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STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESIS (ES)

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

LIMITATIONS

SCOPE FOR FURTHER RESEARCH

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RECRUITMENT AND SELECTION SYSTEM OF VILLAGES IN WONOSOBO REGENCY

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ABSTRACT

Basic track problems in most of the villages in Wonosobo Regency Government are the recruitment and selection practices of other villages have not been able to encourage the inception of the village with the required standards of competence. This research aims to analyze the system of recruitment and selection of other villages, supporters and restricting factors, as well as establishing a proper and contextual model in Wonosobo Regency over the approach to the management of human resources. With descriptive method, this study found that the standard of competence has not been a consideration for the Government since the beginning of the planning process, to recruitment and selection. Almost the entire selection process, starting from the determination of the criteria of candidates, selection of administration until the written exams tend not based on competence. In addition, the necessary of the village according to the preference of the villagers also has yet to be fulfilled, thus still encountered complaints from the public. The study also identifies some of the factors supporting the recruitment and selection competency-based, among others, regulation and community support. Later, inhibitor factor, among others, the quality of human resources and organizational needs analysis Committee. Based on these conditions, the model recommendations in this study encourages the process of recruitment and selection apply competency — based in practice, in order to be able to support organizational performance towards the village government is better. Start the process of sourcing, attracting, through screening, based on the needs the competence and analyzed scientifically. Community preference is also a consideration in that process in order to involve the public opinion and build public confidence to the results of the selection. These two factors also continue to support are encouraged to be optimal. Meanwhile, an inhibitor of factor continues to be minimized through a variety of innovations.

KEYWORDS
Competency, Councilor, Recruitment, selection.

INTRODUCTION

V illage autonomy is an emerging issue as law number 6 year 2014 of the village was passed. It is certainly a challenge mainly for the Government of the village. Organizational basis, the question of human resources and improvement of organizational performance closely related with recruitment and selection practices in the organization. Described by Flybjerg, et.al (2000), that is organization have to hold their future through human proper resources management and in particular through recruitment practice and selection effectively. Further, some of the findings from other thinkers also indicated that the system of recruitment and selection of the right would give an impact on the achievement of optimal organizational performance (Zheng, 2006; Croucher 2008; Mathis & Jackson, 2011; Omolo, Oginda & Yuko Oso, 2012).

Yet harmonious system of recruitment and selection of human resources oriented to increase organizational performance is indeed a common symptom in most villages, the Government is no exception the villages in Wonosobo Regency. This issue surely is the big government on the performance influential village in Wonosobo. One indication of lowly performance is not the achievement of a target allocation of Funds Management (ADD) Village which targeted 70 percent usage for community empowerment, but in reality, mostly used for physical development.

Regarding these problems, there is a subject matter that has not been getting serious attention of the Government most of the villages in Wonosobo Regency, namely human resources planning. Most of the village Government only follows the existing regulatory and tends to apply the same thing repeatedly, without any evaluation and innovation. Thus, the competence of human resources, tend to not be a concern for most Governments of the village.

In theory, the human resources planning process, including the analysis of their work was the deciding factor for the recruitment and selection process for withdrawal was able to produce employees who fit the needs of the Organization (Mathis & Jackson, 2011: 231). Therefore, this study aims to describe the system of recruitment and selection of the other villages in Wonosobo Regency. In addition the study also aims to identify supporters and a barrier to recruitment and selection of devices as well as other villages of recruitment and selection system model that is right for the village government. Referring to the opinion Omolo, Oginda & Yuko Oso (2012: 139) the process of recruitment and selection is done through a process of sourcing, attracting and screening.

RESEARCH METHOD

Qualitative descriptive method was used to describe it holistically the issue and analyzes the four focus, namely recruitment, selection, recruitment and selection determinant aspects of other villages, as well as recommendations of community-based models. Then, the interviewing process with object analysis that do seriously with purposive sampling technique into a data collection method.

RESULT AND DISCUSSION

The process of recruitment and selection devices other villages (**Sourcing, attracting dan Screening**)

In the process of sourcing, the majority of the village Government does not do planning resources based on scientific analysis to determine the criteria, the number and type of formations that are empty. The Government makes land thus crooked village as one consideration in certain formations vacancies open. Further, the method of recruitment is also still performed with conventional methods. Meanwhile a source of recruitment is still very limited availability of human resources in local villages. It is thus certainly have an impact on the recruitment process as well as the results of the selection made by the Government of the village, because according to research from Simamora (1997: 212) and Dresang (2002: 195) shows how closely between the planning, Office of analysis, methods and selection. Further Dresang (2002: 195) and Ekwoaba (2006) States that the planning officer is an important point for the management of human resources that give a huge impact on the future of the organization.

In the process of attracting, method of selection of the candidate is conducted in two phases, namely screening and selection of administrative written exam. In the first selection or some experts refer to as the pre selection (Searle, 2009; Mathis & Jackson, 2005; Pynes, 2004), the community who could follow the criteria of selection has been set by default in the legal regulations. The approach is still visible in the condensed generalization exam questions for candidates of other villages. The General material to be tested is judged capable of representing the needs of the entire formation. Thus, the exam questions haven't been able to contextually with the specific needs of each Office in the village, and the Government has not provided the validity and reliability. In the view of some experts (Stone, 2008; Searle, 2009: 157; Noe et.al, 2011), the tool must be capable of testers called valid, i.e. capable of measuring what it is supposed to be measured. As well as, meet the reliability rules relating to the consistency of a testing tool.

At the screening stage nearly half of prospective candidates who follow the selection and escaped despite having a low value. However, due to the limited number of applicants, then the entire device was designated as a candidate for other villages. This indicates that the selection process has not been based on competence as is assumed by some scholars (Hawkes & Weathington, 2014; Tripati and Agrawal, 2014; Wood & Payne, 1999). In the context of decision making determination of the results of the selection, the Division of powers is still concentrated in County Government. Refer to the conception of some experts (Farazmand, 2007; Bowman, et.al, 2012) regarding flexibility, where decision making is likely to top — down and minimal autonomy difficult to deliver innovation and new approaches. Through the Committee structure and mechanisms that tend to be bureaucratic and tests the implementation, the public barely had room to engage in decision making. In this context Dresang (2002) mentions that in decision making a selections, the community should be involved, because the community has expectations of being termed a preference point. The proposition that resulted from this aspect is as follows.

Proposition 1: the process of sourcing in recruitment would result in candidates who fit the needs of the organization if it is done taking into account the factor of planning, recruitment methods and source appropriately.

Proposition 2: the process of attracting device selection in the village will be effective if the test methods and tools as well as the scoring system used has the ability to do the prediction performance of the candidates.

Proposition 3: screening process in the selection of other villages will produce competent candidates if the screening processes through the competency approach — based decision making and provide flexibility for the Government of the village.

THE DECIDING FACTOR FOR RECRUITMENT AND SELECTION SYSTEM

There are the determining factors identified in the system of recruitment and selection. Regulation and community support are identified as supporting factors, while the quality of human resources recruiter and an analysis of the needs of the Organization as an inhibitor factor. In the regulation, although they still tend to be top-down and haven't been able to accommodate the specificities of each village, but in general have been able to provide legal certainty for the providers as well as prospective candidates. In view of Irianto (2011) aspects of regulation is one of the factors that significantly influence the management of human resources the public sector. Community support is also not able to optimize by the Government in support of the recruitment and selection competency-based. Whereas the function of community support are to control function and management of conflicts. In the view of some experts (Rosenbloom, 1985: 226; Van der Waldt, 1998: 81-82) mentions that participation correlates closely with accountability, and to encourage the realization of Government's good governance.

In the context of quality of human resources Committee, the issue of integrity and neutrality Committee still has not been found in the field. HUMAN RESOURCES Committee should be selected based on competence, to integrity are able to awake. It is thus similar to that expressed by several experts (Noe, et.al, 2011: 147-148; Tyler, 2005: 92), recruitment and selection Committee which should be filled by an elected individual who understands and is experienced in conducting recruitment, so that the result is maximums. On the other hand, the Government of the village should also be encouraged to do the analysis needs of your organization and the measured scientifically. Pynes (2004: 151) and Tyson (2006: 137-141) in this case the view that organizational needs analysis is an important thing that should be a priority of any organization in order to be able to run effectively and deal with a variety of changes. A proposition is resulted in this aspect among others.

Proposition 4: the regulation will support strategically recruitment and selection process if it is capable of providing flexibility on the Government Committee for the appointment of the village and other villages for selecting devices according to his needs.

Proposition 5: community participation will support the accountability of the recruitment and selection process for this if community is actively in the process of recruitment and selection of other villages.

Proposition 6: selection of candidates for the Committee should be done selectively and competency-based HUMAN RESOURCES to improve the quality of the Committee.

Proposition 7: organizational needs analysis should be conducted scientifically and measured in the process of recruitment and selection of other villages to improve the performance of government organizations of the village.

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PICTURE 1: EXISTING MODELS OF RECRUITMENT AND SELECTION OF THE OTHER VILLAGES IN WONOSOBO REGENCY
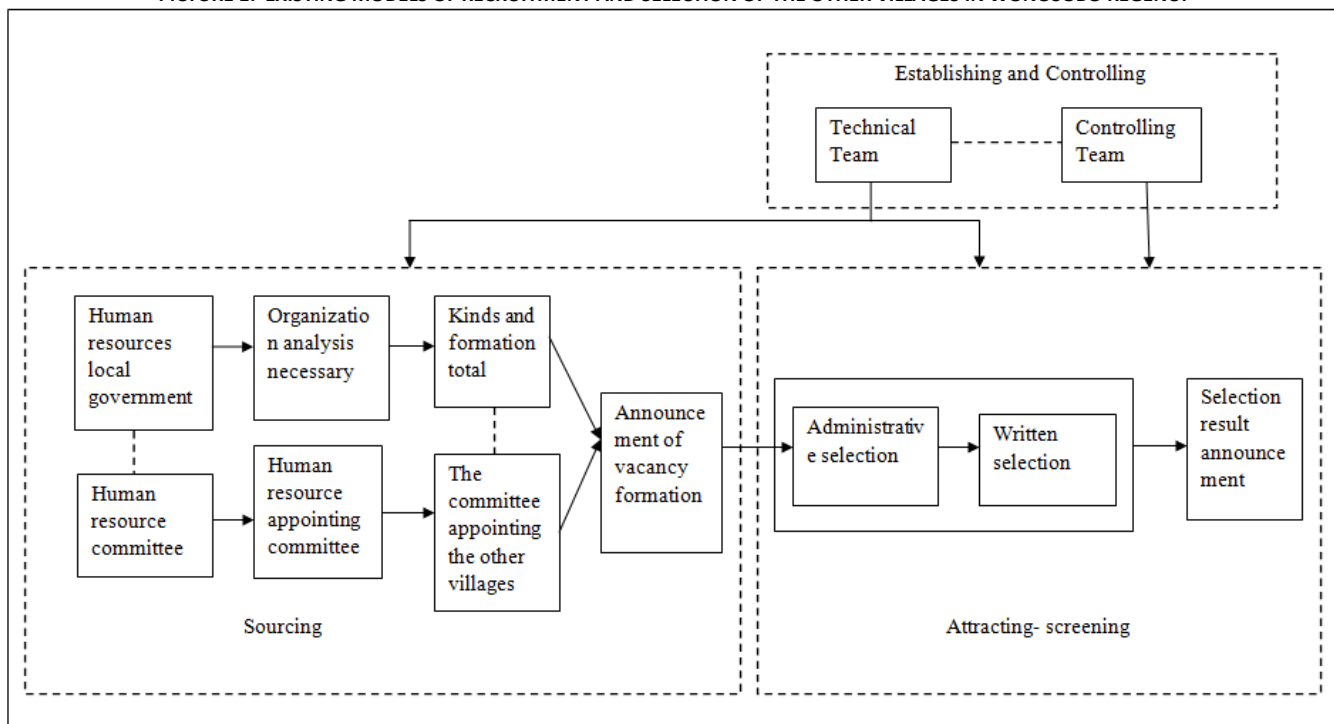
In Figure 1 to see that the process of recruitment and selection at the beginning of the input from two go according to the needs of human resource HR Committee and village government. Both became the driving factor for the Government the village to do a simple analysis of the Organization and analysis of the needs related to select individuals who will occupy the Committee. Then, the process of organization needs analysis from the village government analyzed by the head of the village along with the device so as to determine the number and type of formations is needed. Meanwhile, the Election Committee was doze through the mechanism of deliberation with the appointment of an individual based on personal considerations from the village chief and the input of other elements.

MODEL RECOMMENDATIONS

Based on the findings and discussion of research, there are three important things that underlie the recommendations of the model system of recruitment and selection of other villages, the test equipment in accordance with the job description, qualification of the human resources needed, as well as the public test as a means of community involvement in the selection process. In case of tool test, the Government is encouraged to do village planning needs analysis with a more mature organization scientifically measurable, so come by and test equipment to suit your needs. Then, the qualifications are based on the competence of the merit system. Lastly, preference main point that is community involvement in the selection process of candidates, in order to get the best candidates are competent and can be received well by the public. As for the recommendation, the model is depicted in the following chart.

PICTURE 2: RECRUITMENT AND SELECTION RECOMMENDATIONS MODEL OF OTHER VILLAGES
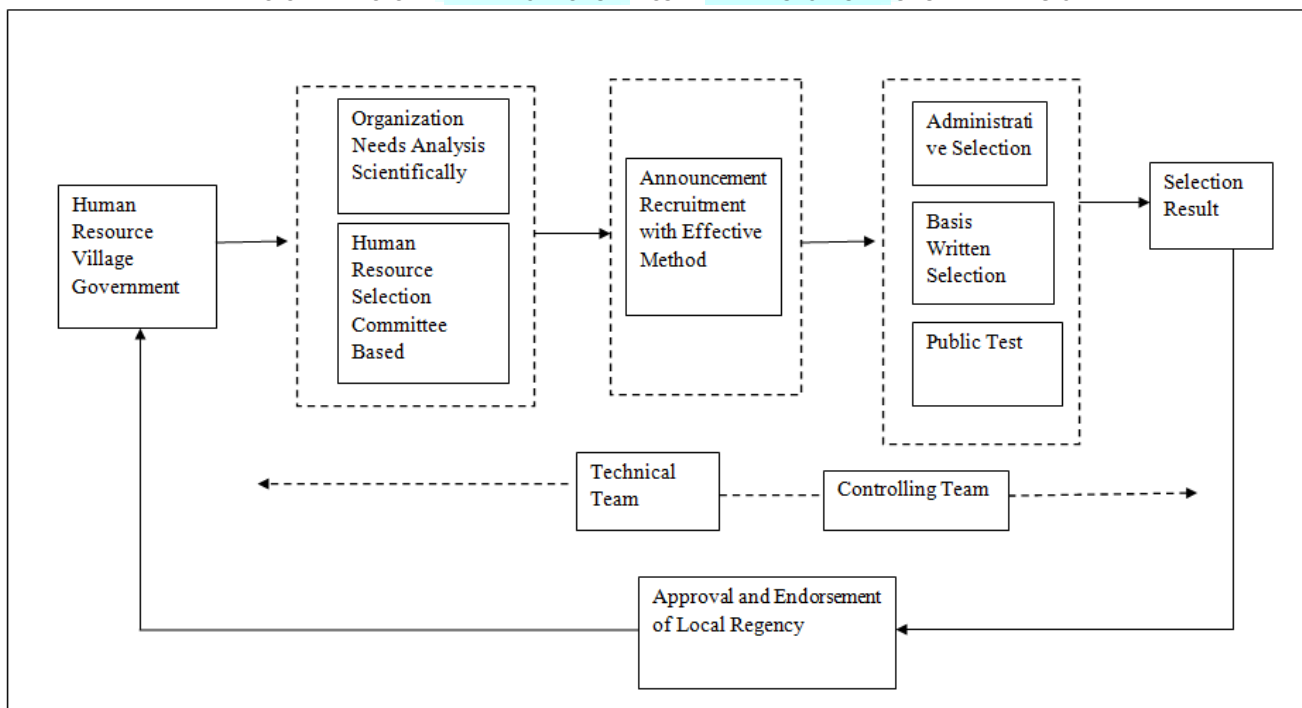
Stages of sourcing practices of planning are to emphasize the allocation of government resources and selection based on needs and competence. Later, in the village level, the analysis needs on based on the needs of the scientific argumentation with factually. Stages of attracting, appraisal and selection methods should also be based on the competence of the mechanisms and methods of various exams in accordance with standards of competence. The involvement of

academics is also carried out at this stage, as well as providing authority for the village to determine the appropriate method and approach. Furthermore, the screening phase, are also encouraged to establish indicators of competence as a major consideration of potential breakouts device village. Even the community is also encouraged to get involved in providing assessment and evaluation against the Councilor candidates who will fill certain formations, especially the formations exposed directly to the community, such as the head of the village.

CONCLUSION

First, the stages of sourcing, planning, methods and sources of recruitment has not yet carried out optimally by the Government, its effects, the result of strategic planning is not accompanied by the failure of the selection Committee in getting applicants as much as possible. The next stage is not attracting much in different village, the Government is using the method of selection, tools testing and assessment in accordance with the system that has been governed by the regulations of the legislation, without any specific initiative to innovate in order to push competency-based selection system. Later, the screening stage, candidates screening process and decision-making has not been based on competence and not involve the society as a preference point. The Committee structure of the district to the village also still likely to top — down in decision making, the Government has not given the flexibility of the village of optimally for a decision.

Second, it identifies two factors supporting, regulatory and community support, then two factors restricting the quality of human resource Committee, and the analysis of the needs of the organization. In support of regulation, although not optimal push competency-based selection and provide flexibility in decision-making, regulation has been able to provide a legal umbrella for the organizers. On the other hand, although the community support not optimal due to the minimal lines of formal participation, but research findings have showed that community support is able to realize the function of control over organizer. Meanwhile, these two factors should continue to be a barrier to be minimized in various ways and methods of HUMAN RESOURCE Committee, in order to be competent and teamwork as well as organizational needs analysis carried out in support of the scientific achievement of organizational performance is more effective and better yet.

SUGGESTION

In theoretic system, in conducting the review of the system of recruitment and employees selection on public sector organizations must stress on aspects of human resources planning and also the preference point of external parties/users. Then, in order to test a model built in the study or to test their findings it is possible to do research is a similar and different community groups.

In the empirical, constituents such as regulation and community support must be optimized to support recruitment and selection model of competency-based village in Wonosobo Regency. Community support should also be optimized through the opening of the halls of the involvement of the community in the process, as well as the promised increased incentives for prospective candidates of the village. While such an inhibitor factor, quality of human resources Committee and the organizational analysis of the absolute must be minimized, by means of the selection Committee that competency-based and specific expertise, as well as analysis of scientific organization and measurable, particularly in setting standards of competence.

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THE INDIAN CORPORATE BOND MARKET: PERFORMANCE AND PROSPECTS

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ABSTRACT

When the equity markets are volatile, the Debt market should emerge as a stable source of finance. The Indian Capital Market has a less developed and immature bond market. Although the Government bond market is somewhat developed, the Corporate bond market has a long way to go.

KEYWORDS
bond market, equity market.

INTRODUCTION

The Capital Market consists of both the Debt and Equity market. In India while the equity market is quite popular, the Debt market is still not so developed. A capital market can only be efficient enough if it has a well-developed debt market also. Although the Indian Government bond market is somewhat developed, the Corporate bond market has a long way to go. As this is the market responsible for ensuring the funds flow towards productive investments. Although there is the banking system, which is well developed in India, it cannot replace the Bond market. A well-managed and efficient banking system, as the only source of funding, can have its limitations as was very evident after the Asian Financial Crisis (1997-98). The principal benefit of a well-developed corporate bond market is to provide an effective alternative source of financing to bank financing. (Jiang, Tang and Law (2002)). Whenever the financial system collapses, a liquid corporate bond market provides a cushion for the funding requirements for real economic activity. To lower the dependence on banks, the corporate bond market is key to the creation of a mechanism to finance corporates and infrastructure projects.

The bond financing allows spreading risk among the larger number of creditors as compared to the banks where the risk is concentrated in the intermediaries. In the international scenario, the main source of investment for the long-term debt are insurance companies and pension / provident funds. But in India, the regulators are focused excessively towards safety and security of investments over returns that have resulted in the G-Secs dominating the Indian bond market. But still the regulators are taking steps towards developing the corporate bond market. The limit on Foreign Institutional Investment in corporate bonds has been increased to USD 20 billion for the sake of attracting foreign investors, and up to USD 25 billion for corporate bonds issued by infrastructure companies. The withholding tax on interest payments has been reduced from 20% to 5%. A higher tax exemption of INR 20,000 has been provided to retail investors for investing in bonds of infrastructure companies.

GLOBAL CORPORATE BOND MARKET

The Global Corporate Bond issuance is around 6-7 percent of World Gross Domestic Product (GDP). The Indian market is only around 3 percent of GDP as compared to other countries like US, China and Europe that have corporate bond issuance of around 8-12 percent of GDP (Govindan R. 2012). As can be seen below, the outstanding Indian corporate bond market is around 9-10 percent of GDP as compared to 40-70 percent of GDP in other developed and developing countries.

