reform period, there were no capital adequacy requirements and some banks were seriously undercapitalised. Hence, the Basle Accord capital standards were adopted in April 1992. It was prescribed that banks should achieve a minimum of 4 per cent capital adequacy ratio in relation to risk weighted assets by March 1993. The 8 per cent capital adequacy ratio had to be met by foreign banks operating in India by the end of March 1993; Indian banks with a foreign presence had to reach the 8 per cent by the end of March 1994, while purely domestically operating banks had until the end of March 1996 to implement the requirement (Joshi and Little, 1997; Shirai, 2002). Before arriving at the capital adequacy ratio of each bank, it is necessary that assets of banks should be evaluated on the basis of their realizable value. As per the recommendations of the Narasimham Committee, banks cannot recognize income (interest income on advances) on assets where income is not received within two quarters after it is past due. The committee recommended international norm of 90 days in a phased manner by 2002.

Another measure for ensuring transparency is the new prescription given for asset classification. After the introduction of reforms, the assets are now classified on the basis of their performance into four broad groups, namely, (a) standard, (b) sub-standard, (c) doubtful, and (d) loss assets. Adequate provision is required to be made for bad and doubtful debts (substandard assets). Detailed instructions for provisioning have been laid down. In addition, a credit exposure norm of 15 per cent to a single party and 40 per cent to a group has been prescribed. Banks have been advised to make their balance-sheets transparent with maximum 'disclosure' on the financial health of institutions. Further, provisioning standards which were left to the discretion of banks in the pre-reform period have been enhanced and tightened after the reforms. On outstanding substandard assets, 10 per cent general provision was made in 1992. On loss assets the provision has been 100 per cent. On secured portion of doubtful assets, the provision has been 20 to 50 per cent.

(c) Competition Directed Measures

The RBI announced guidelines for opening of private sector banks as public limited companies in January 1993. The conditions for opening of new private sector banks were: (a) capital of Rs. 100 crore, (b) moderate technology, and (c) head office at a non-metropolitan centre. In January 2001, paid-up capital of these banks was increased to Rs. 200 crore which has to be raised to Rs. 300 crore within a period of 3 years after the commencement of business. The promoters' share in a bank shall not be less than 40 per cent. The new generation private sector banks have brought about a paradigm shift in service standards and set new benchmarks in terms of application of technology, speed in delivery of services, channels, and a high order of marketing orientation. These banks have been providing stiff competition to public sector banks and old private sector banks with their updated technology like electronic banking and compelled these banks to fall in line with new private sector banks. Foreign banks have also been permitted to set up subsidiaries, joint ventures or branches.

Banks have also been permitted to rationalize their existing branches, spinning off business at other centers, opening of specialized branches, convert the existing non-viable rural branches into satellite offices. Thus, the deregulating entry requirements and setting up new operations have benefited the Indian banking system from improved technology, specialized skills, better risk management practices and greater portfolio diversification (RBI, 2004a).

(D) Supportive measures

In the reform process, the supervisory system has been streamlined and RBI evolved a risk-based supervision methodology with international best practices. In the pre-reform period, the RBI supervisory consisted of only on-site inspection, but after the reforms, both on-site inspection and off-site surveillance are followed. New Board of Financial Supervision has been set up within the RBI to tighten up the supervision of banks. The system of external supervision has been revamped with the establishment of the Board of Financial Supervision in November 1994 with the operational support of the Department of Banking Supervision. In tune with international practices of supervision, a three-tier supervisory model comprising outside inspection, off-site monitoring and periodical external auditing based on camels (Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and System Controls) has been put in place. Special Recovery Tribunals were set up in 1993 to expedite loan recovery process. The recent Securitisation and Reconstruction of Financial Assets and Enforcement of

Security Interests (SARFAAESI) Act, 2002 enables the regulation of securitisation and reconstruction of financial assets and enforcement of security interests by secured creditors. The Act will enable banks to dispose of securities of defaulting borrowers to recover debt (RBI, 2004a).

(E) Other Measures

At the end of the 1980s, operational and allocative inefficiencies caused by the distorted market mechanism led to a deterioration of public sector banks' profitability. Enhancing the profitability of public sector banks became necessary to ensure the stability of the financial system. The restructuring measures for PSBs were threefold and included recapitalization, debt recovery and partial privatization (Reddy, 2002).

Due to directed lending practices and poor risk management skills, India's banks have accrued a significant level of NPAs. Prior to any privatization, the balance-sheets of PSBs have to be cleaned up through capital injections. In the fiscal years 1991-92 and 1992-93 alone, the Government of India provided almost Rs. 40 billion to clean up the balance- sheets of public sector banks. Between 1993 and 1999 another Rs. 120 billion were injected in the nationalised banks (Reddy, 2002). In 1993, the SBI Act of 1955 has amended to promote partial private shareholding. The SBI became the first public sector bank to raise equity in the capital markets. After the 1994 amendment of the Banking Regulation Act, public sector banks were allowed to offer up to 49 per cent to their equity to the public (Guha-Khasnobis and Bhaduri, 2000). There are number of other recommendations of the Narasimham Committee such as reduction in priority sector lendings, appointment of special tribunals for speeding up the process of loan recoveries, and reorganisation of the rural credit structure, all of which need special attention as these recommendations have far-reaching implications both in terms of structure of the financial system and also the financing required to implement them3.