TABLE 1

Value of Outstanding Corporate Bond (in USD Billions) and Value as a Percentage of GDP						
Country	2005	2006	2007	2008	2009	2010
ASIA						
China	39.429 (1.7)	70.416 (2.6)	104.389 (3.0)	165.505 (4.1)	353.735 (7.1)	522.089 (8.9)
INDIA	**3.812 (0.5)**	**5.315 (0.6)**	**10.207 (0.9)**	**7.854 (0.6)**	**19.346 (1.5)**	**24.995 (1.6)**
Malaysia	27.086 (19.6)	32.500 (20.7)	52.113 (27.9)	55.684 (25.1)	54.929 (28.5)	64.334 (27.0)
Singapore	4.532 (3.6)	6.031 (4.1)	3.716 (2.1)	5.527 (2.9)	2.799 (1.5)	2.653 (1.2)
South Korea	225.202 (26.7)	230.896 (24.3)	230.964 (22.0)	216.105 (23.4)	309.538 (37.2)	380.619 (37.8)
MATURE MARKETS						
Australia	33.697 (4.6)	42.048 (5.4)	43.561 (4.6)	29.819 (2.8)	38.341 (3.9)	44.127 (3.6)
Japan	704.763 (15.5)	671.859 (15.4)	728.221 (16.6)	766.623 (15.7)	782.675 (15.6)	900.886 (16.5)
USA	2649.014 (21.0)	2748.770 (20.5)	2885.930 (20.5)	2917.350 (20.3)	2792.361 (19.8)	2896.345 (19.8)

Source: Bank for International Settlements (BIS) and International Monetary Fund (IMF).

Figures in parenthesis denote outstanding value as a percentage of GDP.

TABLE 2

Value of Outstanding Government Bond (in USD Billions) and Value as a Percentage of GDP						
Country	2005	2006	2007	2008	2009	2010
ASIA						
China	615.875 (27.3)	785.635 (29.0)	1136.679 (32.5)	1416.536 (31.3)	1459.796 (29.3)	1622.815 (27.6)
INDIA	268.033 (33.1)	304.856 (33.6)	416.872 (36.2)	387.633 (30.8)	530.506 (41.8)	608.252 (39.5)
Malaysia	51.565 (37.4)	59.211 (37.7)	69.672 (37.3)	76.628 (34.5)	93.747 (48.6)	127.981 (53.8)
Singapore	46.869 (37.4)	55.947 (38.5)	68.068 (38.4)	72.679 (38.4)	88.143 (48.1)	102.757 (46.1)
South Korea	384.36 (45.5)	459.886 (48.3)	465.961 (44.4)	337.500 (36.2)	425.643 (51.1)	475.082 (47.2)
LATIN AMERICA						
Brazil	416.677 (47.0)	512.223 (46.8)	694.060 (50.4)	545.819 (33.0)	803.677 (50.2)	829.413 (39.7)
Chile	19.309 (16.3)	14.866 (10.1)	14.544 (8.9)	15.396 (9.0)	16.065 (10.0)	22.617 (11.1)
MATURE MARKETS						
Australia	88.758 (12.0)	96.946 (12.4)	116.235 (12.4)	109.300 (10.3)	230.487 (23.3)	339.948 (27.5)
Japan	6604.732 (145.1)	6747.766 (154.7)	7145.056 (163.2)	9113.163 (166.8)	9654.238 (191.8)	1,1632.306 (213.1)
USA	5916.241 (46.8)	6232.289 (46.5)	6599.613 (46.9)	7898.506 (55.0)	9471.796 (67.1)	1,1151.665 (76.1)

Source: Bank for International Settlements (BIS) and International Monetary Fund (IMF).

Figures in parenthesis denote outstanding value as a percentage of GDP.

The financial crisis of 2008 revealed that when the financial system faces setbacks, a developed and liquid Corporate Bond market could support the funding requirements of the real economic activities.

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TABLE 3: COMPARISON OF PERCENTAGE BREAKUP OF OUTSTANDING BONDS ACROSS COUNTRIES

Country	Bank Loans	Corporate Bonds
China	85	15
India	84	16
UK	72	28
Japan	71	29
Brazil	66	34
Germany	1:	48
Korea	45	55
US	8	92

Source: BIS, RBI, JPM

INDIAN CORPORATE DEBT MARKET

The Bond market is important for infrastructure development of a nation without a well developed one, economic prosperity will not be possible. The World Economic Forum in its Global competitive Index 2010-11 has ranked India at the 86th position, way behind the BRIC nations- Russia at 47, China at 50 and Brazil at 62. A rule of thumb suggests that the GDP for India could be increased every year by 2% if the infrastructure would have been more developed. Today India is trying to focus more on the development in this direction. One of the important aspects that have to be considered for this to happen is the development of the overall Bond market, which should include developing the municipal bond market for financing urban infrastructure, attracting retail savings into infrastructure bonds, keeping FOREX reserves for infrastructure development, developing the concept of infrastructure debt funds and the insurance and pension investments need to be directed towards infrastructure development.

Indian economy along with the GDP grew at a fast pace in the last decade. Even the corporate borrowing also increased enormously. As per the Prime Database statistics, debt private placement, which is estimated to be more than 90% of total debt issues, has increased from INR 0.45 trillion in 2001-02 to a value of INR 2.5 trillion in 2011-12. Though the absolute size of corporate bond issuance and bond outstanding in India is large, it is small in comparison to the overall size of the economy. The corporate bond issuance globally is about USD 3-4 trillion which is 6-8% of world GDP. In developed countries like US and Japan, the ratio stands at 11% and 7 % respectively. In China, the ratio has jumped from 5% in 2005-06 to 17% in 2010-11, however in India, the ratio stands at only 4%, though it has climbed from 1% in 2005-06 (according to an article by The Economic Division, Department of Economic Affairs). Even the total corporate bond outstanding to GDP for India is just 1.6% as compared to 27% for Malaysia and 37.8% for Korea. (Singhal, 2012). Even Foreigners' holding of Indian bonds is miserably low at 2-3% as compared to 30-40% for other Asian nations like Indonesia, Malaysia and Korea.

CHART 1: AMOUNT MOBILIZED THROUGH DEBT PRIVATE PLACEMENT (in INR Trillion)
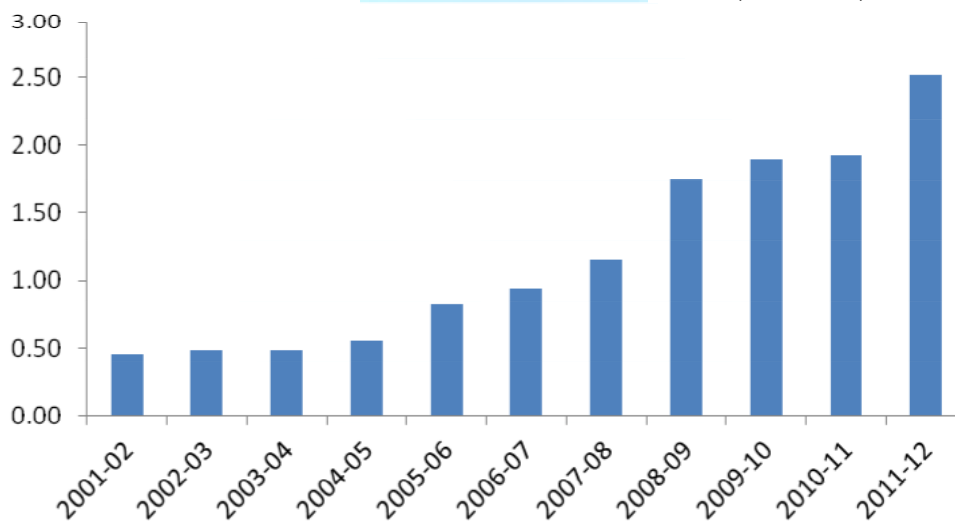
Source: PRIME Database

Even with the large growth rates in the past decade, the corporate bond market has a long way to go as it lacks liquidity and an adequate secondary market, which is mainly responsible for it to be taken as second in the list when in comparison to the Government securities (G-Secs) and Loan Market.

TABLE 4: GROSS ISSUANCE OF CORPORATE BONDS IN INDIA (INR bn)

Year	Amount
2007	1057
2008	1431
2009	2026
2010	2378
2011	3100
2012	1600

Source:SEBI

As can be figured out below, the Indian Government bond market is much larger than the corporate bond market and bank loans have been the primary source of credit for the Indian Corporates. Bonds are taken as an exception for funding, as there is a lack of diverse investor base. The Government bonds market has had a benefit as the regulations such as the Statutory Liquidity Ratio (SLR) which is the percentage of net deposits and liabilities that the bank is required to deposit in G-Sec, also the proportion of asset base in Insurance, pension/provident funds which make it mandatory to invest in G-Sec rather than corporate bonds which do not have such regulatory benefits.

TABLE 5: PERCENTAGE BREAKUP OF TOTAL OUTSTANDING BONDS IN INDIA

Year	Government	Financial	Corporate
2008	91	7	2
2009	88	9	3
2010	86	11	4
2011	80	13	7
2012	76	15	9

Source: BIS, RBI, JPM

CONCLUSION

A well-developed debt market is eminent for infrastructure growth, without which the country experiences limitations in economic development. This has been recognized by every committee that had been set up for the development of Infrastructure and thereby the Indian Economy as a whole. The investors awareness of the debt market is India is very poor and there is need for awareness programs across the country. The public issue of bonds is not very common and corporates usually issue bonds on private placement basis, even though there is lower cost of capital. The large corporations should be encouraged to go for public issuance of bonds on a regular basis, where even though the cost of issuance is high it would be offset by the lower cost of capital. This would eventually increase the depth of the bond market in India. The Indian Bond market also lacks diversity in the types of bonds issued. Most of the bonds issued are short-term bonds (of 3-5 years), as compared to the international bonds, which are usually for a longer term (of 10-15 years).

Instead of having multiple regulators like RBI, SEBI and the Ministry of Finance; a single regulator would be more preferable which could be completely devoted to the bond market regulation like the Self Regulatory organization, National Association of Securities dealers, that exists in the USA. Certain Regulatory steps need to be taken for the development of the bond market. The Reserve Bank of India (RBI) should keep increasing the Foreign Institutional Investors (FII) limit for the corporate bonds especially as these investors are usually not interested to invest where there is lock in restrictions on the limit of investments on the bonds. The trading and settlement system for this market needs to be developed, so that transparency and investor confidence is increased which is important for the corporate bond market to flourish. The withholding tax for FII should be further reduced. Though the government reduced the withholding tax for foreign borrowers in the form of loans or infrastructure bonds, the tax should be reduced for FII investors as well.

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QUALITY PARAMETERS, USE OCCASION, COMBO-GIFT AND MOTIVATION: A STUDY OF CYMBIDIUM ORCHIDS OF SIKKIM HIMALAYAS

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ABSTRACT

When customers rated attributes on importance when purchasing cymbidium orchids, the following attributes were important to all: flower/bloom quality, color, price, design, longevity, availability, fragrance, uniqueness, and ease of care. We have tried to study the consumer's preference when it comes to purchasing flowers, buy cymbidium orchids, and use cymbidium orchids for various occasions and also study their preference of combo-gift along with cymbidium orchids. We have tried to understand the reason why consumers spend on flowers. The sample comprised of 206 local buyers, 212 domestic buyers and 106 International buyers. From the results we find the local, national and international customers' parameter of quality in buying flowers. We also find the occasions most preferred by the customers to give Cymbidium orchids to others.

KEYWORDS
Cymbidium, occasions, parameters. Gifts.

INTRODUCTION

Cymbidium orchids are extremely appreciated as cut flowers, hanging baskets, potted plants and as herbal medicines. Both standard and fresh hybrids are used as cut flowers. Cymbidiums are used as potted plants and these plants are often used for home ambience. Cymbidiums are ideal for hanging baskets. (Lakshman Chandra De, 2011).

Orchids are popular with plant growers commercially, as they are expensive and a single branch of cymbidium orchid can cost up to Rupees 1000. With a little push from the state government in Sikkim, orchid cultivation and commercialization has caught on the attention of the local growers (Anonymous, 2014)

Fresh flowers sold are consumed as gifts in many countries, such as Taiwan, Japan, and the United States. As gift consumption is so important for the sales of fresh flowers, consumer behavior in floral gift giving is an important topic that has not been researched worldwide. (Yen-Chun Lai, Li-Chun Huang, 2013).

Most of the customers purchased flowers for themselves, rather than as gifts. Still, knowledge about how product behavior functions in the floral market is very limited. (Li Chun Huang, 2005)). Amount of floral knowledge does not influence consumer purchasing behavior for flower choice (Behe and Wolnick.1991).

Floral Purchase motivation is important in measuring the degree of floral market development and its potential relationship with consumer floral products behaviors (Demby, 1973).

Research shows that the demand for fresh cut flowers and floral products has been declining in recent years, predominantly among young consumers. Often younger consumers felt their friends would not enjoy floral gifts. Additionally, younger consumers viewed floral advertisements less frequently, perceived the price as being more unreasonable than other gift items, and they were the least easy gifts to purchase, resulting in decreased awareness, interest, and convenience. Floral sales or discounts, greater longevity, more price ranges, and trendier arrangements/flowers would Increase their use of fresh flowers as gifts. (Alicia L. Rihn, Dr. Chengyan Yue, 2010)

METHODOLOGY

a. **NATURE OF RESEARCH**: The present research is exploratory and empirical in nature with descriptive statistics based on the data on the belief expressed by the customers.

b. **RESEARCH DESIGN**: The research-design for the research work is conclusive. To arrive at conclusions descriptive approach has been used.

C. **OBJECTIVES OF THE STUDY**
   i. To determine the customer preference of identified quality parameters for Sikkim Cymbidium Orchids
   ii. To find out the customer rating of Sikkim Orchids on identified quality parameters
   iii. To ascertain the customer combo-gift items preference along with Sikkim Cymbidium Orchids
   iv. To determine the motivation factor for the first purchase of Sikkim Cymbidium Orchids.

d. **Sample**: The sample respondents of this research consist of flower buyers (including potential) who have fair understanding of cymbidium orchids as a commercial product. They spend considerable amount of money on flowers and are emotional in nature. They are students, professionals, businessmen, and retired people. 206 local buyers, 212 domestic buyers and 106 International buyers were surveyed with the help of a questionnaire.

e. **Sample size**: 206 local buyers, 212 domestic buyers and 106 International buyers. This sample was considered statistically relevant for the study.

f. **Sampling method**: Random and judgmental sampling methods were used for the research. The data was collected online. For the purpose a website was made and the respondents could fill the research tool online.

g. **Reliability:** Reliability analysis was made by determining the Cronbach's Alpha which was found to be 0.755 which statistically is considered acceptable reliability.

TABLE 1: RELIABILITY STATISTICS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.755	.743	83

Tools: Descriptive statistical tools have been used primarily to understand the consumers' perceptions and preferences. Data has been tabulated in simple tables and wherever applicable percentage has been calculated. Graphs have been used to enhance the visual impact of results.

RESULT AND DISCUSSION

8.1 RANK (1 TO 7) THE PARAMETERS OF QUALITY OF FLOWERS

TABLE 2

S.N.	Parameter	Local		National		International	
		Score	Rank	Score	Rank	Score	Rank
1	Appropriate Colour	676	3	792	4	370	3
2	Aroma	888	5	1012	6	380	4
3	Size	689	4	731	3	600	6
4	Freshness	548	2	514	1	300	2
5	Longevity	503	1	539	2	280	1
6	Packaging	1073	7	1020	7	490	5
7	Less need for upkeep	957	6	928	5	550	6

i.   When the local customers were asked to Rank the parameters of quality for flowers, Longevity gets the lowest total of 503 but the highest Rank of 1. The Ranking ranging from 1-7; 1 for the highest and 7 for the lowest. We find that packaging-quality parameter gets the highest score of 1073, making it the least factor of quality for buying flowers.

ii.   When the national customers were asked to Rank the parameters of quality for flowers, Longevity gets the lowest total of 514 but the highest Rank of 1. The Ranking ranging from 1-7; 1 for the highest and 7 for the lowest. We find that packaging-quality parameter gets the highest score of 1020, making it the least factor of quality for buying flowers.

iii. When the international customers were asked to Rank the parameters of quality for flowers, Longevity gets the lowest total of 280 but the highest Rank of 1. The Ranking ranging from 1-7; 1 for the highest and 7 for the lowest. We find that Size quality-parameter gets the highest score of 600, making it the least factor of quality for buying flowers.

8.2 VALUES ASSIGNED TO CYMBIDIUM ORCHIDS OF SIKKIM

TABLE 3

S.N.	Parameter	Local		National		International	
		Mean	Rank	Mean	Rank	Mean	Rank
1	Appropriate Colour	4.71	3	5.21	3	5	4
2	Aroma	3.65	5	3.77	7	5.545	2
3	Size	4.70	4	4.74	4	3.363	7
4	Freshness	5.48	2	5.92	2	3.909	6
5	Longevity	5.58	1	6.06	1	5.545	3
6	Packaging	3	7	3.91	6	4.636	5
7	Less need for upkeep	3.2	6	3.93	5	5.727	1

i.   When the local customers were asked to give value to the parameters of quality for Cymbidium orchids from Sikkim, Longevity gets the highest Rank 1 with a Mean of 6.06 .The highest value being 7 and the lowest being 1. Packaging of the orchid gets the lowest Rank 7 with a Mean of 3.

ii.   When the national customers were asked to give value to the parameters of Cymbidium orchids from Sikkim, Longevity gets the highest Rank 1 with a Mean of 6.06 .The highest value being 7 and the lowest being 1. Aroma of the orchid gets the lowest Rank 7 with a Mean of 3.77.

iii. When the international customers were asked to give value to the parameters of Cymbidium orchids from Sikkim; Less-need-for-upkeep gets the highest Rank 1 with a Mean of 5.72.The highest value being 7 and the lowest being 1. Size of the orchid gets the lowest Rank 7 with a Mean of 3.77.

8.3 RANK ASSIGNED TO OCCASIONS FOR GIFTING CYMBIDIUM ORCHIDS OF SIKKIM

TABLE 4

S.N.	Parameter	Local		National		International	
		Mean	Rank	Mean	Rank	Mean	Rank
1	Birthday	3.77	5	4.67	4	4.55	3
2	Wedding	2.83	6	3.57	7	5.36	1
3	Anniversary	2.96	7	3.85	6	5.27	2
4	Honouring a Guest	4.79	2	5.49	1	4.18	5
5	Valentine's day	4.56	3	3.92	5	3.36	7
6	Achievement	3.94	4	4.78	2	4.36	4
7	Get-well message	5.47	1	4.75	3	4.09	6
		28.32		31.03		31.17	

i.   When the local customers were asked to give rank the occasion for gifting Cymbidium orchids from Sikkim; Get well - as the occasion, gets the highest Rank 1 with a Mean of 5.47 .The highest value being 7 and the lowest being 1. Anniversary - as the occasion, gets the lowest Rank 7 with a Mean of 2.96.

ii.   When the national customers were asked to give rank the occasion for gifting Cymbidium orchids from Sikkim; Honouring the guests - as the occasion, gets the highest Rank 1 with a Mean of 5.49 .The highest value being 7 and the lowest being 1. Wedding - as the occasion, gets the lowest Rank 7 with a Mean of 3.57

iii. When the international customers were asked to give rank the occasion for gifting Cymbidium orchids from Sikkim; Wedding - as the occasion, gets the highest Rank 1 with a Mean of 5.49 .The highest value being 7 and the lowest being 1. Valentine's Day - as the occasion, gets the lowest Rank 7 with a Mean of 2.96.

8.4 RANK ASSIGNED TO COMBO-GIFT ITEMS THAT MAY BE SOLD ALONG WITH CYMBIDIUM ORCHIDS OF SIKKIM

COMBO GIFTS

TABLE 5

S.N.	Parameter	Local		National		International	
		Mean	Rank	Mean	Rank	Mean	Rank
1	Chocolates	4.83	1	4.96	2	5.18	1
2	Greeting cards	3.42	7	3.37	7	4.27	3
3	Soft-toys	3.62	6	3.72	6	4.91	2
4	books	3.65	5	4	5	4.09	4
5	Indian sweets	3.98	4	4.13	4	3.45	5
6	Liquor/Wine	4.45	2	5.57	1	3.18	6
7	None	4.44	3	4.94	3	3.27	7
		28.39		30.69		28.35	

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i.   When the local customers were asked to give rank for their preference for combo-gift; Chocolates, gets the highest Rank 1 with a Mean of 4.83 as the most favored combo-gift .The highest value being 7 and the lowest being 1. Greeting cards as combo gifts, gets the lowest Rank 7 with a Mean of 3.42.

ii. When the national customers were asked to give rank for their preference for combo-gift; Liquor - Wine, gets the highest Rank 1 with a Mean of 5.57 as the most favored combo-gift .The highest value being 7 and the lowest being 1. Greeting cards as combo gifts, gets the lowest Rank 7 with a Mean of 3.37

iii. When the international customers were asked to give rank for their preference for combo-gift; Chocolates, gets the highest Rank 1 with a Mean of 5.18 as the most favored combo-gift .The highest value being 7 and the lowest being 1. None of the options, gets the lowest Rank 7 with a Mean of 3.42. The unknown factor deserves to be studied further.

8.5 FIRST PURCHASE MOTIVATION FOR CYMBIDIUM ORCHIDS OF SIKKIM

TABLE 6

S.N.	Parameter	Local		National		International	
		Total	%	Total	%	Total	%
1	When I saw a friend/relative buying them	54	26.1	47	22.3	11	10.1
2	During shopping I found them attractive	100	48.3	101	47.9	60	55.0
3	When I saw a friend/relative gifting them	27	13.0	30	14.2	10	9.2
4	When I read about significance of flowers to express feelings	12	5.8	24	11.4	0	0.0
5	I have never brought Cymbidium	14	6.8	9	4.3	28	25.7
		207	100	211	100	109	100

i.   When the local customers were asked to describe their first purchase motivation, 48.3% said that during shopping they found them attractive. 5.8% said that the motivation came when they read about significance of flowers to express feelings.

ii. When the national customers were asked to describe their first purchase motivation, 47.9 % said that during shopping they found them attractive and. 4.3% said they never had never bought cymbidium orchids from Sikkim.

iii. When the national customers were asked to describe their first purchase motivation, 55 % said that during shopping they found them attractive and. 4.3% said they never had never bought cymbidium orchids. 9.2% said that the motivation came when they saw a friend/relative gifting cymbidium orchids.

CONCLUSION

We arrive at following interesting conclusions

1.1 Freshness, longevity and appropriate colour emerge as the most important quality parameters for determining the quality of Cymbidium Orchids. This is an important information while marketing it from Sikkim. Technology may be utilized to enhance longevity.

1.2 Cymbidium orchids are rated high on Freshness, longevity and appropriate colour and hence it may be interpreted that these are considered high quality products or even premium products and hence it may be possible to translate this information into greater market share and/or premium prices for this product. Efforts may be made to popularize place of origin (Sikkim) in this context. Efforts may also be made to obtain geographical indicator status for these orchids.

1.3 Local and National consumers rank honouring guests and as get-well message preferred occasions for gifting Cymbidium orchids. In contrast internationally they are preferred as wedding and as anniversary gifts. This information may be useful to match promotion of this product with appropriate occasions.

1.4 Chocolates and liquor/wines are considered preferred combo-gifts along with Cymbidium flowers. Internationally it finds a preferred item in soft-toys to be sold together. Combo-gifts is another measure to enhance the promotion of this product.

1.5 First motivation to purchase cymbidium orchids seems to be the retail promotion. Retail shops may be patronized/motivated to give premium display to this product. Internationally there is a need to promote Cymbidium Orchids as significant to express feelings.

Overall it may be said that this paper identifies important criteria to aid marketing of Sikkim Cymbidium Orchids to local growers and marketers.

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ANALYSIS OF DATA MINING METHODOLOGY IN MEDICAL DIAGNOSIS

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ABSTRACT

The present study about the data mining methodology applied to the medical diagnosis no methodology is developed for all kind of medical diagnosis which gives higher performance in accuracy. No unique algorithm has been developed for different kind of medical diagnosis problem. Depending on the medical problem to be diagnosed, the researchers must choose the appropriate methodology in such a way to gain the higher performance in accuracy. Not all the algorithms gain the same accuracy: the appropriate algorithm is to be applied by comparing the performance of each. Still there are waste areas of medical science datasets are there to diagnose by applying the data mining methodology. It is a challenging area of the researchers to finding out an appropriate methodology for the specific problem. The aim of this paper is to study and analyze the various data mining methodologies used to diagnose the various medical related diseases, and to check the accuracy of the methodology.

KEYWORDS

Medical diagnosis, data mining technology.

1. INTRODUCTION

Data mining is the concept of extracting the knowledge from the available information. Different Methods used to mine various kinds of Data. Even number of methods is there in data mining the challenge is selecting a suitable method to mine the selected data. This paper analyses the different methods were applied in medical data mining and the results of the methods.

Most previous research on disease diagnosis uses statistical methods for modeling. Statistical methods, however, require assumptions and usually adopted to analyze linear data. They are thus less capable of dealing with massive and complicated nonlinear and dependent data [1, 2], such as the enormous data collected continuously through health examination and medical treatment [3]. Therefore, more effective approaches are needed to analyze massive and complicated data. For example, data mining techniques may provide a useful solution.

Over the past few decades, Data mining techniques, such as genetic algorithms, artificial neural networks, fuzzy sets, rough sets, and inductive logic programming, have been introduced for application to medical-related fields.

The analysis is conducted in different medical data sets like hepatitis, heart disease, dermatology disease, and diabetes. The analyses have shown that it is very difficult name a single data-mining algorithm to be the most suitable for the medical data. The results gained for the algorithms were very similar. However, the final evaluation of the outcomes allowed singling out the Naïve Bayes to be the best classifier for the given domain. The Multilayer Perception followed it and the C4.5.

2. COMPUTATIONAL INTELLIGENCE (CI)

Medical diagnoses are impossible to solve the particular problem effectively. The computational intelligence is very much important for smart solutions of imperfect domains. Most of the medical domain is not well define the decision tree methodology can be applied to analyze those dataset. With the computational intelligence we can easily automates the decision making with less assistance from experts.

3. PREDICTION OF BREAST CANCER

There are three methods are applied to predict the surveillance of breast cancer [12]. The two popular data mining algorithms Artificial Neural Networks and decision tree methods along with statistical method logistic regressions are applied. All the three methods develop the prediction model for the large database about 200000 samples. The performance of each model is compared. Among t three methods, the decision tree gives the accuracy of 89.2%. From the result of the paper [12], the decision tree methodology gives more accuracy and the method well suits for medical diagnosis.

4. LIVER DISEASE DIAGNOSIS

It is difficult to diagnose the liver disease in the initial stage. Early diagnosis of liver disease is more important. The two data mining methodology, Classification and Regression Tree (CART) and Case-based Reasoning (CBR) techniques were used. Each method is applied individually to raise the accuracy of liver disease diagnosis. Paper uses an intelligent model for the diagnosis of liver diseases, which integrates CART and CBR. The two methods are used for different purposes. The adaptive CART is to identify the patient suffer from liver disease, where as the CBR is use to identify the type of liver disease. In this CART gives the accuracy of 92.94% to identify the patients suffer from liver disease. The CBR gives the accuracy of 90% to identify the type of liver disease. The integration of CART and CBR techniques diagnose the liver diseases with considerable accuracy. The CART is helpful to diagnosis the liver diseases that is very helpful to diagnose the liver disease that is very helpful to the physician for treatment. In addition, the CBR gives the similar and dissimilar liver problems and it is a great assistance to reduce the diagnostic error and it help to improve the treatment.

Each methodology was implemented by using its own algorithms. The performance of each algorithm is to be checked to select the appropriate algorithm in such a way to maximize the performance of the result and gain more accuracy. When applying the different kind of algorithm for the same medical datasets the accuracy differs from one another. Researchers have been conducted to check the performance analysis of algorithms.

5. HEPATITIS AND HEART DISEASE ANALYSIS

The C4.5 algorithm has been use in hepatitis data sets and the decision tree is generated. The accuracy has been checked. It has less accuracy than when it applied in breast cancer dataset [14]. When the C4.5 algorithm is applied for the heart diseases, it also gains very less accuracy. The Naïve Bayes algorithm is applied for the same set of heart disease dataset it gives the accuracy better than the C4.5. In the same way the multilayer perception method has been applied for different kinds of medical datasets and the accuracy is analyzed and proved that it also gives us the less accuracy. In all the cases, the Naïve Bayes Classifier gives the higher accuracy than C4.5 and multilayer perception methods. Paper [14] concludes that the Naïve Bayes Classifier is the best methodology than the C4.5 and Multilayer perception.

Data of hepatitis are collected and training dataset is made [15]. Data mining methodologies such as classification, clustering, and regression are applied. In order to discover the classification rules, ant miner algorithm is used. The proposed method extracts the classified rules using fuzzy based ant miner algorithm. The training set is taken and the algorithm is applied initially for classifying the categorical attributes. For rule generation the heuristic functions are used. It also generates best rules for classification. Next, the optimized rules are obtained by performing rule pruning based on the quality functions. Using the test cases

the accuracy of the designed system is determined. The algorithm brings out the better quality of the classified rules. This project is designed in such a way to obtain the best rules with maximum accuracy. The proposed methodology predicts the hepatitis in the earlier stage and is helpful to the doctors [15].

6. DIAGNOSIS OF ALZHEIMER DISEASE

The classification methodology is used to diagnose the Alzheimer disease. In this paper [16], a new method for the automated diagnosis of diseases based on the improvement of random forests classification algorithm is proposed. More specially, the dynamic determination of the optimum number of base classifiers composing the random forests is addressed. This algorithm can be applied for eight biomedical datasets like breast cancer, diabetes and heart diseases and the test cases are proved. Paper [16] concludes classification methodology gains better accuracy for those eight biomedical datasets.

7. AIDS/HIV DATASET

The Association rule-mining algorithm has been proposes to analyze the HIV datasets. The algorithm mined interestingness and surprising rules. The rules revealed many interesting information about CD4 cell counts, RNA levels, drugs between treatment and various patients. The algorithm also supports missing an incomplete data. It also supports large volume of data.

8. DEDUCTING THE CANCER DISEASE

The Bayesian classifier is used to deduct the cancer disease [18]. Here the Bayesian multi resolution system is used to identify the cancer-affected region. The digitized images are decomposed and the Bayesian classifier is applied to check the resolution of the image in terms of low, intermediate and high. The algorithm classifies the image by applying different resolutions. The random forest is generated by combining the multiple decision tree classifiers.

9. CONCLUSION

After the detailed study about the data mining methodology applied to the medical diagnosis no methodology is developed for all kind of medical diagnosis which gives higher performance in accuracy. No unique algorithm has been developed for different kind of medical diagnosis problem. Depending on the medical problem to be diagnosed, the researchers must choose the appropriate methodology in such a way to gain the higher performance in accuracy. Not all the algorithms gain the same accuracy: the appropriate algorithm is to be applied by comparing the performance of each. Still there are waste areas of medical science datasets are there to diagnose by applying the data mining methodology. It is a challenging area of the researchers to finding out an appropriate methodology for the specific problem.

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5G WIRELESS TECHNOLOGIES: A COMPARATIVE STUDY AND ANALYSIS

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ABSTRACT

The wireless industry is busy with the standardization of the 4th generation (4G) cellular networks. The 4G standards are expected to be concluded in the next year or two. 4g wireless system cannot exist in today's market without standardization. The 4G concept shave already moved to the standardization phase, we must begin to work on the building blocks of the 5G wireless networks. The major difference, from a user point of view, between current generations and expected 5G techniques must be something else than increased maximum throughput; other requirements include low battery consumption, more secure. We refer to this goal as enabling the 4A's paradigm i.e. Any rate, Anytime, Anywhere and Affordable. In particular, this paper focuses on the features such as broadband internet in mobile phones with a possibility to provide internet facility in the computer by just connecting the mobile and with a speed of 10Gbps and more. In 5G researches are being made on development of World Wide Wireless Web (WWWW), Dynamic Adhoc Wireless Networks (DAWN) and Real Wireless World.

KEYWORDS

1G, 2G, 3G, 4G, 5G, GSM.

I. INTRODUCTION

The present cell phones have it all. Today phones have everything ranging from the smallest size, largest phone memory, speed dialing, video player, audio player, and camera and so on. Recently with the development of Pico nets and Bluetooth technology data sharing has become a child's play.

Earlier with the infrared feature you can share data within a line of sight that means the two devices has to be aligned properly to transfer data, but in case of blue tooth you can transfer data even when you have the cell phone in your pocket up to a range of 50 meters. The creation and entry of 5G technology into the mobile marketplace will launch a new revolution in the way international cellular plans are offered. The global mobile phone is upon the cell phone market. Just around the corner, the newest 5G technologies will hit the mobile market with phones used in China being able to access and call locally phones in Germany. With the emergence of cell phones, which are similar to a PDA, you can now have your whole office within the phone. Cell phones will give tough competitions to laptop manufacturers and normal computer designers. Even today there are phones with gigabytes of memory storage and the latest operating systems. Thus one can say that with the current trends, the industry has a real bright future if it can handle the best technologies and can produce affordable handsets for its customers. 5G Network's router and switch technology delivers Last Yard Connectivity between the Internet access provider and building occupants. 5G's technology intelligently distributes Internet access to individual nodes within the building.

5G is not officially defined term or technology but people refer technologies that can deliver the speed beyond 4G as 5G. It's expected to be finalized somewhere in 2012 or 2013. New standard proposals or releases beyond 4G are submitted to standard bodies like 3GPP, WiMAX Forum or ITU-R. Ideal 5G model should accommodate the challenges and accommodate the short falls of the 4G Technology and 4G deployment experiences. To understand the necessities and uses of 5G could be raised once the 4G rollout is completed and experienced. Thus typical 5G concept would be raised in somewhere around 2013-2015.

II. EVOLUTION FROM 0G TO 5G

A. Classical 0G

Wireless telephone started with what you might call 0G if you can remember back that far. The great ancestor is the mobile telephone service that became available just after World War II. Technologies used in 0G systems included PTT (Push to Talk), MTS (Mobile Telephone System), IMTS (Improved Mobile Telephone Service), AMTS (Advanced Mobile Telephone System), OLT (Norwegian for Offentlig Landmobil Telefoni).

B. 1G: GSM

0G vision proved wrong when the GSM concretely came to life in 1990-91 in Finland.1G was old analog system and supported the 1st generation of analog cell phones speed up to 2.4kbps. Advance mobile phone system (AMPS) was first launched by the US and is a 1G mobile system. It allows users to make voice calls in one country.

FIG.1: 1G MOBILE PHONE

1G technology replaced 0G technology, which featured mobile radio telephones and such technologies as Mobile Telephone System (MTS), Advanced Mobile Telephone System (AMTS), Improved Mobile Telephone Service (IMTS), and Push to Talk (PTT).

C. 2G

2G cellular telecom networks were commercially launched on the GSM standard in Finland by Radio linja in 1991. 2G technologies enabled the various mobile phone networks to provide the services such as text messages, picture messages and MMS (multimedia messages). 2G technology is more efficient.. It was planned for voice transmission with digital signal and the speeds up to 64kbps.2G technology holds sufficient security for both the sender and the receiver. All text messages are digitally encrypted. This digital encryption allows for the transfer of data in such a way that only the intended receiver can receive and read it. Second generation technologies are either time division multiple access (TDMA) or code division multiple access (CDMA). TDMA allows for the division of signal into time slots. CDMA allocates each user a special code to communicate over a multiplex physical channel. Different TDMA technologies are GSM, PDC, iDEN, I.S-136. CDMA technology is IS-95.

GSM has its origin from the Group special Mobile, in Europe. GSM is also stands for Global system for mobile communication. Now GSM is used in more than 212 countries in the world. GSM technology was the first one to help establish international roaming. In comparison to 1G's analog signals, 2G's digital signals are very reliant on location and proximity.

FIG.2: 2G MOBILE PHONE

D.2.5 G

For that last reason(9.6Kbytes/sec doesn't allow you to browse the Net or up/download an image),Telco operators came up with the GPRS which could enable much faster communications(115Kbytes.sec), but the market decided it was still not enough compared to what they had at home.

2.75G EDGE

Which is a pretty recent standard allows for downloading faster. Since mobile devices have become both a TV and a Walkman or music player, people needed to be able to watch streaming video and download mp3 files faster that´s precisely what EDGE allows for and that's for the good news. The bad news is that if EDGE rock sat downloading, it´s protocol is a symmetrical hence making EDGE suck at uploading i.e. broadcasting videos of yours for instance. Still an interesting achievement thanks to which data packets can effectively reach 180 kbytes/sec EDGE is now widely being used.

E. 3G: UMTS

International Mobile Telecommunications-2000 (IMT--2000), better known as 3G, is a generation of standards for mobile phones and mobile telecommunications services fulfilling specifications by the International Telecommunication Union. The use of 3G technology is also able to transmit packet switch data efficiently at better and increased bandwidth. Transmission speeds from 125kbps to 2Mbps. In 2005, 3G is ready to live up to its performance in computer networking (WCDMA, WLAN and Bluetooth) and mobile devices area (cell phone and GPS).Voice calls are interpreted using circuit switching. Access to Global Roaming and Clarity in voice calls. Fast Communication, Internet, Mobile T.V, Video Conferencing, Video Calls, Multi Media Messaging Service (MMS), 3D gaming, Multi-Gaming etc. are also available with 3G phones.

FIG.3: 3G MOBILE PHONE

F. 3.5G or 3G:HSDPA

It is theoretically 6 times faster than UMTS (upto3.6Mbytes/sec)! Practically speaking, this would mean downloading an mp3 file would take about 30sec. instead of something like 2 minutes.

G.4G

The basic feature of 3G Technology is fast data transfer rates. However this feature is not currently working properly because, ITU 200 is still making decision to fix the data rates. Network authentication has won the trust of users, because the user can rely on its network as a reliable source of transferring data. . 4G is a conceptual framework and a discussion point to address future needs of a high speed wireless network. It is expected to emerge around 2010 – 2015. 4G should be able to provided very smooth global roaming ubiquitously with lower cost.

FIG.4: 4G MOBILE PHONE

Some of the applications are as per following:

1. Mobile TV – a provider redirects a TV channel directly to the subscriber's phone where it can be watched.

2. Video on demand – a provider sends a movie to the subscriber's phone.
3. Video conferencing – subscribers can see as well as talk to each other.
4. Location-based services – a provider sends localized weather or traffic conditions to the phone, or the phone allows the subscriber to find nearby businesses or friends.
5. Mobile ultra-broadband (gigabit speed) access and multi-carrier transmission.
6. Mobile   WiMAX (Worldwide Interoperability for Microwave Access)

H. 5G

5G technology has changed the means to use cell phones within very high bandwidth. User never experienced ever before such a high value technology. The 5G technologies include all type of advanced features which makes 5G technology most powerful and in huge demand in near future. 5G technologies which are on hand held phone offering more power and features than at least 1000 lunar modules. A user can also hook their 5G technology cell phone with their Laptop to get broadband internet access.

FIG.5: EVOLUTIONAL CHANGES IN MOBILE TECHNOLOGIES.
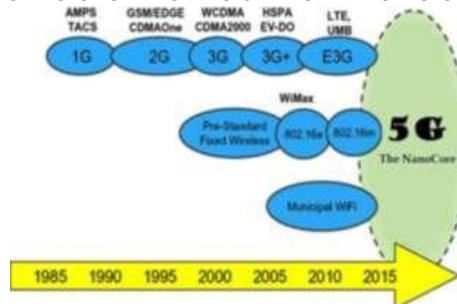
5G technology including camera, MP3 recording, video player, large phone memory, dialing speed, audio player and much more you never imagine. For children rocking fun Bluetooth technology and Pico nets has become in market.

III.   SYMBOLS

WWWW: A World Wide Wireless Web is capable of supporting a comprehensive wireless-based Web application that includes full graphics and multimedia capability at beyond 4G speeds.

WCDMA: Wideband CDMA is a technology for wideband digital radio communications of multimedia and other capacity demanding applications. It is adopted by ITU under the name IMT-2000 direct spread.

PSTN: Public Switched Telephone Network is a regular voice telephone network. Spread Spectrum: It is a form of wireless communication in which the frequency of the transmitted signal is deliberately varied over a wide range. This results in a higher bandwidth of the signal than the one without varied frequency.

TDMA: Time Division Multiple Access is a technology for sharing a medium by several users by dividing into different time slots transmitting at the same frequency.

UMTS: Universal Mobile Telecommunications System is the third generation mobile telephone standard in Europe that was proposed by ETSI.

WAP: Wireless Application Protocol defines the use of TCP/IP and Web browsing for mobile systems.

CDMA-2000: Sometimes also known as IS-136 and IMT-CDMA multicarrier (1X/3X) is an evolution of narrowband radio transmission technology known as CDMA-ONE or CDMA or IS-95.1X refers to the use of 1.25 Mhz. channels while 3X refers to 5 Mhz. channels.

IV.   WHAT IS 5G NETWORKS?

5G network is very fast and reliable. The concept of hand held devices is going to be revolutionized with the advent of 5G. Now all the services and applications are going to be accessed by single IP as telephony, gaming and many other multimedia applications. As it is not a new thing in market and there are millions of users all over the world who have experienced the wireless services wireless technology. It is not   easy for them to shrink from using this new 5G network technology. There is only need to make it accessible so that a common man can easily afford the profitable packs offered by the companies so that 5G network could hold the authentic place. There is need to win the customer trust to build fair long term relation to make a reliable position in the telecommunication field. To complete with the preceding wireless technologies in the market 5G network has to tender something reliable something more pioneering.

All the features like telephony, camera, mp3 player, are coming in new mobile phone models.

4G is providing all these utility in mobile phone. By seeingthefeaturesof4G one   can gets a rough idea about what 5G Networks could offer. There is messenger, photo gallery, and multimedia applications that are also going to be the part of 5G. There would be no difference between a PC and a mobile phone rather both would act vice versa.

V.   WHAT 5G TECHNOLOGY OFFERS?

5G Technology going to be a new mobile revolution in mobile market. Through 5G technology now you can use worldwide cellular phones and this technology also strike the china mobile market and a user being proficient to get access to Germany phone as a local phone. With the coming out of cell phone alike to PDA now your whole office in your finger tips or in your phone. 5G technology has   extra   ordinary   data capabilities and has ability to tie together unrestricted call volumes and infinite data broadcast within latest mobile operating system.

5G technology has a bright future because it can handle best technologies and offer priceless handset to their customers. May be in coming days 5G technology takes over the world market. 5G Technologies have an extraordinary capability to support Software and Consultancy. The Router and switch technology used in 5G network providing high connectivity. The 5G technology distributes internet access to nodes within the building and can be deployed with union of wired or wireless network connections. The current trend of 5G technology has a glowing future.

VI.   WHY IS THERE A NEED FOR 5G?

FIG. 6: 5G MOBILE PHONE

The major difference, from a user point of view, between current generations and expected 5G techniques must be something else than increased maximum throughput; other requirements include:

- Lower out age probability; better coverage and high data rates available at cell edge.
- Lower battery consumption.
- Multiple concurrent data transfer paths.
- Around 1Gbps data rate in mobility.
- More secure; better cognitive radio/SDR Security.
- Higher system level spectral efficiency.
- World Wide wireless web (WWWW).
- More applications combined with artificial intelligent (AI) as human life will be surrounded by artificial sensors which could be communicating with mobile phones. Not harmful to human health.
- Cheaper traffic fees due to low infra structure deployment costs.