The Committee proposed structural reorganisation of the banking sector which involves a substantial reduction of public sector banks through mergers and acquisitions.

SECOND GENERATION REFORMS

In order to initiate the second generation of financial sector reforms, a committee on Banking Sector Reforms was formed in 1998 under the chairmanship of M. Narasimham. The Narasimham Committee Report-II placed greater focus on structural measures and improvement in standards of disclosure and levels of transparency in order to align Indian standards with international best practices. The second generation reforms could be conveniently looked at in terms of three broad inter-related issues: (a) measures to strengthen the banking system, (b) streamlining procedures for upgrading technology and human resource development, and (c) structural changes in the system.

(a) Measures To strengthen The banking system

(i) Capital Adequacy

The committee set new and higher norms of capital adequacy. For strengthening the banking system, the Committee recommended an increase in the minimum capital to risk assets ratio to 10 per cent by 2002 from its present level of 8 per cent. The RBI should have the freedom to increase the capital adequacy norm in respect of specific banks if in its judgments the situation warrants such increase.

(ii) Assets Quality NPAs and Directed Credit

The Committee recommended that the average level of net NPAs for all banks have to be brought down to below 5 per cent by the year 2000 and to 3 per cent by 2002 for all banks. However, banks with international presence should reduce gross NPAs to 5 per cent by 2000 and 3 per cent by 2002. On the other hand, net NPAs should be reduced to 3 per cent by 2000 and 0 per cent by 2002. The Committee also recommended the asset be classified as doubtful if it is in the substandard category for 18 months in the first instance and eventually 12 months and loss if it has been identified but not written off. Expressing concern over rising NPAs, the committee suggested the idea of the setting up an Asset Reconstruction Company to tackle the problem of huge NPAs of banks.

(iii) Prudential Norms and Disclosure Requirements

The Committee recommended moving to international practice for income recognition and brought down to 90 days norms in a phased manner by 2002 from the level of 180 days norms. In future income recognition, assets classification and provisioning must apply even to government guaranteed advances. Banks should pay greater attention to asset liability management to avoid mismatches.

(B) Systems and Methods in Banks

The Committee recommended a number of measures for internal control system. The internal control systems which are internal inspection and audit, including concurrent audit submission of controls returns by banks and controlling offices to higher level offices, risk management system, etc. should be strengthened. There are recommendations for recruitment of skilled manpower, introduction of computer audit, revision of operational manual and its regular updating including an additional whole time director on the board of the banks, etc.

(C) Structural Issues

The Committee is of the view that the convergences of activities between banks and DFIs (Development Financial Institutions), the DFIs over a period of time convert themselves into banks. There would be two forms of financial intermediaries: banks and non-bank financial companies. Mergers between banks and financial institutions need to be based on synergies and location and business specific complementarities of the concerned institutions. Merger of public sector banks should be emanated from the management of banks, the government playing supportive role. Mergers should not be seen as bailing out weak banks. Mergers between strong banks and financial institutions have been for greater economic and commercial sense.

FINDINGS

Following are the major findings from the discussions made above:

1. The period 1992-2003 has witnessed a radical departure from regulated banking towards market-oriented banking. The reform measures laid the basis for sound banking system and considerable progress has been made in implementing the reforms. The response of banks to the reforms has been impressive. The banks have been adjusting very well to the new environment, though gradually.
2. As a consequence of reforms, several new trends have been emerging in Indian Banking. Earlier deposits mobilized and outstanding figures of deposits were yardsticks for measuring performance. Today, strength of balance sheet is considered important.
3. The need for restructuring the banking industry in tune with reforms was felt greater with the initiation of the reforms measures in 1992. The reforms have enhanced the opportunities and challenges for the commercial banks making them operate in a market-led competitive environment.
4. The financial health of banks improved due to prescribed prudential norms. Almost all banks improved their Capital Adequacy and Asset quality during the period of study.

SUGGESTIONS

The commercial banks need to focus on the following suggestions and build required capabilities to cope up with the challenges of the dynamic banking environment.

CONCLUSION

The Indian banking system has witnessed a significant transformation in recent years. The Narasimham Committee Report provides the blue print for banking reforms in India. It has been observed that the banking sector has provided a mixed response to the reforms initiated by the RBI and the Government of India since the 1991. To a large extent the banking industry in India has been able to meet the role envisaged for it by these reforms. In the end, it can be rightly said that the future of Indian banking is both challenging and exciting. Even though the challenges are great, the Indian banking system is optimistic in facing the challenges head-on by adopting proactive changes. Thus the banking sector reforms, which were implemented as a part of overall economic reforms, witnessed the most effective and impressive changes resulting in significant improvements within a short span.

SCOPE FOR FURTHER RESEARCH

During the field survey, it occurred that there is scope for further research in the following areas.

1. A study to evaluates the performance of all public and private banks separately as a first step and compare the relative performance of two groups as the next one in response to reform measures initiated within the broader framework of Banking Sector Reforms.
2. A study to examine the challenge of NPAs in the Post-reform Period identifying causes and consequences thereof and to suggest remedies to overcome the NPA menaces.
3. A study to examine the profitability of Commercial Banks in pre and post-reform periods.
4. A study of the impact of Reforms on the banks leading to reorganization of inter and intra-bank group mergers and acquisition and strategic advantages thereof.

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