VII.   FEATURES OF 5G
According to some research papers on 5G technology, the main features the technology might have are as follows:

- High speed, high capacity, and low cost per bit. It Support interactive multimedia, voice, streaming video, Internet, and other broadband services, more effective and more attractive, Bidirectional, accurate traffic statistics.
- Introduction of a new radio system is possible in which different radio technologies will share the same spectrum. This can be done by finding unused spectrum and then adapting to the technology of the radio technology with which the spectrum is being shared.
- Every mobile in a 5G network will have an IP address (IPV6) according to the location and network being used.
- The technology is expected to support virtual private networks and advanced billing interfaces.
- With 5G Enabled phone, you might be able to connect your phone to your laptop to get access to broadband.
- 5G technology is providing large broadcasting of data in Giga bit which supporting almost 65,000 connections.
- The traffic statistics by 5G technology makes it more accurate and it also support virtual private network.

VIII.   KEY CONCEPTS
Key concepts suggested in scientific papers discussing 5G and beyond 4G wireless communications are:

- Dynamic Adhoc Wireless Network (DAWN), essentially identical to Mobile adhoc network (MANET), Wireless mesh network (WMN) or Wireless grids, combined with smart antennas and flexible modulation.
- Internet Protocol Version6 (IPv6), where a visiting Care of mobile IP address is assigned according to location and connected network.
- High altitude stratospheric platform station (HAPS) systems.
- Real wireless world with no more limitation with access and zone issues.
- User centric network concept instead of operator- centric (as in 3G) or service-centric (asin4G) World- wide wireless web (WWWW), i.e. comprehensive wireless based web applications that include full multimedia capability beyond 4G speeds. On July7, 2008, South Korea announced plans to spend 60 billion won, or US$5 8,000,000, on developing 4G and even 5G technologies, with the goal of having the highest mobile phone markets here by 2012, and the hope of an international standard.

IX.   CONCLUSION
The idea of WWWW, world- wide wireless web, is started from 4g technologies. 5g evolution will be based on 4g. Thus, 5g should make an important difference and add more services and features to the world over 4g. 5g should be more intelligent technology that interconnects the entire world without limits. Therefore, in this paper, we propose a multi bandwidth data path scheme for 5g real wireless world, completed WWWW we refer to this goal as enabling the 4A's paradigm any rate, anytime, anywhere, affordable.

X.   FUTURE SCOPE
BEYOND 5G

The future enhancement of Nano-core will be incredible as it combines with artificial intelligent (AI).One can able to control his intelligent Robot using his mobile phone. Your Mobile can automatically type the message what your brain thinks. We might get a circumstance where we don't require any spectrum for communication.

The Google hot trends have rated the term 6 gas the 17 th most searched word in the search engines. The iPod 6G comes in seven different colors and has an aluminum body which makes the body strong to with stand constant daily usage. It has a clip on design like iPod shuffle and it attached to shirt firmly. 6g technology haven't been fully revealed yet but search phrases like what is 6g mobile technology, 6g technology, 6g mobile, 6g network, 6g wiki, 6g technology ppt. are getting more familiar with new mobile technology getting evolved.

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ANALYZING THE SHORT RUN OPERATING PERFORMANCE OF ACQUISITIONS: INDIAN PERSPECTIVE

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ABSTRACT

In today's global economy, Mergers and Acquisitions (M&A) are being increasingly used world over as a strategy for achieving larger size and faster growth in market share and reach, and to become more competitive through economies of scale. This research study aims to study the impact of mergers in the short run on the operating performance of acquiring corporate in different periods in India, by examining some pre- and post-merger financial ratios, with chosen sample firms, and all mergers involving public limited and traded companies of the nation between 2009 and 2013. The result shows that for a short run operating performance, the impact is not high on the performance of the acquiring companies. An analysis of pre- and post-merger operating performance ratios for the entire sample set of mergers shows that while there was no change in the mean operating profit margin and gross profit margin ratios, there was significant decline in the net profit margin. A small increase in ROCE and debt equity ratio is observed.

KEYWORDS
Acquisition, merger, market share.

1. INTRODUCTION

In today's globalized economy, competitiveness and competitive advantage have become the buzzword for corporate around the world. Companies are increasingly using Mergers and Acquisitions as a way for entering new markets, asset growth, garnering greater market share/additional manufacturing capacities, and gaining complementary strengths and competencies, and to become more competitive in the market place.

The Indian economy has undergone a major transformation and structural change following the economic reforms introduced by the Government of India in 1991. Since then, the M&A movement in India have gained momentum. In the liberalized economic and business environment, 'magnitude and competence' has become the main focus of every business enterprise in India, as companies have realized the need to grow and expand in businesses that they understand well in order to face the growing competition. Indian corporate has undertaken restructuring exercises to sell off non-core businesses and to create stronger presence in their core areas of business interest. M&A emerged as one of the most effective methods of such corporate restructuring and have, therefore, become an integral part of the long-term business strategy of corporate in India.

The volume of M&A transactions in India has apparently increased to about 67.2 billion USD in 2010 from 21.3 billion USD in 2009. The year 2010 saw a major shift in the corporate behaviour towars M&A transctions. This research study aims to study the impact of mergers on the operating performance of acquiring corporate in different periods in India by examining some pre- and post-merger financial ratios, with chosen sample firms, and all mergers involving public limited and traded companies of the nation between 2009 and 2013.

1.1   RESEARCH MOTIVATION
From the previous researches and studies of the impact on operating performances on the acquiring firm due to mergers it has been understood the M&A transactions may lead to improvement or no improvement at all. Though the performance of the company for the current year immediately after merger may improve, but it doesnt improve the performances in the long run. This research mainly focusses on the M&A transactions that has been carried out in the year 2009 to 2013 and to determine if the operating performance has increased/decreased for the selected companies pre and post merger.

1.2   OBJECTIVES
- To obtain relevant sample size from the domestic deals during the year 2009-2013
- To analyze the post- merger operating performances for acquiring firm in Indian industry considering only domestic deals that occurred during the year 2009-2013.
- To analyze the impact of pre and post- merger with the help of paired t-test.
- To observe the performances before and after merger of the acquiring company.

1.3   NEED AND SCOPE OF THE STUDY
Since the previous studies have compared the pre & post merger that has taken place in india, this study attempts to study the recent scenario of the performances of companies after merger. This study will focus mainly on the operating profit margin, gross profit margin, net profit margin, return on networth, return on capital employed and debt equity ratio of the acquiring firms. Only the domestic deals and firm specific acquisitions have been considered for this study. This study can be further used for the analysis between different sectors as well.

1.4   LIMITATIONS OF THE STUDY
The study has ignored the impact of possible differences in the accounting methods adopted by different companies in the sample, as the sample includes only stock-for-stock mergers. It does not include buy back of shares, or acquisition of control like management buyouts and acquiring controlling stake. Likewise, the cost of acquisition for mergers have not been considered in the study as the methodology chosen did not permit specific cases to be examined on such basis. The present study also did not use any control groups (industry average or firms with similar characteristics, as was done in some studies). The study is for the period 2009 to 2013 and only 2 years before and after merger has been analyzed which may not give accurate result as exogenous variables like changes in government policies and changing governments could have led to varying result. Those companies which have relevant information only have been considered. There are few companies which have gone for M&A transactions for consecutive year that has been neglected.

2. LITERATURE REVIEW
Flynn I Simone (2014) explains that Mergers and acquisitions are, for some countries, one of the most effective corporate development tools or tactics. Mergers and acquisitions are a key means of fast growth, increased market share, entry into new markets, expanded product offerings, strengthened supply chain, and optimized cost efficiencies (Walker, 2000).

B Lev and G Mandelker (1970) examined the profitability of mergers along such aspects as risk, growth, capital structure, income tax savings, earnings per share etc. The conclusion drawn is that the long run profitability of acquiring firms is probably somewhat higher than that of comparable non-merging firms.

Krishnakumar D and Sethi M (2012) found that most researchers have adopted either the event study methodology or accounting based measures to evaluate acquisition performance. Other methods used include economic value added, residual income approach, innovative performance, questionnaire methods. Recent studies have included newer approaches such as the data envelopment analysis and balance score card approach. The selection of the method of measurement is crucial to the results drawn, hence should be selected with great care. It is recommend that the method of evaluation should be based on the country of study, and more significantly the aspect under examination i.e. profitability, stock market perception or efficiency. Their contribution to the present body of knowledge is to suggest that methods of evaluation used in developed markets may not work in emerging markets and that method selection can influence research conclusions.

Rajesh kumar B and Rajib P (2007) determined that Merging firms are matched on the basis of pre-acquisition performance and size. Three alternate methodologies were utilized for the study in which cash flow was deflated by market value of assets, book value of assets and the sales value. The results based on book value of assets and sales model provide some evidence to suggest that corporate performance improves after mergers. The model based on market value of assets doesn't support the hypothesis that operating performance improves after mergers. The use of different deflators - accounting measures versus market measures which were sensitive to market revaluations have contributed to different results.

Bouwman H.S.C , Fuller K and Nain S A (2009) showed that significantly more acquisitions occur when stock markets are booming than when markets are depressed. Rhodes-Kropf and Viswanathan (2004) hypothesize that firm-specific and market-wide (mis-)valuations lead to an excess of mergers, and these will be value destroying. Our overall conclusion that acquirer performance is correlated with the state of the market is consistent with recent evidence that stock prices affect corporate decisions. Their results strongly suggest that, viewed through an ex post performance lens, acquisitions undertaken during periods of high-market valuations are of lower quality than those undertaken during periods of low-market valuations.

Kunal Soni B (2014) performed a study on the pre merger and post merger / acquisition on selected financial parameters for cement companies in India which concluded that acquiring companies could have achieved the objective of capacity addition and growth with the M & A, but not have been successful in improving the profitability yet. These deals would have helped the companies in brining economies of scale and price-stabilization.

Bhalla P (2014) explored the importance of India in global patterns of *M&A* in which deregulation, technology and globalization are determining factors. It was observed that India has been lagging behind other advanced and emerging economies in terms of both number as well as value of *M&A*. It has also been seen that there has been notable acceleration in *M&A* in the post 2000 period, particularly in the financial sector of India. A careful analysis reveals an interesting pattern in the *M&A* activity. The sectors such as paper products, printing, publishing, media & entertainment, food products, textiles and non-metallic mineral products, metals, machinery, automobiles and miscellaneous manufacturing have shown relatively little involvement in *M&A* activity.

Kalra R (2013) concluded that the M&As in the Indian corporate firms over a period of April 2008-March 2009 have a significant impact on the liquidity, profitability, operating performance and financial risk position of acquirer firms in India. The type of industry does seem to make a difference in the post-merger performances of the acquiring firms. The results of this study show that a management cannot take it for granted that synergy will be generated and profits will increase simply by going for mergers and acquisitions. However, it should be tested with a bigger sample size before coming to a final conclusion.

Mantravadi P and Reddy V (2007) performed analysis for different periods which showed that for merging firms during the period 1991-95, returns on net worth and capital employed have significantly declined post-merger, while profit margins were maintained at pre-merger levels. This seems to indicate a consolidation strategy adopted by merging firms, to strengthen their balance sheets during this period. For mergers during 1996-99, operating performance of acquiring firms, in terms of both profitability and returns on capital/assets, had declined following the mergers. The increase in the leverage of acquiring firms suggests that acquiring firms have raised more debt to restructure operations following the merger, thus increasing interest costs, reflected in decline of net profit margin. For mergers during 2000-03, both profitability ratios and returns ratios were unchanged, in the post-merger period.

3. RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN
For this study exploratory research design has been adopted. The basic objective of the study is to explore and obtain clarity about the pre and post-merger transactions during 2009 to 2013. It is both a qualitative and quantitative analysis.

3.2 DATA COLLECTION METHODS & SOURCES
Both primary and secondary data has been collected in order to proceed with the research. Primary data involves collection of the list of current domestic deals of Mergers & Acquisitions that occurred during the year 2009 November to 2013 November. This data was collected from the venture intelligence database which provides a list of deals including mergers, acquisitions, stake acquisitions, amalgamation or wholly owned subsidiary (due to buying of remaining stake in a company) of listed and non-listed companies. The secondary source of data is collected from scholarly journals and articles related to the impact on the operating performances of the acquiring company.

3.3 SAMPLING TECHNIQUES
The sample for the study primarily included mergers by public limited companies listed on Bombay Stock Exchange (BSE)/National Stock Exchange (NSE), during the period of study. Cross-border mergers have been excluded from the sample as the research is about Indian perspective. Only stock-for-stock Mergers/Acquisitions are included in the sample. Only mergers where equity stock of acquiring firm has been issued to the acquired firm (target) shareholders, as consideration for the acquisition/merger have been considered. Merger cases where less than 10% of merging firm's equity (by value) was issued to target firm shareholders, have been removed from the sample (to eliminate cases where the merging firm was too big compared to the target firm in market value, thereby the effect of merger could be considered negligible). The process of selecting sample is as shown below:

FIG. 1

Venture Intelligence database - 1417 domestice deals during 2009 november to 2014 november

Listed companies from BSE/NSE - 309 companies

Segregation based on Market Capitalization varying between small, mid large and mega caps. (maximum companies fals in the range of 20 Cr. to 20000 Cr)

Considering only Complete merger, 100% stake acquistion and amalgamtion companies

Companies with relevant data on financial parameters and information considered.

Sample Size = 58

From the venture intelligence data base 1417 deals were taken into consideration for 5 year duration. From those companies only listed stock were taken which were segregated according to their market capitalization.

TABLE 1

YEAR	NO. OF COMPANIES	COMPANIES BETWEEN		
		0-200Cr	200-2000Cr	20000>
2009	14	21%	43%	36%
2010	102	39%	42%	18%
2011	82	32%	55%	13%
2012	71	28%	54%	15%
2013	40	18%	50%	32%

From the above table we can see that large number of companies lie in the range of 200 to 20000 Cr. Therefore only these companies were considered for sample selection. From these companies the type of M&A transaction was classified and only those companies that underwent a complete merger or 100% stake acquisition of the Target Company or amalgamation only were taken. This resulted in a sample size of 65. But since pre and post merger requires comparison of at least 2 years before and after merger, the year 2014 November was eliminated and only the companies with relevant financial parameters were taken into consideration to arrive at the sample size of 58 companies.

TABLE 2

YEAR	NUMBER OF COMPANIES FOR M&A
2009	6
2010	17
2011	14
2012	12
2013	9
Total	58

3.4 TOOLS OF ANALYSIS

The main tools used for analysis is Microsoft Excel and IBM SPSS. With the help of SPSS analytical tool, a paired sample t test was performed to prove statistically if the mergers and acquisitions do have an impact on the operating performances of the acquiring company. The hypothesis is as given below for the study:

Ho: Mergers & Acquisitions have not improved the operating performance of the acquiring firm

H1: Mergers & Acquisitions have improved the operating performance of the acquiring firm.

The study has adopted the methodology of comparing pre- and post-merger performances of acquiring companies, using the following financial ratios:

- Operating Profit Margin (Profit before Depreciation, Interest and Tax/Net Sales)
- Gross Profit Margin (Profit before Interest and Tax/Net Sales)
- Net Profit Margin (Profit after Tax/Net Sales)
- Return on Net-worth (Profit after Tax/Net-worth)
- Return on Capital Employed (Profit before Interest and Tax (PBIT)/Capital Employed)
- Debt-equity Ratio (Book value of Debt/Book value of Equity)

4. DATA ANALYSIS

From the data collected for 58 companies, each company was analysed based on the operating profit, net profit margin, gross profit margin, Return on net worth, Return on capital employed and debt equity ratio for the year 2009 to 2014. For those deals that occurred in each year, 2 years pre and post merger data were analysed. The detailed analysis is presented in the annexure. From the data the mean of pre and post performance is compared as shown below:

TABLE 3

YEAR 2009	PRE-MERGER	POST-MERGER	T-STATISTICS
	(2 years avg.) %	(2 years avg.)%	(0.05 significance)
Operating margin	53.54	40.71	0.1865
Gross profit margin	12.20	37.37	0.149
Net profit margin	-8.66	16.71	0.176
Return on Net worth	14.21	15.79	0.413
Return on capital employed	12.46	15.87	0.265
Debt equity ratio	2.01	1.27	0.011

The comparison of the pre- and post-merger operating performance ratios shows that there is a decrease in the mean operating profit margin (53.54% vs. 40.71%) whereas gross profit margin has increased (12.20% vs. 37.37%), during the pre- and post-merger phases. Net profit has increased drastically (-8.66% vs. 16.71%) and no significant improvement is seen in return on Net worth (14.21% vs. 15.79%) and ROCE (12.46% vs. 15.87%). Debt equity ratio has decreased (2.01% vs. 1.27%). These are validated by the low t-value which is higher than the significance level. There is enough evidence to accept the null hypothesis which states that there has been no improvement in the operating performance for the year 2009.

The financial year 2010 saw a huge increase in the Mergers & Acquisition transactions. The comparison for the year 2010 is as below:

TABLE 4

YEAR 2010	PRE-MERGER	POST-MERGER	T-STATISTICS
	(2 years avg.) %	(2 years avg.)%	(0.05 significance)
Operating margin	21.15	17.48	0.014
Gross profit margin	16.78	13.05	0.007
Net profit margin	12.45	10.09	0.0715
Return on Net worth	17.28	11.44	0.002
Return on capital employed	18.19	13.42	0.0215
Debt equity ratio	0.75	0.67	0.05

In 2010 Operating margin (21.15 vs. 17.48), Gross profit margin (16.78 vs. 13.05), Net profit margin (12.45 vs. 10.09), Return on Net worth (17.28 vs. 11.44), ROCE (18.19 vs. 13.42) and debt equity ratio (0.75 vs. 0.67) have declined considerably which is proven by the high value of t-statistics which is lesser than the significance level. This shows that there is enough evidence to reject the null hypothesis. This year shows that though there was an increase in the amount of mergers and acquisitions and there was an impact on the operating performances. The differences in the t-statistics test and the mean difference is due to the difference in the type of the companies chosen in the sample. Few companies have seen a drastic change whereas few have not. The annexure shows the different companies in the sample and their operating performances.

TABLE 5

YEAR 2011	PRE-MERGER	POST-MERGER	T-STATISTICS
	(2 years avg.) %	(2 years avg.)%	(0.05 significance)
Operating margin	19.98	-12.14	0.1805
Gross profit margin	16.24	-16.51	0.1825
Net profit margin	8.93	8.43	0.421
Return on net worth	11.39	9.12	0.1425
Return on capital employed	12.43	11.56	0.3665
Debt equity ratio	0.74	0.65	0.031

The operating margin and gross profit margin have declined drastically which is validated by high significance value. There is enough evidence to accept the null hypothesis which concludes that the mergers and acquisition activity has not improved the operating performance.

TABLE 6

YEAR 2012	PRE-MERGER	POST-MERGER	T-STATISTICS
	(2 years avg.) %	(2 years avg.)%	(0.05 significance)
Operating margin	23.37	26.04	0.2645
Gross profit margin	21.03	24.04	0.2455
Net profit margin	10.02	20.53	0.105
Return on net worth	12.87	14.30	0.319
Return on capital employed	17.74	15.64	0.243
Debt equity ratio	1.08	0.92	0.329

In the year 2012 there is no significant improvement in all the operating performances of the acquiring firms which is validated by t-statistics which is higher than the significance value which leads to the acceptance of null hypothesis. This implies that the M&A activity have not increased the operating performance.

TABLE 7

YEAR 2013	PRE-MERGER	POST-MERGER	T-STATISTICS
	(2 years avg.) %	(2 years avg.)%	(0.05 significance)
Operating margin	14.84	16.33	0.1695
Gross profit margin	11.62	12.33	0.337
Net profit margin	7.31	7.10	0.445
Return on net worth	6.23	85.74	0.189
Return on capital employed	16.13	15.84	0.4675
Debt equity ratio	2.50	7.55	0.1675

Since there is no significant improvement in the financial parameters pre and post mergers it leads to conclude that there the null hypothesis is accepted.

In order to conclude the analysis, the average is taken for each parameter, i.e. operating margin, gross profit margin, net profit margin, return on net worth, return on capital employed and debt equity ratio and compared between pre merger and post merger.

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<div align="center">TABLE 8</div>

	Pre-merger	Post-merger
Operating margin	26.58	17.69
Gross profit margin	15.58	14.06
Net profit margin	6.01	12.57
Return on net worth	12.39	27.28
Return on capital employed	15.39	14.47
Debt equity ratio	1.41	2.21

From the result we can see that the operating margin has declined from 26.58% to 17.69%, Gross profit margin has decreased by 1.52% which is not a significant improvement due to a merger. It is observed that the net profit margin has increased by 6% along with an increase in the return on net worth by 14.8%. Therefore from the comparison we can see that the overall operating performance of the acquiring companies have not shown a significant improvement in the short run after merger.

5. FINDINGS

From the analysis it shows that Mergers and Acquistion activities have not improved the operating performance of the acquiring companies. The sample size has a variety of companies which belong to different sectors like electric equipment, finance-investment, breweries & distilleries, cement, real estate, sugar, auto ancillaries, computer-software & hardware, packaging, paper, media & entertainment, fertilisers, textiles, telecommunication, pharamceuticals etc. Due to the varied sectors, the impact on the operating performances varies too. The sample size considers all the companies in the range of 200 Cr to 20000 Cr market capitalization. Only in the year 2010, according to t-test, the M&A has had an impact on the operating performances of the acquiring company. Though the mean average shows a varying result. This is due to the fact that the sample size consists of 17 companies from different sectors. The post merger values are declining due to drastic changes in the individual companies which has resulted in a difference in the mean average and t-statistics.

From the analysis we can see that the mergers and acquistion does nit have an significant impact on the operating performance of the company. If the analysis was carried out for a longer duration pst merger the actual scenario could have been analysed.

6. RECOMMENDATION

It is recommended that the Post merger operating performance should be studied for a longer duration at least for 5 years as this research is limited to study the impact on the operating performances post merger is only 2 years. The study can also involve the companies with different market capitalization and a comparative study can be performed to check the impact on operating performances in micro cap, small cap, mid cap, large cap and mega cap sectors and to check which sectors have a better performance.

This study is has taken 6 parameters for studying the operating performance, it can be further studied using PBDIT, PBT, PAT, PBDIT/total income, PBT/total income, PAT/total income comparison.

7. CONCLUSION

An analysis of pre- and post-merger operating performance ratios for the entire sample set of mergers shows that while there was no change in the mean operating profit margin and gross profit margin ratios, there was significant increase in the net profit margin. A small increase in ROCE and debt equity ratio is observed.

These results corroborate the general research results on post merger operating performance in other countries, which suggested that the operating performance either stagnates or declines after mergers, for acquiring firms.

8. SCOPE FOR FURTHER STUDY

Future research in this area could be an extension of the present study by estimating and comparing with industry/sector averages, and the differences, if any could be probed further to derive further insights. Researchers could also analyze the returns to shareholders of acquiring firms involved in mergers in India to correlate with findings of studies indicating poor post-merger performance.

The impact on the cash flows of the acquiring firms can be studied. Cross border mergers and acquisition activities can be analyzed for different periods. This can also lead to carrying out the performance measures of different sectors both domestically and cross border transactions.

Further cross border acquisitions can be classified according to cash financed acquisition, stock financed, acquisitions with competitive bidders, acquisition with single bidder, hostile acquisition, friendly acquisition, related acquisition etc.

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FIXED POINT RESULTS FOR P-1 COMPATIBLE IN FUZZY MENGER SPACE

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ABSTRACT
The study of theory of Fuzzy sets was initiated by Zadeh in 1965. Since then many authors have extended and developed the theory sets in the field of topology and analysis. The notion of Fuzzy metric spaces has very important applications in quantum particle physics. As a result many authors have extended the Banach's Contraction Principle to Fuzzy Menger Spaces and proved fixed point and common fixed point theorems on Fuzzy Menger Space. The aim of this paper is to prove common fixed point theorem in Fuzzy Menger Space for P-1 compatible mappings.

KEYWORDS
Fuzzy Menger Space, P-1 Compatible mappings, Common fixed point.

AMS SUBJECT CLASSIFICATION
47H10 and 54H24.

1.   INTRODUCTION

Menger [5] in 1942 introduced the notation of the probabilistic metric space. The probabilistic generalization of metric space appears to be well adopted for the investigation of physical quantities and physiological thresholds. Schweizer and Sklar [7] studied this concept and then the important development of Menger space theory was due to Sehgal and Bharucha-Reid [8].Sessa [9] introduced weakly commuting maps in metric spaces. Jungck [2] enlarged this concept to compatible maps. The notion of compatible mapsin Menger spaces has been introduced by Mishra [6]. Cho [1] et al. and Sharma [10] gave fuzzy version of compatible maps and proved common fixed point theorems for compatible maps in fuzzy metric spaces. So many works have been done in fuzzy and Menger space [3],[4] and [12]. Sevet Kutukcu and Sushil Sharma introduce the concept of compatible maps of type (P-1) and type (P-2), show that they are equivalent to compatible maps under certain conditions and prove a common fixed point theorem for such maps in Menger spaces. Rajesh Shrivastav, Vivek Patel and Vanita Ben Dhagat[11] have given the definition of Fuzzy Menger space and proved fixed point theorem for such space. We prove fixed point results for Fuzzy Menger space with compatible P-1.

2.   PRELIMINARIES

Definition 2.1 A fuzzy probabilistic metric space (FPM space) is an ordered pair (X,F_α) consisting of a nonempty set X and a mapping F_α from XxX into the collections of all fuzzy distribution functions $F_\alpha \in R$ for all $\alpha. \in [0,1]$. For x, y $\in$ X we denote the fuzzy distribution function F_α (x,y) by $F_{\alpha(x,y)}$ and $F_{\alpha(x,y)}$ (u) is the value of $F_{\alpha(x,y)}$ at u in R.

The functions $F_{\alpha(x,y)}$ for all $\alpha. \in [0,1]$ assumed to satisfy the following conditions:

(a) $F_{\alpha(x,y)}$ (u) = 1 $\forall$ u > 0 iff x = y,

(b) $F_{\alpha(x,y)}$ (0) = 0 $\forall$ x , y in X,

(c) $F_{\alpha(x,y)}$ = $F_{\alpha(y,x)}$ $\forall$ x , y in X,

(d)   If $F_{\alpha(x,y)}$ (u) = 1 and $F_{\alpha(y,z)}$ (v) = 1 $\Rightarrow$ $F_{\alpha(x,z)}$ (u+v) = 1 $\forall$ x , y ,z $\in$ X and u, v > 0.

Definition 2.2 A commutative, associative and non-decreasing mapping t: $[0,1] \times [0,1] \rightarrow [0,1]$ is a t-norm if and only if t(a,1)= a $\forall a \in [0,1]$, t(0,0)=0 and t(c,d) $\geq$ t(a,b) for c $\geq$ a, d $\geq$ b .

Definition 2.3 A Fuzzy Menger space is a triplet (X,F_α,t), where (X,F_α) is a FPM-space, t is a t-norm and the generalized triangle inequality

$F_{\alpha(x,z)}$ (u+v) $\geq$ t $(F_{\alpha(x,z)}$ (u), $F_{\alpha(y,z)}$ (v))

holds for all x, y, z in X u, v > 0 and $\alpha. \in [0,1]$.

The concept of neighborhoods in Fuzzy Menger space is introduced as

Definition 2.4 Let (X,F_α,t) be a Fuzzy Menger space. If x $\in$ X, ε > 0 and $\lambda \in (0,1)$, then (ε,λ) - neighborhood of x, called U_x (ε,λ), is defined by U_x (ε,λ) = {y$\in$X: $F_{\alpha(x,y)}(\varepsilon)>(1-\lambda)$}.

An (ε,λ)-topology in X is the topology induced by the family {U_x (ε,λ): x $\in$ X, ε > 0, $\alpha \in [0,1]$ and $\lambda \in (0,1)$} of neighborhood.

Remark: If t is continuous, then Fuzzy Menger space (X,F_α,t) is a Housdroff space in (ε,λ)-topology.

Let (X,F_α,t) be a complete Fuzzy Menger space and A$\subset$X. Then A is called a bounded set if

$\lim_{u \to \infty} \inf_{x,y \in A} F_{\alpha(x,y)}$ (u) = 1

Definition 2.5 A sequence {x_n} in (X,F_α,t) is said to be convergent to a point x in X if for every ε>0and λ>0, there exists an integer N=N(ε,λ) such that $x_n \in U_x(\varepsilon,\lambda)$ $\forall n \geq$ N or equivalently F_α (x_n, x; ε) > 1-λ for all n $\geq$ N and $\alpha \in [0,1]$.

Definition 2.6 A sequence {x_n} in $(X,F_\alpha,$ t) is said to be cauchy sequence if for every ε > 0 and λ > 0, there exists an integer N=N(ε,λ) such that for all $\alpha \in [0,1]$

$F_\alpha(x_n,x_m; \varepsilon)$ > 1-λ $\forall$ n, m $\geq$ N.

Definition 2.7 A Fuzzy Menger space (X, F_α, t) with the continuous t-norm is said to be complete if every Cauchy sequence in X converges to a point in X for all $\alpha \in [0,1]$.

Following lemmas is selected from [8] , [12] and [13] respectively in fuzzy menger space.

Lemma 1 Let $\{x_n\}$ be a sequence in a Menger space $(X, F_\alpha, *)$ with continuous t-norm $*$ and $t * t \geq t$. If there exists a constant $k \in (0, 1)$ such that

$$F_{\alpha(x_n, x_{n+1})}(kt) \geq F_{\alpha(x_{n-1}, x_n)}(t)$$ for all $t > 0$ and $n = 1, 2, \ldots,$

then $\{x_n\}$ is a Cauchy sequence in X.

Lemma 2 Let $(X, F_\alpha, *)$ be a Menger space. If there exists $k \in (0, 1)$ such that

$$F_{\alpha(x,y)}(kt) \geq F_{\alpha(x,y)}(t)$$ for all $x, y \in X$ and $t > 0$, then $x = y$.

Lemma 3. Let $\{y_n\}$ be a sequence in fuzzy Menger space $(X, F_\alpha, *)$ with continuous t-norm $*$ and $t * t \geq t$, for all $t \in [0, 1]$ such that

$F_{\alpha(y_n, y_{n+1})}(kt) \geq \min\{F_{\alpha(y_{n-1}, y_n)}(t), F_{\alpha(y_{n+1}, y_n)}(t)\}$ for all $t > 0$ and $n \in N$.

Then $\{y_n\}$ is a Cauchy sequence in X.

Definition 2.8 Self maps A and B of a Fuzzy Menger space $(X, F_\alpha, *)$ are said to be compatible of type (P) if $F_{\alpha(ABx_n, BBx_n)}(t) \to 1$ and $F_{\alpha(BAx_n, AAx_n)}(t) \to 1 \ \forall t > 0$, whenever $\{x_n\}$ is a sequence in X such that $Ax_n, Bx_n \to z$ for some $z \in X$ as $n \to \infty$.

Definition 2.9 Self maps A and B of a Fuzzy Menger space $(X, F_\alpha, *)$ are said to be compatible of type (P-1) if $F_{\alpha(ABx_nBBx_n)}(t) \to 1$ for all $t > 0$, whenever $\{x_n\}$ is a sequence in X such that $Ax_n, Bx_n \to z$ for some z in X as $n \to \infty$.

3. Main Results

Theorem 3.1. Let A, B, S, T, L and M be self maps on a complete Fuzzy Menger space $(X, F_\alpha, *)$ with continuous $t - norm *$ defined as $a * b \geq \min(a, b) t$, for all $a, b \in [0, 1]$, satisfying:

(1.1) $AB(X) \subseteq M(X), ST(X) \subseteq L(X)$;

(1.2) $M(X)$ and $L(X)$ are complete subspace of X ;

(1.3)   either AB or ST is continuous ;

(1.4) (AB, L) and (ST, M) are P-1 compatible;

(1.5)   For all $x, y \in X, k \in (0, 1), \beta \in (0, 2), \ t > 0$,

$$F_{\alpha(ABx, STy)}(kt) \geq \min \{F_{\alpha(Lx, My)}(t), F_{\alpha(ABx, Lx)}(t), F_{\alpha(STy, My)}(t), F_{\alpha(ABx, My)}(\beta t),$$
$$F_{\alpha(STy, Lx)}((2 - \beta)t)\}$$

Then AB, ST, L and M have a unique common fixed point in X.

Proof. Let x_0 be an arbitrary point of X. Since $AB(X) \subseteq M(X), ST(X) \subseteq L(X)$

there exists $x_1, x_2 \in X$ such that $ABx_0 = Mx_1$ and $STx_1 = Lx_2$.

Inductively, we can construct sequences $\{x_n\}$ and $\{y_n\}$ in X such that

$$y_{2n-1} = Mx_{2n-1} = ABx_{2n-2} \text{ and } y_{2n} = Lx_{2n} = STx_{2n-1} \text{ for } n = 0, 1, 2, \ldots.$$

By taking $x = x_{2n}, y = x_{2n+1}$ and $\beta = 1 - q$ with $q \in (0, 1)$ in (1.5), we have

$F_{\alpha(y_{2n+1}, y_{2n+2})}(kt) = F_{\alpha(ABx_{2n}STQx_{2n+1})}(kt)$

$\geq \min \{F_{\alpha(Lx_{2n}, Mx_{2n+1})}(t), F_{\alpha(ABx_{2n}, Lx_{2n})}(t), F_{\alpha(ABx_{2n}, Mx_{2n+1})}(\beta t), F_{\alpha(STx_{2n+1}, Lx_{2n})}((2 - \beta)t)\}$

$\geq \min\{F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t), F_{\alpha(y_{2n+1}, y_{2n+1})}((1 - q)t),$

$F_{\alpha(y_{2n+2}, y_{2n})}((1 + q)t)\}$

$\geq \min\{F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t), 1, F_{\alpha(y_{2n+2}, y_{2n+1})}(t), F_{\alpha(y_{2n}, y_{2n+1})}(qt)\}$

$\geq \min \{F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t), F_{\alpha(y_{2n}, y_{2n+1})}(qt)\}$

Since $t - norm$ is continuous, letting $q \to 1$, we have $\geq \min \{F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t), F_{\alpha(y_{2n}, y_{2n+1})}(t)\}$

$\geq \min \{F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t)\}$

Thus we have $F_{\alpha(y_{2n+1}, y_{2n+2})}(kt) \geq \min\{ F_{\alpha(y_{2n}, y_{2n+1})}(t), F_{\alpha(y_{2n+2}, y_{2n+1})}(t)\}$

for $k \in (0, 1)$ all $n \in N$ and $t > 0$. Hence, by Lemma 3, $\{y_n\}$ is a Cauchy sequence in X. Since $(X, F_\alpha, *)$ is complete, it converges to a point z in X. Also its subsequences converge to z.

Now, we prove z is the fixed point of AB, ST, L and M.

Case I. AB is continuous, (AB, L) and (ST, M) are compatible of type P-1.

Since AB is continuous, $AB(AB)x_{2n} \to ABz$ and $(AB)Lx_{2n} \to ABz$.

Since (AB, L) is compatible of type P-1, $(AB)Lx_{2n} \to ABz$.

By Uniqueness of limit in Menger space, we obtain $ABz = Lz$.

By taking x = z, y = x_{2n+1} with $\beta = 1$ in (1.5), we have

$F_{\alpha(ABz, STx_{2n+1})}(kt) \geq \min\{F_{\alpha(Lz, Mx_{2n+1})}(t), F_{\alpha(ABz, Lz)}(t), F_{\alpha(STx_{2n+1}, Mx_{2n+1})}(t),$
$$F_{\alpha(STx_{2n+1}, Lz)}(t), F_{\alpha(STx_{2n+1}, Mx_{2n+1})}(t)\}$$

This implies that, as $n \to \infty$

$F_{\alpha(ABz, z)}(kt) \geq \min \{ F_{\alpha(Lz, z)}(t), F_{\alpha(ABz, Lz)}(t), F_{\alpha(z, z)}(t), F_{\alpha(z, Lz)}(t), F_{\alpha(z, z)}(t)\}$

$= \min \{F_{\alpha(Lz, z)}(t), 1, 1, F_{\alpha(z, Lz)}(t), 1\}$

$\geq F_{\alpha(Lz, z)}(t) = F_{\alpha(ABz, z)}(t)$

Thus by Lemma 2, it follows that $ABz = z$. Therefore, $z = ABz = Lz$.

Since $AB(X) \subset M(X)$, there exists $v \in X$ such that $z = ABz = Mv$. By taking

$x = z, y = v$ with $\beta = 1$ in (1.5), we have

$$F_{\alpha(ABz, STv)}(kt) \geq \min \{F_{\alpha(Lz, Mv)}(t), F_{\alpha(ABz, Lz)}(t), F_{\alpha(STv, Mv)}(t), F_{\alpha(ABz, Mv)}(t), F_{\alpha(STv, Mv)}(t)\}$$

which implies that, as $n \to \infty$

$F_{\alpha(z, STv)}(kt) \geq \min \{F_{\alpha(z, z)}(t), F_{\alpha(z, z)}(t), F_{\alpha(STv, z)}(t), F_{\alpha(z, z)}(t), F_{\alpha(STv, z)}(t)\}$

$= \{1, 1, F_{\alpha(STv, z)}(t), 1, F_{\alpha(STv, z)}(t)\}$

$\geq F_{\alpha(z, STv)}(t)$

Thus, by Lemma 2, we have $z = STv$.

Hence, $z = STv = Mv$.

As (ST, M) is compatible of type P-1, we have $ST(M)v = M(ST)v$.

Thus, $Mz = STz$.

By taking x = z, y = z with $\beta = 1$ in (1.5), we get

$$F_{\alpha(ABz, STz)}(kt) \geq \min \{F_{\alpha(Lz, Mz)}(t), F_{\alpha(ABz, Lz)}(t), F_{\alpha(STz, Mz)}(t), F_{\alpha(ABz, Mz)}(t), F_{\alpha(STz, Lz)}(t)\}$$

which implies that, as $n \to \infty$

$F_{\alpha(ABz, STz)}(kt) \geq \min\{F_{\alpha(ABz, Mz)}(t), F_{\alpha(ABz, Lz)}(t), F_{\alpha(STz, Mz)}(t), F_{\alpha(ABz, Mz)}(t), F_{\alpha(STz, Lz)}(t)\}$

$$= \min \{ F_{\alpha(ABz,STz)}(t), F_{\alpha(Lz,Lz)}(t), F_{\alpha(Mz,Mz)}(t), F_{\alpha(ABz,STz)}(t,), F_{\alpha(STz,ABz)}(t)\}$$

$$= \min \{ F_{\alpha(ABz,STz)}(t), 1,1, F_{\alpha(ABz,STz)}(t), F_{\alpha(STz,ABz)}(t)\}$$

$$\geq F_{\alpha(ABz,STz)}(t)$$

Thus, by Lemma 2, we have $ABz = STz$. Therefore, $z = ABz = STz = Lz = Mz. z$

Thus z is the common fixed point of AB, ST, L, M.

Case II. ST is continuous, (AB, L) and (ST, M) are compatible of type P-1.

Since ST is continuous, $ST(ST)x_{2n} \rightarrow STz$ and $(ST)Mx_{2n} \rightarrow STz$.

Since (ST, M) is compatible of type P-1, $(ST)Mx_{2n} \rightarrow STz$.

By Uniqueness of limit in Menger space, we obtain $STz = Mz$

By taking $x = x_{2n+1}$ and $y = z$ with $\beta = 1$ in (1.5), we have

$$F_{\alpha(ABx_{2n+1},STz)}(kt) \geq \min\{F_{\alpha(Lx_{2n+1},Mz)}(t), F_{\alpha(ABx_{2n+1},Lx_{2n+1})}(t), F_{\alpha(STz,Mz)}(t), F_{\alpha(STz,Lx_{2n+1})}(t), F_{\alpha(STz,Mz)}(t)\}$$

This implies that, as $n \rightarrow \infty$

$$F_{\alpha(z,STz)}(kt) \geq \min \{ F_{\alpha(z,Mz)}(t), F_{\alpha(z,z)}(t), F_{\alpha(STz,Mz)}(t), F_{\alpha(STz,z)}(t), F_{\alpha(STz,Mz)}(t)\}$$

$$= \min \{ F_{\alpha(z,STz)}(t), 1, F_{\alpha(STz,STz)}(t), F_{\alpha(STz,z)}(t), F_{\alpha(STz,STz)}(t)\}$$

$$= \min \{F_{\alpha(z,STz)}(t), 1, 1, F_{\alpha(STz,z)}(t), 1\} \geq F_{\alpha(z,STz)}(t)$$

Thus by Lemma 2, it follows that $STz = z$. Therefore, $z = STz = Mz$.

Since $ST(X) \subset L(X)$, there exists $v \in X$ such that $z = STz = Lv$.

By taking $x = v, y = z$ with $\beta = 1$ in (1.5), we have

$$F_{\alpha(ABv,STz)}(kt) \geq \min \{F_{\alpha(Lv,Mz)}(t), F_{\alpha(ABv,Lv)}(t), F_{\alpha(STz,Mz)}(t), F_{\alpha(ABv,Mz)}(t), F_{\alpha(STz,Mz)}(t)\}$$

which implies that, as $n \rightarrow \infty$

$$F_{\alpha(ABv,z)}(kt) \geq \min \{F_{\alpha(z,z)}(t), F_{\alpha(ABv,z)}(t), F_{\alpha(z,z)}(t), F_{\alpha(ABv,z)}(t), F_{\alpha(z,z)}(t)\}$$

$$= \min \{1, F_{\alpha(ABv,z)}(t), 1, 1, F_{\alpha(ABv,z)}(t)\} \geq F_{\alpha(ABv,z)}(t)$$

Thus, by Lemma 2, we have $z = ABv$.

Hence, $z = ABv = Lv$.

As (AB, L) is compatible of type P-1, we have $AB(L)v = L(AB)v$.

Thus, $Lz = ABz$.

By taking $x = z, y = z$ with $\beta = 1$ in (1.5), we get

$$F_{\alpha(ABz,STz)}(kt) \geq \min \{F_{\alpha(Lz,Mz)}(t), F_{\alpha(ABz,Lz)}(t), F_{\alpha(STz,Mz)}(t), F_{\alpha(ABz,Mz)}(t), F_{\alpha(STz,Lz)}(t)\}$$

which implies that, as $n \rightarrow \infty$

$$F_{\alpha(ABz,STz)}(kt) \geq \min\{ F_{\alpha(ABz,Mz)}(t), F_{\alpha(ABz,Lz)}(t), F_{\alpha(STz,Mz)}(t), F_{\alpha(ABz,Mz)}(t), F_{\alpha(STz,Lz)}(t)\}$$

$$= \min \{ F_{\alpha(ABz,STz)}(t), F_{\alpha(Lz,Lz)}(t), F_{\alpha(Mz,Mz)}(t), F_{\alpha(ABz,STz)}(t), F_{\alpha(STz,ABz)}(t)\}$$

$$= \min \{ F_{\alpha(ABz,STz)}(t), 1,1, F_{\alpha(ABz,STz)}(t), F_{\alpha(STz,ABz)}(t)\} \geq F_{\alpha(ABz,STz)}(t)$$

Thus, by Lemma 2, we have $ABz = STz$. Therefore, $z = ABz = STz = Lz = Mz. z$

Thus z is the common fixed point of AB, ST, L, M.

Uniqueness : Let $w (w \neq z)$ be the another common fixed point of AB, ST, L and M,

Then $w = ABw = STw = Lw = Mw$,

By taking $x = z$ and $y = w$ in (1.5), we get

$$F_{\alpha(ABz,STw)}(kt) \geq \min \{F_{\alpha(Lz,Mw)}(t), F_{\alpha(ABz,Lz)}(t), F_{\alpha(STw,Mw)}(t), F_{\alpha(ABz,Mw)}(t), F_{\alpha(STw,Lz)}(t)\}$$

From above results, we have

$$F_{\alpha(z,w)}(kt) \geq \min \{F_{\alpha(z,w)}(t), F_{\alpha(z,z)}(t), F_{\alpha(w,w)}(t), F_{\alpha(z,w)}(t), F_{\alpha(w,z)}(t)\}$$

$$= \min\{F_{\alpha(z,w)}(t), 1,1, F_{\alpha(z,w)}(t), F_{\alpha(w,z)}(t)\} \geq F_{\alpha(z,w)}(t)$$

Hence, $z = w$ for all $x, y \in X$ and $t > 0$. Therefore z is the unique common fixed point of AB, ST, and M.

On taking $B = T = I$(identity maps) in above Theorem 3.1 then we have the following :

Corollary 3.2: Let A, S, L and M be self maps on a complete Fuzzy Menger space $(X, F_\alpha, *)$ with continuous $t-$ norm $*$ defined as $a * b \geq \min(a, b)$ t, for all $a, b \in [0, 1]$, satisfying:

(1.6) $A(X) \subseteq M(X), S(X) \subseteq L(X)$;

(1.7) $M(X)$ and $L(X)$ are complete subspace of X ;

(1.8) either A or S is continuous ;

(1.9) (A, L) and (S, M) are compatible of type P-1;

(1.10) For all $x, y \in X, k \in (0, 1), \beta \in (0, 2), t > 0$,

$$F_{\alpha(Ax,Sy)}(kt) \geq \min \{F_{\alpha(Lx,My)}(t), F_{\alpha(Ax,Lx)}(t), F_{\alpha(Sy,My)}(t), F_{\alpha(Bx,My)}(\beta t), F_{\alpha(Sy,Lx)}((2 - \beta)t)\}$$

Then A, S, L and M have a unique common fixed point in X.

If we take A = S, L = M and B = T = I(identity maps) in above ... .. . Theorem ..then we have the following :

Corollary 3.3: Let A and L be self maps on a complete Fuzzy Menger space $(X, F_\alpha, *)$ with continuous $t-$ norm $*$ defined as $a * b \geq \min(a, b)$ t, for all $a, b \in [0, 1]$, satisfying:

(1.11) $A(X) \subseteq L(X)$;

(1.12) $L(X)$ are complete subspace of X ;

(1.13) L is continuous ;

(1.14) (A, L) is compatible of type P-1;

(1.15) For all $x, y \in X, k \in (0, 1), \beta \in (0, 2), t > 0$,

$$F_{\alpha(Ax,Ay)}(kt) \geq \min \{F_{\alpha(Lx,Ly)}(t), F_{\alpha(Ax,Lx)}(t), F_{\alpha(Ay,Ly)}(t), F_{\alpha(Ax,Ly)}(\beta t), F_{\alpha(Ay,Lx)}((2 - \beta)t)\}$$

Then A and L have a unique common fixed point in X.

CONCLUSION

Fuzzy set theory and Fuzzy Fixed Point Theory has numerous applications in applied sciences and engineering such as neural network theory, stability theory, mathematical programming, modeling theory, medical sciences (medical genetics, nervous system), image processing, control theory, communications etc. As a result fuzzy fixed point theory has become an area of interest for specialists in fixed point theory. In this paper we have proved common fixed point theorems for some self mappings on Fuzzy Manger spaces with compatibility P-1.

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ENTREPRENEURIAL MOTIVATION OF WOMEN: THE CASE OF AMBO TOWN MICRO AND SMALL ENTERPRISES, AMBO, ETHIOPIA

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ABSTRACT

Economic growth and development of a country is determined by human, physical and financial resources. Entrepreneurship is a necessary ingredient for stimulating economic growth and employment opportunities in all nations. Women contribute to the socio-economic wellbeing of their families and communities through entrepreneurial activities. Women entrepreneurs play extremely significant role for economic development in least developed countries such as Ethiopia. Currently Ethiopian women entrepreneurs are becoming increasingly visible and successful in all spheres as opportunities for women entrepreneurs have increased, but not sufficient enough. Entrepreneurship is strongly linked to micro and small enterprises (MSE), which are the main developing forces of countries. Micro and Small Enterprise (MSE) sectors have the potential to provide livelihood and jobs for a considerably large number of people especially for women in countries like Ethiopia. The purpose of this study was to identify the important women entrepreneurial motivational factors. The study was conducted in Ambo town which was purposively selected because the selected area in West Shoa Zone had more women entrepreneurs. A sample of 125 women entrepreneurs engaged in 5 sectors namely Urban Agriculture, Manufacturing, Construction, Service and Retail was taken for the study using stratified random sampling technique. The category of business was classified as micro and small enterprise level. Interview Schedule was used for collecting data from the women entrepreneurs. The scale contained 29 items to find out the factors that motivated women entrepreneurs in micro and small enterprises. The data were analyzed using descriptive statistics. Among 29 items the most important factors that motivated to start business was 'Be independent', followed by the second most important factor 'Supplement the family income'. It was revealed in this study that the most important (the highest mean) factors that motivated women to start own business were in "Individual Core". The second most important factors were in "Economic core". MSE's Development office should identify women with low incomes and offer better services for them to become entrepreneurs. Unemployed women (after leaving school) are the potential source of entrepreneurship. Therefore, they should be targeted by governmental and other agencies. Efforts should be taken to locate entrepreneurial potentialities among unemployed women after leaving school and opportunities should be provided to them.

KEYWORDS
Women Entrepreneur, Micro and Small Enterprises, Motivational factors.

ABBREVIATIONS
ETB   Ethiopian Birr
MSE   Micro and Small Enterprise.

INTRODUCTION

Entrepreneurship is a major catalyst for economic growth, productivity, and development in both industrialized and developing countries. History has shown that entrepreneurs establish new businesses that create employment and provide services and products to increase the wealth of their local and national economies (Boateng, 2014). About 50 per cent of world's total population constitutes women, but women workers constitute only 16 per cent in unorganized sectors. Entrepreneurship among women is a recent phenomenon. Entrepreneurship calls for all those personal abilities and characteristics which could be developed in women folk .Women entrepreneurs may be defined as a woman or group of women who initiate, organize and run a business enterprise. In terms of Schumpeterian concept of innovative entrepreneurs, women who innovate, imitate or adopt a business activity are called "women entrepreneurs" (Senthilkumar et al. 2012).

The women entrepreneurs when encouraged and motivated can successfully contribute to the value addition of the economy in a number of ways. Women have proved that they can be competitive in the formal economy as successful entrepreneurs. There is a need, therefore, to accelerate mentorship for young women, with a view in particular to develop their entrepreneurship capabilities and skills (Tadria, 2007). Women owned enterprises are steadily growing in Ethiopia, and they are contributing to household incomes and to the growth of national economies. Despite the growing number of women entrepreneurs (WEs) in Ethiopia and their contribution to the economy and reduction of societal problems, they still own and manage fewer small businesses than men (Atsede and Kroon, 2014). Women account for the larger share of the informal economy operators, as well as those running micro and small enterprises in Ethiopia. MSEs made a significant contribution to the socio-economic life of the country by way of supporting people to earn money and make a contribution to family incomes, and by supplying basic goods and services for local consumption (ILO, 2003). The Small and Micro Enterprise (SME) sector carries great hopes and great burdens in the evolution of all of the transitional economies. Sustained and healthy growth of this sector is clearly necessary, since it is difficult to imagine rising overall living standards and social calm without such a development (McIntyre, 2001).

STATEMENT OF THE PROBLEM
The economy of Ethiopia has moved forward over the recent past years; however, the development challenges facing Ethiopia is yet immense. One of the central elements of Ethiopia's developmental challenges is unemployment and inefficient labor market of urban areas. Currently, the number of professionals unemployed is increasing from time to time. Especially young people those who complete their college and high school education form the largest number of unemployed professionals. Besides this, unemployed women are higher than that of unemployed men, because of gender based discrimination and socio-economic conditions of the country. To solve this problem encouraging private investments can play a vital role. Especially private investments can reduce the

unemployment among women and gender specific discrimination observed in jobs. Although the government formulated MSEs development policies to address issues related to unemployed women, the practical realization seems problematic. The instrument to realize these policies include providing different services for unemployed people like financial services, facilitating production and marketing and providing entrepreneurship training with an aim to motivate the unemployed to enter into entrepreneurship. But the outcome is not much satisfactory.

Atsede and Kroon (2014) and Krishna (2013) stated that entrepreneurs are surrounded by a number of challenges .This forces entrepreneurs in MSEs not to contribute a lot to the development and poverty reduction of the town, region and the country as a whole. Although Government and other stake holders are currently working on the development of women entrepreneurship for the most part of entrepreneurial motivation but the outcome is not satisfactory. This study is different from earlier researches in that their focus area was on all entrepreneurs regardless of gender. Besides, they did not analyze the factors with respect to different demographic, financial, technological and situational factors. Similarly, the earlier studies did not address women entrepreneurs in MSEs. But this study specifically emphasizes factors that motivate women entrepreneurs in MSEs particularly in Ambo town.

Growth of MSEs has a special importance in the economy that it is responsible for the major contributions to new jobs. In fact, as researches reveal entrepreneurial motivation as a multidimensional phenomenon and there is substantial heterogeneity in a number of factors associated with motivation and related research. In Ethiopia, support to MSEs especially women owned MSEs has been considered as a tool to employment creation and foundation to long-term development objectives as well as empowering women. Even if some countries believed to be successful in fully utilizing the potentials in MSEs to achieve better economic development, the voyage of MSEs in Ethiopia has not been an easy ride and still it is lagging behind in exploiting the huge potential to meet its development objectives.

Even though women entrepreneurs in MSEs account for the highest proportion of total entrepreneurs in the country as a whole and in Ambo in particular, there is still shortage of studies conducted with a specific objective of analyzing the factors of entrepreneurial motivation of women. This study is considered to fill the gaps by identifying factors that motivate women to become entrepreneur. Therefore, this study proposes to assess the different factors of women entrepreneur's motivation in MSEs in Ambo town.

SIGNIFICANCE OF THE STUDY
The study has explored one of the most important and topical development issues of today not only for developing countries but for all countries in the world, namely women's empowerment as shown in the Millennium Development Goals (MDGs). According to Mulugeta (2010) women should create their own jobs and become entrepreneurs since opportunities of getting employment in either government, non-government or a private organization is currently almost declining. It is expected that the results of this study can help existing jobless women, MSE leaders of the town and the region and NGOs working with women to develop entrepreneurial motivation among women and alleviate the problems that women entrepreneurs face. It shows what areas of support should MSEs Development office and Women, child and youth Affair Office and MSEs have to work together. Since less research has been carried out in this area, it will be an addition to the existing literature.

METHODOLOGY
The study was conducted in Ambo town in West Shoa zone, Oromia regional state of Ethiopia. Selection of the study area for this research work was purposive, because the selected area in West Shoa Zone had more women entrepreneurs and were relatively performing well when compared with the other areas in the zone. A sample of 125 (61 from micro and 64 from small enterprises respectively) women entrepreneurs engaged in 5 sectors namely Urban Agriculture, Manufacturing, Construction, Service and Retail was taken for the study using stratified random sampling technique.

The category of business was classified as micro and small enterprise level according to the following criteria. In the industrial sector, a business enterprise which employs 6-30 labor force, including business owner and family labor, and/or the monetary value of the enterprise's total asset ranged from Ethiopian Birr (ETB) 100,001-1500, 000 was considered as a small enterprise. Any enterprise with less than 6 employees and/or up to Birr 100,000 capital investment in total assets was considered as a micro enterprise. In the service sector a business enterprise was considered as a small enterprise if it employs 6-30 labor force, including business owner and family labor, and/or if the monetary value of the enterprise's total asset ranged Birr 50001-500000. A service enterprise below 6 labor force and/or capital up to Birr 50,000 was classified as a micro enterprise (FDRE, MoFED. 2010).

To identify the important factors of entrepreneurial motivation of women, the scale developed by Vijaya and Kamalanabhan (1998) was used with slight modification based on previous research studies in Ethiopia. The 29 factors were classified under five categories namely i) Entrepreneur core ii) Work core iii) Social core iv) Individual core and v) Economic core . The women entrepreneurs were asked to rate the importance of the factors that motivated them to choose entrepreneurship as a career on a five point continuum namely 'Not important', 'Slightly important', 'Important', 'Very important' and 'Extremely important' with the scores of 1,2,3,4 and 5.

Both qualitative and quantitative data were collected for this study. The data were collected from both primary and secondary sources. Interview schedule was used to collect primary data. Secondary data were collected from secondary resources like Central Statistical Authority (CSA), Annual reports of Zonal and Town Micro and Small Enterprise Development office of the study area, web sites and different related documents from different institutions. The interview schedule developed was pretested to identify and avoid vague and sensitive questions. Focus group discussion were held with two groups in which each group had five members. Five women respondents, one from each sector, were purposively selected for each Focus Group Discussion based on their experience and active participation in the activities of the MSEs to collect the required data. Key informant interview was used as one source of information for primary data collection. The total sample size of the key informant interview was four in numbers who are Town MSEs Development Office staff, Women, Children and Youth Affair office staff, and Micro Finance Institution staff, who were selected based on their experience. Quantitative data were analyzed using the Statistical Package for Social Scientists (SPSS) software Version 20.

RESULTS AND DISCUSSION
ENTREPRENEURIAL MOTIVATION OF WOMEN IN MSE's
The phenomenon of entrepreneurship is complex; usually entrepreneurs are not motivated by a single factor. A motive for starting business is very much important. So it is essential to identify and explore the various factors of entrepreneurial motivation of women. To become an entrepreneur is a multidimensional process, which should be explained by inter-discipline theories as well as with a tool to understand different factors affecting into it. In addition, not to forget that the decision to become an entrepreneur is done at the individual level and person interpreting the factors by her subjective reality has the final effect on the motivation to become an entrepreneur (Luoma and Qian, 2009). The women entrepreneurs were asked to rate the importance of the factors in motivating them to start the business on a five point continuum ranging from 'Not important' to 'Extremely important'. The results are presented in Table 1.

It was found that the most important factor in motivating them to own a business is "Be independent" with mean and standard deviation of 4.22 and 1.149 respectively. The fact that independence needs taking the responsibility to use one's own judgment as opposed to blindly following the assertions of others. In the study area most of the women are depended on the income of their husbands and other family members. Because of this reason everything is decided by her husband and other family members and also women being suffered from underestimation and inequality. Therefore, women have started their own business in order to be independent and to participate on decision making. This result is supported by ILO (2003) finding on Ethiopian Women Entrepreneurs Going for Growth, in which it was reported that 45 (36.60%) out of 123 women seem to have been particularly motivated by seeing the business as a vehicle for being independent and the desire to generate income, as well as support for their families. Also this result is similar with the finding of Dzisi (2008). In addition to these, previous studies in Latvia have shown that most important motivating factors to start business were; make own decisions, increase income and maintain personal freedom (independent). In Canada and USA, the motivation factor 'make my own decision' was evaluated uppermost (mean 4.46 and 4.30, standard deviation 0.793 and 0.780) (Sloka et al. 2014).

The second reason was "Supplement the family income" with mean and standard deviation of 3.68 and 1.255 respectively. This finding is similar with the results of the study of women entrepreneurs in micro and small enterprises in Kenya (ILO, 2008). Income is a stimulating factor to motivate people into entrepreneurship. People have decided to become entrepreneurs because they are not satisfied with their present levels of income. In Ethiopia, inflation is increasing and purchasing power of money is decreasing from time to time. Therefore, it is obvious that women have desired to supplement the family income to overcome the problem.

Third and fourth reasons were "Utilize my keen business sense" and "Ensure financial stability of children" with equal mean of 3.49 and standard deviation 1.097 and 1.342 respectively. Utilizing the keen business sense could be put to use better if they wanted to have their own business. Most of women are pushed into business to generate income to earn extra money for themselves and their families, especially their children's education and other necessities. People need stable income and they might have perceived that owning a business gives them more financial stability. The less important factors identified in this study were "Be an employer", "Be a leader", "Encouragement with big business", "Make money to clear debts" with the lower mean scores of 2.17, 2.11,2.10 and 2.04 respectively.

Further analysis was made by using mean, standard deviation and rank, for analyzing the five cores namely Entrepreneurial Core, Work Core, Social Core, Individual Core and Economic Core and the details are presented in Table 2.

From Table 2, it is inferred that 'Get over monotony, experience change' (mean score 3.46) and 'Acquire lots of wealth for self' (mean score 3.41) were the important factors in the 'Individual core' that motivated women entrepreneurs. Under 'Economic core', 'Supplement the family income' (mean score 3.68) was the most important factor as reported by the respondents followed by 'Ensure financial stability of children' (mean score 3.49).

'Utilize my keen business sense' (mean score 3.49) and 'Get complete satisfaction' (mean score 3.06) were the two most factors for women entrepreneurs under 'work core'. 'Be independent' was the most influenced factor as reported by women respondents (mean score 4.22) under 'Entrepreneurial core'. 'Show that I am inferior to none' was the most influential factor as reported by the women entrepreneurs (mean score 3.11).

TABLE 1: MEAN SCORE AND STANDARD DEVIATION OF FACTORS OF MOTIVATION OF WOMEN ENTREPRENEURS

S. No	Reason for starting Business	Category of Business						Over all		
		Micro			Small			Mean	SD	Rank
		Mean	SD	Rank	Mean	SD	Rank			
1	Be independent	4.26	1.168	1	4.19	1.139	1	4.22	1.149	1
2	Supplement the family income	3.67	1.313	3	3.69	1.207	2	3.68	1.255	2
3	Utilize my keen business sense	3.34	1.223	6	3.63	.951	3	3.49	1.097	3
4	Ensure financial stability of children	3.70	1.256	2	3.28	1.397	6	3.49	1.342	4
5	Get over monotony , experience change	3.52	1.410	4	3.41	1.365	4	3.46	1.383	5
6	Acquire lots of wealth for self	3.43	1.310	5	3.39	1.163	5	3.41	1.232	6
7	Get monetary returns for my talent	3.03	1.251	11	3.28	1.397	7	3.12	1.215	7
8	Show that I am inferior to none	3.18	1.360	7	3.05	1.302	8	3.11	1.327	8
9	Enjoy the best luxuries of life	3.15	1.314	8	3.00	1.321	11	3.07	1.315	9
10	Get complete satisfaction	3.10	1.338	10	3.03	1.208	9	3.06	1.268	10
11	Lack of Employment Opportunity	3.13	1.455	9	2.83	1.538	17	2.98	1.500	11
12	Make my family rich	2.98	1.478	12	2.95	1.133	15	2.97	1.307	12
13	Get over shortage of money	2.92	1.595	13	2.98	1.507	14	2.95	1.544	13
14	Exploit my innate talent and potential in a profession	2.74	1.196	14	3.02	1.202	10	2.88	1.202	14
15	Do something Achieve /something that others usually do not	2.72	1.427	16	3.00	1.141	12	2.82	1.240	15
16	Provide good service or products to the community	2.62	1.380	19	2.98	1.279	13	2.81	1.336	16
17	Help people by providing them employment	2.74	1.493	15	2.72	1.474	22	2.73	1.478	17
18	Compete with others and prove to be the best	2.59	1.395	21	2.84	1.263	16	2.72	1.330	18
19	Have own preferred work style and lifestyle	2.66	1.290	17	2.78	1.228	20	2.72	1.255	19
20	Use my decision-making/ problem solving skill to profit in a career	2.64	1.330	18	2.78	1.291	19	2.71	1.306	20
21	Do something creative /innovative	2.62	1.319	20	2.67	1.273	23	2.70	1.345	21
22	Attain high social status	2.46	1.467	22	2.80	1.382	18	2.63	1.429	22
23	Make effective use of my risk taking ability and succeed	2.21	1.343	25	2.78	1.119	21	2.50	1.261	23
24	Earn the respect of people	2.30	1.269	23	2.34	1.237	24	2.32	1.248	24
25	Utilize the concessions or loans from Government ,banks, etc	2.25	1.274	24	2.27	1.212	25	2.26	1.237	25
26	Be an employer	2.10	1.313	26	2.23	1.231	26	2.17	1.268	26
27	Be a leader	2.00	1.225	29	2.22	1.228	27	2.11	1.226	27
28	Encouragement from big business	2.02	1.088	28	2.19	1.125	28	2.10	1.106	28
29	Make money to clear debts	2.07	1.289	27	2.02	1.188	29	2.04	1.234	29

Source: Computed from own survey (2015)

TABLE 2: MEAN AND STANDARD DEVIATION OF FACTORS IN EACH CORE

S.No	Reason for starting Business	Category of business				Over all	
		Micro		Small		Mean	SD
		Mean	SD	Mean	SD		
Individual Core							
1	Acquire lots of wealth for self	3.43	1.310	3.39	1.163	3.41	1.232
2	Have own preferred work style and lifestyle	2.66	1.290	2.78	1.228	2.72	1.255
3	Enjoy the best luxuries of life	3.15	1.314	3.00	1.321	3.07	1.315
4	Get over monotony , experience change	3.52	1.410	3.41	1.365	3.46	1.383
	Individual Core	3.188	.7848	4.750	3.144	3.166	.86483
Economic Core							
1	Get monetary returns for my talent	3.03	1.251	3.28	1.397	3.12	1.215
2	Make my family rich	2.98	1.478	2.95	1.133	2.97	1.307
3	Get over shortage of money	2.92	1.595	2.98	1.507	2.95	1.544
4	Supplement the family income	3.67	1.313	3.69	1.207	3.68	1.255
5	Ensure financial stability of children	3.70	1.256	3.28	1.397	3.49	1.342
6	Make money to clear debts	2.07	1.289	2.02	1.188	2.04	1.234
7	Lack of Employment Opportunity	3.13	1.455	2.83	1.538	2.98	1.500
	Economic Core	3.072	.6497	2.993	.6324	3.032	.63961
Work core							
1	Compete with others and prove to be the best	2.59	1.395	2.84	1.263	2.72	1.330
2	Get complete satisfaction	3.10	1.338	3.03	1.208	3.06	1.268
3	Utilize my keen business sense	3.34	1.223	3.63	.951	3.49	1.097
4	Exploit my innate talent and potential in a profession	2.74	1.196	3.02	1.202	2.88	1.202
5	Do something creative /innovative	2.62	1.319	2.67	1.273	2.70	1.345
6	Do something Achieve /something that others usually do not	2.72	1.427	3.00	1.141	2.82	1.240
7	Use my decision-making/ problem solving skill to profit in a career	2.64	1.330	2.78	1.291	2.71	1.306
	Work core	2.822	.8092	2.995	.7136	2.911	.76365
Entrepreneur Core							
1	Be independent	4.26	1.168	4.19	1.139	4.22	1.149
2	Make effective use of my risk taking ability and succeed	2.21	1.343	2.78	1.119	2.50	1.261
3	Provide good service or products to the community	2.62	1.380	2.98	1.279	2.81	1.336
4	Help people by providing them employment	2.74	1.493	2.72	1.474	2.73	1.478
5	Utilize the concessions or loans from Government, banks, etc	2.25	1.274	2.27	1.212	2.26	1.237
	Entrepreneur Core	2.816	.7026	2.987	.7650	2.904	.73730
Social Core							
1	Show that I am inferior to none	3.18	1.360	3.05	1.302	3.11	1.327
2	Attain high social status	2.46	1.467	2.80	1.382	2.63	1.429
3	Earn the respect of people	2.30	1.269	2.34	1.237	2.32	1.248
4	Be an employer	2.10	1.313	2.23	1.231	2.17	1.268
5	Be a leader	2.00	1.225	2.22	1.228	2.11	1.226
6	Encouragement from big business	2.02	1.088	2.19	1.125	2.10	1.106
	Social Core	2.483	.7833	2.580	.7968	2.533	.78858

Source: Computed from own survey (2015)

TABLE 3: MEAN AND STANDARD DEVIATION OF EACH CORE

Motivational Cores	Category of Business						Over All		
	Micro			Small					
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Individual Core	3.1885	.78482	1	4.7500	3.1445	1	3.1660	.86483	1
Economic Core	3.0726	.64976	2	2.9933	.63247	3	3.0320	.63961	2
Work core	2.8220	.80924	3	2.9955	.71359	2	2.9109	.76365	3
Entrepreneur Core	2.8164	.70266	4	2.9875	.76501	4	2.9040	.73730	4
Social Core	2.4836	.78334	5	2.5807	.79681	5	2.5333	.78858	5

Source: Computed from own survey (2015)

It is evident from Table 3 that the most important (the highest mean) factor for motivating them to start own business was "Individual Core" with mean and standard deviation of 3.1660 and .86483 respectively. This core has relatively high mean among the five cores because the individual motivation core contains the items that have the highest mean from all items such as, 'Acquire lots of wealth for self', 'Get over monotony, experience change' and 'Enjoy the best luxuries of life' with means 3.41, 3.46 and 3.07 respectively. These three items have mean value greater than 3.00 and are ranked 5, 6 and 9 respectively among the 29 items.

The second highest ranked core was "Economic core" with mean and standard deviation of 3.0320 and .63961. This core contains the items namely, Supplement the family income (mean value 3.68, 2nd rank), Ensure financial stability of children (mean value 3.49, 4th rank), and with another five items with mean value less than 3.00.

The other three cores were Work core, Entrepreneur core and Social core with mean values of 2.9109, 2.9040 and 2.5333 and with third, fourth and fifth ranks respectively. Most of the items contained in these cores have mean score of less than 3.00. From work core, 'Utilize my keen business sense' (3.49 mean) and 'Get complete satisfaction' (3.06 mean) and from Entrepreneur core, 'Be independent' (4.22 mean) and from Social core, 'Show that I am inferior to none' (3.11 mean) were the items with mean value greater than 3.00.

Both the micro and small enterprise categories seemed to show relatively the same overall result and the only difference was that the mean value of work core is greater than economic core in small enterprises.

RECOMMENDATIONS

Based on the findings of the study, the following suggestions are recommended for consideration to develop entrepreneurial motivation of women in MSE's. In order to facilitate the creation of such supportive environment, knowledge of the motivational factors of entrepreneurs would be more than welcome. Only if the institutions in charge of creating economic environment are aware of these factors, they can take adequate actions to improve the situation.

As per the results, for majority of the women entrepreneurs the most important factor in motivating them to own a business was "Be independent". Therefore MSE's development office should provide training on specific subjects which are very important for starting business for women to be economically independent.

The second and fourth most important factors identified were 'Supplement the family income' and 'Ensure financial stability of children'. Therefore MSE's Development office should identify women with low incomes and offer better services for them to become entrepreneurs.

Unemployed women (after leaving school) are the potential source of entrepreneurship. Therefore they should be targeted by government and other agencies. Efforts should be taken to locate entrepreneurial potentialities among unemployed women after leaving school and opportunities should be provided to them.

Special efforts should be made to improve partnerships between all actors who influence the socio-economic environment of women in general, and women entrepreneurs in particular in creating more positive and constructive environment for starting, expansion and growth of business owned by women entrepreneurs.

CONCLUSION

Entrepreneurs in general are not motivated by a single factor. A motive for starting business is very much important. Entrepreneurship is a multidimensional process. The decision to become an entrepreneur is done at the individual level and interpreting the factors by her subjective reality has the final effect on the motivation to become an entrepreneur. For this study 29 items were selected as the factors that motivate women to start new business. Among 29 items the most important factor that motivated to start business was 'Be independent'. The second most important factor was 'Supplement the family income' and the third and fourth most important items that motivated to own a business among the sampled women were 'Utilize my keen business sense' and 'Ensure financial stability of children'. The other factors in the top ten were 'Get over monotony, experience change', 'Acquire lots of wealth for self', 'Get monetary returns for my talent', 'Show that I am inferior to none', 'Enjoy the best luxuries of life' and 'Get complete satisfaction'. It is revealed in this study that the most important factors that motivated women to start own business were in "Individual Core". The second most important core was "Economic core". MSE's Development office should identify women with low incomes and offer better services for them to become entrepreneurs. Unemployed women (after leaving school) are the potential source of entrepreneurship. Therefore they should be targeted by governmental and other agencies. Efforts should be made to locate entrepreneurial potentialities among unemployed women after leaving school and opportunities should be provided to them.

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AN OVERVIEW OF OPERATING EFFICIENCY OF BANKS: A STUDY WITH SPECIAL REFERENCE TO SBI, CANARA, HDFC AND KARUR VYSYA BANKS

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ABSTRACT

Efficiency of emerging financial system largely depends upon the quality and variety of financial services provided by financial intermediaries. Commercial banks have come to play a significant role in the development of countries. Banks have become the prime movers and pace setters for the achievement of socio-economic objectives of the country. The operations of commercial banks record the economic pulse of economy of almost all countries big or small, rich or poor, socialist or capitalist. Present study has been undertaken to evaluate financial and operating efficiency of selected banks from public and private sector banks. Various parameters have taken to study the performance of the banks.

1. KEYWORDS

Business Per Employee, Gross Profit, Net Profit, Interest earned, Interest Expended, Net Interest Margin, Profit Per Employee.

2. INTRODUCTION

In India, the financial sector comprises of banking and non-banking financial institutions. Banking institutions simply accept the long term deposits from the public and then lend to the borrowing community. Banking institutions are creators and purveyors of credit. While the liabilities of banks are part of the money supply, this may not be true of non-banking financial institutions. The banking system is the heart of the financial system. The Indian financial system comprises of a large number of commercial and cooperative banks and specialized developmental banks for industry, agriculture, external trade and housing, social security institutions, collective investment institutions, etc. A developing country faces many problems like poverty, scarcity of capital, lack of entrepreneurship, etc. There is a high dependence on agriculture and at the same time agriculture is not modernized and the means of transport is underdeveloped. There are inter-regional and inter-sectoral disparities. There is also unequal distribution of wealth.

Banking system is also referred to as a system provided by the bank which offers cash management services for customers, reporting the transactions of their accounts and portfolios throughout the day. The banking system in India should not only be hassle free but also be able to meet the new challenges posed by the technology and any other external and internal factors. For the past three decades, India's banking system has had several outstanding achievements to its credit. The Banks are the main participants of the financial system in India. Although deregulation and liberalization in the banking sector have resulted in enhanced efficiency and systematic resilience, they have also raised legitimate concerns with regard to the quality of customer services provided by banks. The Banking sector offers several facilities and opportunities to their customers. Banks safeguard the money and valuables and provide loans, credit and payment services, such as checking accounts, money orders and cashier's cheques. Banks also offer investment and insurance products. As a variety of models for cooperation and integration among finance industries have emerged, some of the traditional distinctions between banks, insurance companies and securities firms have diminished. In spite of these changes, banks continue to maintain and perform their primary role - accepting deposits and lending funds from these deposits.

3. ROLE OF BANKING SECTOR

Commercial banks have come to play a significant role in the development of countries. The two basic functions of commercial banks are: mobilization of the savings of the people and disbursement of credit according to direction. The world over, banking system is the focal point in the financial set-up of any developing country. In India too economic development has evolved around the banking system. Indian banking industry is divided into two parts, organized and unorganized sectors. The organized sector consists of Reserve Bank of India, Commercial Banks and Co-operative Banks and Specialized Financial Institutions (IDBI, ICICI, IFC etc). The unorganized sector, which is not homogeneous, is largely made up of money lenders and indigenous bankers. The banking system is an integral part of the financial sector of our country. India has a long and cheque red history of financial intermediation, particularly Commercial Banking. At the beginning of the 20th Century, India had insurance companies, (both life and general) and a functional stock exchange. Even before the setting up of the Reserve Bank of India in 1935, the country had market for money, Government securities and foreign exchange. The financial system was, however, characterized by paucity of funds and instruments, limited number of players and lack of depth and openness. It was primarily a back based system.

The Indian financial sector has considerably widened and depends there by on lending strong support to capital accumulation and overall economic growth. And the commercial banks in India constitute the single most important component of the Indian Financial System in bringing about the financial intermediation process in India. Within the banking institutions, the role of commercial banks has occupied a new meaning and significance, in view of the changing structure and requirements of a developing economy. The increasing horizon of commercial banks identifies itself with the problems and responsibilities for making banking an instrument for bringing about social and economic transformation of a developing country, Social responsibilities have undergone far-reaching changes. In modern economy, bankers are to be considered not merely as "dealers in money" but move realistically as the "lenders in development". Similarly, banks are not just the storehouses of the country's wealth but are the reservoirs of resources necessary for economic development. Banks are the purveyors of money and credit to the factors of production in every country and thus help in the acceleration of growth. The commercial banks help the agricultural sector in a number of ways. They open a network of branches in rural areas to provide agricultural credit. They also finance agricultural sector for the modernization and mechanization of farms, for the marketing of their products, for providing irrigation facilities, for high yielding seeds and fertilizers.

The industrial sector is also not away from the help of the commercial banks. They finance the industrial sector in many ways. They provide short term, medium term and long term loans to industry, to secure labour and other factors of production. In this way, the commercial banks not only help in the industrialization process, but also have a say in the type of economic development, the community would like. This is so because banks prefer only those entrepreneurs whose products are in great demand by the public. In India, Commercial banks grant loans to small scale industries for expansion, modernization and renovation and also provide them with working finance. Besides industrial units, loans are also granted to technocrats, technologists, technicians and entrepreneurs to set-up small scale industrial units. Banks also give finance to promotion of industrial estates for purchase of land and construction of sheds. Besides, they underwrite the shares and debentures of large scale industries. The Commercial banks help in developing both internal and external trade of a country. The banks provide loans to retailers and wholesalers for their inventory. They also help in the movement of goods from one place to another, or between the countries, by providing all types of facilities such as discounting and accepting bills of exchange, providing overdraft facilities, issuing drafts, etc. Moreover, they finance both exports and imports of developing countries, by providing foreign exchange facilities for export of goods. In India, financing of exports by commercial banks have been given top priority. Commercial Banks have refinance facilities against loans granted to this sector. Besides, in order to make available credit at a cheaper rate to this sector, the Reserve bank of India has fixed ceiling on interest rates to be charged from exporters.

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Commercial Banks also facilitate the activation of the Government motive and force for economic development by providing help in arranging finance to the Government through various methods like: direct credit to the Government undertakings and through subscribing public debt and investing money in various Government securities. This process of credit supply enables the Government to implement various schemes for development. The Commercial Banks may also help the Planning Commission to achieve its targets through their coordinated working with the commission by providing credit to the needy in the country side. They help in the balancing of economic development, thereby decentralizing it. Their working also indirectly helps the Government to solve many problems of development, like: shortage of savings, rising prices, unemployment, unbalanced economic development, lack of entrepreneurship etc. The Commercial Banks help the economic development of a country by faithfully following the monetary policy of the Central Bank. They represent the focal point of monetary policy of the Central Bank. In fact, the Central Bank depends upon the Commercial Banks for the success of its monetary policy in tune with the requirements of a developing economy. Thus, banking is a basic industry, which not only caters to the development of a trade, commerce and industry, but also helps in removing many obstacles in the way of economic development.

4. REVIEW OF LITERATURE

The Banking sector is an indispensable financial service sector supporting development plans through channelizing funds for productive purpose, intermediating flow of funds from surplus to deficit units and supporting financial and economic policies of government. Therefore analyzing performance has always been a popular research area. Various researchers have analysed the performance of banking sector from time to time. **Prasuna (2004)** analysed the performance of 65 banks for the year 2003-04 and found that the competition was tough and customers benefited from it. Better service quality, innovative products, better bargains are all greeting the Indian customers. **Satish, Sharath (2005)** analysed the performance of 55 banks for the year 2004-05. They concluded that the Indian banking system grow in the future. Bank IPO's will be hitting the market to increase their capital and gearing Basel II norms. **Bolda and verma (2006)** made a comparative analysis of performance of SBI and ICICI fron 2000-01 to 2004-05 using the parameters of CAMEL model. The study concluded that both the banks have performed excellently. **Ritu Goyal and Rajinder Kaur (2008)** stated that a new chapter in the history of Indian banking began with the report of a committee on the financial system head by M. Narasimham. The committee concerned with efficiency and productivity of Indian banking industry. **Dr. D. Sudarsana Murthy and Dr. P.V. Narasaiah (2009)** were identified that RRBs are the most important weapon for the development of rural areas. In geographical coverage, RRBs are playing a predominant role in collecting deposits and credit deployment. The sponsoring banks must take measures for strengthening the viability of RRBs with the help of its other organizations. They stated that the performance of some of the RRBs are not satisfactory due to lack of operational viability.

5. SIGNIFICANCE OF THE STUDY

Today the Indian banking system has undergone significant transformation following financial sector reforms, adopting international best practices. Several prudential, payment, integrating and provisioning norms have been introduced, and these are pressurizing banks to improve efficiency and trim down NPAs to improve the financial health of the banking system and also to improve operating efficiency of the banks. In this background, the present study has been attempted to make a study on their operational performance of four banks, two each selected from Public and Private sectors banks.

6. STATEMENT OF THE PROBLEM

Economic Development needs an appropriate monetary policy. But a well-defined banking sector is a necessary pre-condition for the effective implementation of the monetary policy. Therefore, performance of the banks plays a very important role in any developing country. Banks are the pivot of modern commerce. Industrial innovations and business expansions become possible through finance provided by banks. Hence, it is very essential to study operating and financial performance of the banks.

7. OBJECTIVES OF THE STUDY

The present study has been taken up with the following objectives:
- To study the operating efficiency of selected banks from public and private sector banks.
- To study the financial performance of the selected banks.
- To offer suggestions wherever necessary.

8. METHODOLOGY

To achieve the objectives set-forth the study is based on secondary data. The data has been obtained for a period of thirteen years starting from 2001-02 to 2011-12. The data has been collected from Annual Reports and accounts of Public Sector Banks and Private Sector Banks, RBI bulletins, RBI Reports on Trend and Progress of Banking in India, RBI Annual Reports, RBI Reports on statistical Tables Relating to Banks in India. The secondary data were also collected from IBA publications on performance highlights of Public Sector Banks and performance highlights of Private Sector Banks. Data thus obtained has been analysed in tune with the set objectives of the study and the observations were tabulated to facilitate easy understanding. Four banks have been selected, two from public sector and two from private sector Banks. SBI, Canara, HDFC Bank and Karur Vysya bank have been selected to study the operating efficiency using percentages and other relevant statistics.

9. DATA ANALYSIS AND FINDINGS

Past three decades have witnessed a tremendous growth in financial services like banking both in absolute terms and in financial terms. The scheduled commercial banks have an accumulation of assets and wealth through their long years of existence and wide-spread of branches and product offering. The total assets of any bank mainly comprises of the loans and advances investments etc., which are expected to generate a desirable rate of return at a minimum cost and expenditure. To assess the relative efficacy of the different categories of the banks under umbrella schedule commercial banks, different ratios of return on total assets and various heads of expenditures to total assets of schedule commercial banks are analyzed for a grasp. Ratio is the relationship expressed in mathematical terms between two figures connected with each other in some logical manner and ratio analytical approach to evaluate the performance or operational scenario of the banks is time tested and. Profitability is most commonly used criteria to determine the efficiency of banks and this can be measured by using different methods following different concepts. The following indicators have been selected to assess the performance of the four selected banks during the 13 years period preceding the date of survey i.e. 2001-02 to 2011-12.

9.1 GROSS RETURNS AS PERCENTAGE OF TOTAL ASSETS

The gross return on total assets of the four selected banks during 2001-02 to 2011-12 is presented in Table-9.1. The average GRTA for the two public sector banks considered in the present study – SBI (2.07 percent) and Canara bank (2.07 percent). Similarly, the average GRTA for the two private sector banks considered here – HDFC bank (2.70 percent) and Karur Vysya bank (2.57 percent). HDFC bank has recorded the highest average GRTA (2.70 percent) compared to the other three banks for the period 2001-02 to 2011-12. This was followed by the Karur Vysya bank (2.57 percent), SBI (2.07 percent) and Canara bank (2.07 percent).

TABLE – 9.1: GROSS PROFIT AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2013-14 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	1.74	2.30	2.29	3.17
2002-03	2.07	2.43	2.33	3.20
2003-04	2.34	2.88	2.38	3.02
2004-05	2.39	2.34	2.61	2.53
2005-06	2.29	1.92	2.69	2.54
2006-07	1.77	1.75	2.81	2.47
2007-08	1.82	1.64	2.83	2.11
2008-09	1.90	1.80	2.80	2.50
2009-10	1.82	2.09	3.17	2.38
2010-11	2.23	2.03	3.09	2.39
2011-12	2.36	1.59	2.65	1.93
Average	**2.07**	**2.07**	**2.70**	**2.57**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant issues.

Performance in terms of GRTA appears good in the case of the two private sector banks compared to the two public sector banks during the reference period. This indicates that the mean GRTA is more or less similar in two selected public sector banks as well as the two private sector banks. However, the GRTA varied among the four selected banks may be due to differential gross returns. Performance in terms of Gross Returns on Total Assets appears good in the case of the two private sector banks compared to the two public sector banks during the reference period (2001-2002 to 2011-2012).

9.2 NET RETURNS AS PERCENTAGE OF TOTAL ASSETS

Net profit to total assets indicates the efficiency of the bank is utilizing its assets in generating profits. It is arrived at by dividing the net profits by total assets. A higher ratio indicates the better income generating capacity of the assets and better operating efficiency of the management. The net return on total assets of the four selected banks during 2001-02 to 2011-12 is presented in Table-9.2.

TABLE – 9.2: NET RETURN AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	0.70	1.03	1.25	2.12
2002-03	0.83	1.24	1.30	2.00
2003-04	0.90	1.40	1.20	2.30
2004-05	0.94	1.01	1.30	1.30
2005-06	0.89	1.00	1.20	1.50
2006-07	0.80	0.90	1.30	1.40
2007-08	0.93	0.90	1.20	1.40
2008-09	0.90	0.90	1.20	1.40
2009-10	0.88	1.14	1.33	1.53
2010-11	0.71	1.20	1.42	1.47
2011-12	0.88	0.88	1.53	1.33
Average	**0.85**	**1.05**	**1.29**	**1.61**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

Among the two public sector banks considered in the present study, the average net return on total assets is higher in Canara Bank (1.05 percent) than in the SBI (0.85 percent). In the same way, the average ROTA for the two private sector banks considered here is more in the case of Karur Vysya bank (1.61 percent) than in the HDFC bank (1.29 percent). The average ROTA is recorded to be high in Karur Vysya bank (1.61 percent). This is followed by the HDFC bank (1.29 percent), Canara bank (1.05 percent) and SBI bank (0.85 percent). The net return on total assets appears good in the case of the two private sector banks compared to the two public sector banks. This variation between selected public sector and private sector banks studied was due to the difference in establishment costs etc. in these banks. The Net Return on Total Assets appears good in the case of the two private sector banks compared to the two public sector banks during the reference period.

9.3 INTEREST INCOME AS PERCENTAGE OF TOTAL ASSETS

This ratio measures the income from lending operations as a percentage of total assets by bank in a year. Interest income includes income on advances, interest on deposits with RBI. A detail relating to the Interest Income on total assets of the four selected banks during 2001-02 to 2011-12 is presented in Table-9.3. The main source of income as interest on assets is through the core banking activities. The 'Interest Income' among the two public sector banks considered, the average 'Interest Income' was higher in Canara Bank (7.54 percent) than in the SBI (7.34 percent). In the same way, among the two private sector banks considered here, the average 'Interest Income' is more in the case of Karur Vysya bank (8.30 percent) than in the HDFC bank (7.18 percent).

TABLE -9.3: INTEREST INCOME AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	8.56	8.83	7.16	9.44
2002-03	8.27	8.16	6.62	8.35
2003-04	7.47	7.11	6.02	9.11
2004-05	7.05	6.86	6.02	7.49
2005-06	7.28	6.56	6.09	7.23
2006-07	6.57	6.85	7.29	7.83
2007-08	6.78	7.87	7.60	7.78
2008-09	6.60	7.80	8.90	8.50
2009-10	7.04	7.79	7.97	9.00
2010-11	7.15	6.86	7.19	7.86
2011-12	7.98	8.25	8.07	8.69
Average	**7.34**	**7.54**	**7.18**	**8.30**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

During the reference period, i.e. the period 2001-02 to 2011-12, the average 'Interest Income' was recorded to be high in Karur Vysya bank (8.30 percent). This was followed by the Canara (7.54 percent), SBI (7.34 percent) and HDFC bank (7.18 percent). The interest income on total assets appears good in the case of Karur Vysya bank among the two private sector banks and in Canara bank among the two public sector banks during the reference period. Interest earned varies with deposits mobilized. The observations show that there is a variation in the deposits mobilized in the four selected banks. This may be due to both the public and private sector banks have diversified their activities and are focusing more on other than the core-banking activities - loans and advances - for generating income, rather than on core banking activities. The Interest Income on Total Assets appears good in the case of Karur Vysya bank among the two private sector banks and in Canara bank among the two public sector banks during the period from 2001-2002 to 2011-2012.

9.4 INTEREST EXPENDED AS PERCENTAGE OF TOTAL ASSETS

The ratio of interest expended as a percentage of total assets shows the rate which a private bank incurs expenditure by borrowing funds. Interest expenses by bank refer to fund bases expenditure which consists of interest paid on total deposits (time deposit plus saving plus demand deposit and interest paid on external borrowings (debt). Lesser the ratio, greater is the profit margin and efficiency of a bank. Information on the Interest Expended as percentage of total assets of the four selected banks during 2001-02 to 2011-12 is shown in Table-9.4. The 'Interest Expended' in the case of the public sector banks during the reference period ranged between 3.88 per cent (2004-05) and 5.99 per cent (2001-02) with an average of 4.78 per cent for the 11 year period. The same for the private sector banks ranged between 3.76 per cent (2005-06) and 6.29 per cent (2002-03) with an average of 4.88 per cent.

Among the two public sector banks considered, the average 'Interest Expended' is higher in Canara Bank (5.02 percent) than in the SBI (4.58 percent). In the same way, among the two private sector banks considered here, the average 'Interest Income' was more in the case of Karur Vysya bank (5.45 percent) than in the HDFC bank (3.72 percent). During the period 2001-02 to 201-12, the average 'Interest Expended' was recorded to be high in Karur Vysya bank (5.45 percent). This was followed by the Canara bank (5.02 percent), SBI (4.58 percent) and HDFC bank (3.72 percent). These findings reflect that the interest accrued is expended in selected public sector banks and selected private sector banks show different expended of interest. These observations reflect that when compared to the private sector banks, the public sector banks are cautious in interest expenditure. The variations in interest expenditure across the 11 year period may be attributed to the changes in interest rates on deposits. The Interest Expended as percentage of total assets appears better in the case of Karur Vysya bank among the two private sector banks and in Canara bank among the two public sector banks during the reference period.

TABLE – 9.4: INTEREST EXPENDED AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	5.95	5.62	4.83	7.21
2002-03	5.62	6.31	4.51	6.22
2003-04	4.73	5.39	3.92	5.61
2004-05	4.02	4.35	2.86	4.93
2005-06	4.13	4.01	2.56	4.24
2006-07	3.92	3.86	2.62	4.08
2007-08	4.43	4.42	3.48	4.70
2008-09	4.40	5.60	4.86	6.07
2009-10	4.49	4.94	3.50	5.44
2010-11	3.99	4.53	3.38	5.14
2011-12	4.73	6.19	4.44	6.29
Average	**4.58**	**5.02**	**3.72**	**5.45**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

9.5 NET INTEREST INCOME (SPREAD) AS PERCENTAGE OF TOTAL ASSETS

Net interest margin (NIM) is defined as the difference between interest earned and interest expanded includes interest paid on deposits, loans from RBI, and other short-term and long term loans. Higher the ratio better is the earnings from total assets. Information on the 'Net Interest Income' as percentage of total assets of the four selected banks during 2001-02 to 2011-12 is shown in Table – 9.5.

TABLE – 9.5: NET INTEREST INCOME / MARGIN (SPREAD) AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	2.61	2.52	2.65	3.22
2002-03	2.65	2.76	2.70	2.74
2003-04	2.74	2.76	3.16	4.18
2004-05	3.03	2.86	3.46	3.26
2005-06	3.16	2.70	3.46	3.14
2006-07	2.66	2.43	3.80	3.13
2007-08	2.36	1.96	3.93	2.53
2008-09	2.20	2.10	4.00	2.40
2009-10	2.35	2.35	4.13	2.89
2010-11	2.86	2.60	4.22	3.06
2011-12	3.24	2.06	3.64	3.08
Average	**2.71**	**2.46**	**3.56**	**3.06**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

The 'Net Interest Income' in the case of the two selected public sector banks considered, the average 'Interest Income' was higher in the SBI (2.71 percent) than in Canara Bank (2.46 percent). In the same way, among the two private sector banks considered here, the average 'Interest Income' was more in the case of HDFC bank (3.56 percent) than in the Karur Vysya bank (3.06 percent). During the period 2001-02 to 2011-12, the average 'Interest Income' (spread) was recorded to be high in HDFC bank (3.56 percent). This was followed by the Karur Vysya bank (3.06 percent), SBI (2.71 percent) and Canara bank (2.46 percent). The interest income appears better in the case of two private sector banks compared to the two public sector banks during the reference period. Net interest margin of HDFC bank and Karur Vysya bank depends more on CASA and the quality of assets was also good. Management has taken care of the capital structure of the banks as they depend more on cheaper form of debt. Hence, it can be said that the net interest (minus interest expended) showed no variation between selected public sector banks while this different among four banks and also same in between two selected banks. This difference may be attributed due to the variations in interest rate charged and paid by the banks. The average net interest income (spread) appears better in the case of two private sector banks compared to the two public sector banks during the reference period.

9.6 PROVISIONS AND CONTINGENCIES AS PERCENTAGE OF TOTAL ASSETS

Details about the 'provisions and contingencies' as percentage of total assets of the four selected banks during 2001-02 to 2011-12 is shown in Table-9.6. The 'Provisions and Contingencies' of the selected two public sector banks considered, the average 'provisions and contingencies' is higher in the SBI (1.19 percent) than in Canara bank (0.99 percent).

TABLE – 9.6: PROVISIONS AND CONTINGENCIES AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	1.04	1.27	1.04	1.04
2002-03	1.24	1.19	1.06	1.17
2003-04	1.44	1.53	1.18	0.75
2004-05	1.45	1.34	1.32	1.19
2005-06	1.40	0.91	1.51	1.04
2006-07	0.96	0.90	1.56	1.03
2007-08	0.88	0.77	1.63	0.68
2008-09	0.90	0.90	1.60	1.10
2009-10	0.87	0.77	1.56	0.58
2010-11	1.39	0.62	1.37	0.65
2011-12	1.49	0.71	1.12	0.60
Average	**1.19**	**0.99**	**1.36**	**0.89**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

In the same way, among the two private sector banks considered here, the average 'provisions and contingencies' is more in the case of HDFC bank (1.36 percent) than in the Karur Vysya bank (0.89 percent). The average 'provisions and contingencies' were recorded to be comparatively high in HDFC bank (1.36 percent) during the reference period.   This was followed by the SBI (1.19 percent), Canara bank (0.99 percent) and Karur Vysya bank (0.89 percent) during the 11 year reference period. This indicates that the mean provisions and contingencies more or less similar in selected public sector banks. But there is a variation in case of selected private sector banks and also among four selected banks. This is because of the variation in providing provision due to variation in NPAs.

9.7 OPERATING EXPENSES AS PERCENTAGE OF TOTAL ASSETS

This ratio is calculated as a proportion of operating expenses to total assets. Be it a bank or a manufacturing firm, controlling overheads costs is a critical part of any organization. In case of banks, keeping a close watch on overheads would enable salaries, branch rationalization and technology up gradation account for a major part of operating expenses for new generation banks.   The lower the ratio, the better it is for a bank as it would help prop up its projects and return ratios. Information relating to the 'operating expenses' as percentage of total assets of the four selected banks during 2001-02 to 2013-14 is shown in Table – 9.7.

The 'Operating Expenses' of the two public sector banks considered, the average 'operating expenses' is higher in the SBI (2.02 percent) than in Canara Bank (1.65 percent). In the same way, among the two private sector banks considered here, the average 'operating expenses' is more in the case of HDFC bank (2.38 percent) than in the Karur Vysya bank (1.76 percent). The average 'operating expenses' is recorded to be comparatively high in HDFC bank (2.38 percent) during the reference period. This was followed by the SBI (2.02 percent), Karur Vysya bank (1.76 percent) and Canara bank (1.65 percent). However, Operating expenses to total assets varies with the variation in establishment and other operating expenses.   It is more or less similar between selected public sector banks. But there a variation between selected private sector banks and also among four selected banks.

TABLE – 9.7: OPERATING EXPENSES AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	2.07	2.21	1.76	2.10
2002-03	2.11	2.13	1.90	1.69
2003-04	2.27	1.91	1.91	2.21
2004-05	2.19	1.91	2.11	2.16
2005-06	2.37	1.77	2.30	1.94
2006-07	2.09	1.55	2.65	1.74
2007-08	1.75	1.55	2.81	1.48
2008-09	1.60	1.40	3.00	1.50
2009-10	1.93	1.13	2.67	1.59
2010-11	1.88	1.31	2.58	1.53
2011-12	1.95	1.25	2.54	1.44
Average	**2.02**	**1.65**	**2.38**	**1.76**

Source: RBI Report on Trends and Progress of Banking in India: Relevant Issues

9.8 OTHER INCOME AS PERCENTAGE OF TOTAL ASSETS

This ratio is calculated as proportion of other income to total assets. Other income is largely constituted of fee income such as commission, exchanges and brokerage fees. Other income also includes profit from sale of investments and other miscellaneous income, amongst others. Fee based income accounts for a major portion of a bank's other income. A bank generates higher fee income through innovative products and adapting the technology for sustained services levels. The higher ratio indicating increasing proportion of fee based income. The ratio is also influenced by gains on Government securities, which fluctuates depending on interest rate movement in the economy.

TABLE – 9.8: OTHER INCOME AS PERCENTAGE OF TOTAL ASSETS OF BANKS DURING 2001-02 TO 2013-14 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	1.26	1.98	1.39	2.05
2002-03	1.59	1.80	1.53	2.14
2003-04	1.94	2.02	1.13	1.04
2004-05	1.64	1.40	1.27	1.43
2005-06	1.56	1.08	1.80	1.43
2006-07	1.28	0.97	1.84	1.19
2007-08	1.41	1.28	2.03	1.43
2008-09	1.31	1.16	2.08	1.68
2009-10	1.48	1.18	1.96	1.27
2010-11	1.39	0.90	1.73	1.05
2011-12	1.07	0.78	1.55	0.93
Average	**1.45**	**1.32**	**1.66**	**1.42**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

Information relating to the 'other income' as percentage of total assets of the four selected banks during 2001-02 to 2011-12 is shown in Table – 9.8. The 'Other Income' of the selected two public sector banks considered, the average of 'other income' is higher in the SBI (1.45 percent) than in Canara Bank (1.32 percent). In the same way, among the two private sector banks considered here, the average 'operating expenses' is more in the case of HDFC bank (1.66 percent) than in the Karur Vysya bank (1.42 percent). The average of 'other income' is recorded to be comparatively high in HDFC bank (1.66 percent) during the reference period. This is followed by the SBI (1.45 percent), Karur Vysya bank (1.42 percent) and Canara bank (1.32 percent) during the 11 year reference period. There is a general dropping in the ratio of other income to total assets which may be due to their concentration of Retail Banking activities. This indicates that there is a variation in other income between public sector and private sector banks. The reason may be all the selected banks are concentrating on various fee based services to earn more income from various sources.

9.9 RETURN ON EQUITY

Return on equity reflects the efficiency of banking institutions in using capital. It was thus an indicator of banks' conduct of business in the interests of shareholders, reflecting the combined impact of lower net profits and higher capital base. A detail of 'Return on equity' in the four selected banks during 2001-02 to 2011-12 was shown in Table – 9.9.

TABLE – 9.9: RETURN ON EQUITY IN SELECTED BANKS DURING 2001-02 TO2013-14 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	17.0	23.6	20.8	28.6
2002-03	19.2	26.7	18.5	25.3
2003-04	18.2	28.5	20.6	25.4
2004-05	18.1	19.5	18.5	14.3
2005-06	17.0	20.3	17.7	16.6
2006-07	15.4	16.3	19.5	16.5
2007-08	16.8	15.0	17.7	18.5
2008-09	17.1	18.3	17.2	18.6
2009-10	14.8	22.5	16.3	22.6
2010-11	12.6	23.2	16.7	22.1
2011-12	14.4	18.7	22.1	22.2
Average	**16.4**	**21.2**	**18.7**	**21.0**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

The 'Return on equity' in case of theselected two public sector banks considered, the average of 'return on equity' was higher in the Canara Bank (21.1 percent) than in SBI (16.4 percent). In the same way, among the two private sector banks considered here, the average 'return on equity' was more in the case of Karur Vysya bank (21.0 percent) than in the HDFC bank (18.7 percent). The average 'return on equity' was recorded to be comparatively high in Canara bank (21.1 percent) during the reference period. This is followed by the Karur Vysya bank (21.0 percent), HDFC bank (18.7 percent) and SBI (16.4 percent). This shows that there is no significant variation between public and private sector banks as a whole. All these banks have return on equity more or less similar. But results depicts that there is a variation between selected public and private sector banks and also among four selected banks. This is due to all selected banks were able to employ funds efficiently and effectively. But there is a general dropping in the 'return on equity' from 2001-02 to 2011-12 which may be due to high maintenance cost of the banks and its employees.

9.10 CAPITAL ADEQUACY RATIO

It was necessary for a bank ton have sufficient capital to absorb operational losses without infringing upon the depositors' interest. Therefore, a provision has been made under Section 11 of the Banking Regulation Act, 1949 to stipulate certain absolute minimum capital requirement. The capital adequacy ratio reflects the ability of a bank to deal with probable loan default. The RBI guidelines stipulates bank to maintain a CAR of minimum 9%. It was arrived at by dividing the Tier-I and Tier-II capital by risk weighted assets. Tier-I capital includes equity capital and free reserves. Tier-II capital comprises subordinated debt of 5-7 year tenure. The higher the CAR, the stronger is the bank. A detail regarding the 'Capital Adequacy Ratio' computed for the four selected banks during 2001-02 to 2011-12 is shown in Table – 9.10. The 'Capital Adequacy Ratio' in case of the selected two public sector banks considered, the average capital adequacy ratio was slightly higher in the Canara Bank (13.2) than in SBI (13.0). In the same way, among the two private sector banks considered here, the average capital adequacy ratio was more in the case of Karur Vysya Bank (15.2) than in the HDFC Bank (14.2). The average capital adequacy ratio was recorded to be comparatively high in Karur Vysya bank (15.2) during the reference period. This is followed by the HDFC bank (14.2), Canara bank (13.2) and SBI (13.0) during the reference period. Higher the ratio higher is the risk taking capabilities of banks due to any unexpected loss in the banking portfolio. The main reason for a higher capital is less disbursement of funds so that any unexpected loss can be handled properly by banks. Hence, among all banks, Karur Vysya Bank has high CAR i.e. 15.2. This indicates the mean CAR was not similar between public and private sector banks. There is a variation in maintaining adequate capital in these categories of banks. But no variation is observed between selected public and private sector banks and also among four selected banks. This shows that all the selected banks are having adequate capital base more or less similarly. However, all selected banks are maintaining 9 percent CAR as per prudential norms.

TABLE – 9.10: CAPITAL ADEQUACY RATIO IN SELECTED BANKS DURING 2001-02 TO 2013-14 [In percentage]

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	13.4	11.9	13.9	16.9
2002-03	13.5	12.5	11.1	17.0
2003-04	13.5	12.7	11.7	17.1
2004-05	12.5	12.8	12.2	16.1
2005-06	11.9	11.2	11.4	14.8
2006-07	12.3	13.5	13.1	14.5
2007-08	12.6	13.3	13.6	12.6
2008-09	14.3	14.1	15.7	14.9
2009-10	13.4	13.4	17.4	14.5
2010-11	12.0	15.4	16.2	14.4
2011-12	13.9	13.8	19.9	14.3
Average	**13.0**	**13.2**	**14.2**	**15.2**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

9.11 BUSINESS PER EMPLOYEE

This ratio shows the productivity of human force of the bank by dividing total business to total number of employees arrives at this ratio. Human capital plays a vital role in the success/failure of a bank as it shows the effectiveness of the bank in using its resources. Higher the ratio, better it is for the bank. Details regarding 'Business per Employee' computed for the four selected banks during 2001-02 to 2011- 12 is shown in Table - 5.11. 'Business per Employee' in case of the four selected banks also there was a continuous increase in 'business per employee' from 2001-02 to 2011-12, with minor fluctuations in the case of SBI and HDFC. In the case of SBI, the business per employee is ₹173 Lakhs in 2001-02 and has increased to ₹798 Lakhs by 2011-12. In the same way, the business per employee in Canara bank increased from ₹215 Lakhs (2001-02) to ₹1374 Lakhs (2011-12) while in Karur Vysya bank this has increased from ₹ 219 Lakhs (2001-02) to ₹984 Lakhs (2011-12). HDFC recorded a ₹778 Lakhs business per employee during 2001-02 which was ₹634 Lakhs during 2011-12. The variations in these figures reflect partly, the variations in the number of employees due to expansion etc.

TABLE – 9.11: BUSINESS PER EMPLOYEE IN SELECTED BANKS DURING 2001-02 TO 2011-12 (In ₹ Lakhs)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	173	215	778	219
2002-03	191	250	865	288
2003-04	211	298	866	330
2004-05	243	351	806	387
2005-06	299	442	758	439
2006-07	357	549	607	489
2007-08	456	609	506	604
2008-09	556	780	446	638
2009-10	636	983	590	789
2010-11	705	1228	653	935
2011-12	798	1374	634	984
Average	**420**	**644**	**683**	**555**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

Among the two public sector banks considered, the average business per employee was slightly higher in the Canara Bank (₹644 Lakhs) than in SBI (₹ 420 Lakhs). In the same way, among the two private sector banks considered here, the average business per employee was more in the case of HDFC bank (₹683 Lakhs) than in the Karur Vysya bank (₹ 555 Lakhs). The average business per employee was recorded to be comparatively high in HDFC bank (₹ 683 Lakhs) during the reference period. This was followed by the Canara bank (₹ 644 Lakhs), Karur Vysya bank (₹ 555 Lakhs) and SBI (₹ 420 Lakhs). This indicates that there is no variation between selected public sector banks and private sector banks and also among four selected banks. This is may be due to all the banks are employed sufficient staff and carried business activities effectively and efficiently to meet competition between banks.

9.12 PROFITS PER EMPLOYEE

This ratio measures the efficiency of the employee at the branch level. It also gives valuable inputs to assess the real strength of a bank's branch network. It is arrived at by dividing the net profits of the bank by total number of branches. Revenue per employee is a measure of how efficiently a particular bank is utilizing its employees. Ideally banks wants highest profit per employee possible, as it denotes higher productivity. In general, rising revenue per employee is a positive sign that suggests the bank is finding ways to squeeze more revenue out of each employee. Information relating to the 'Profit per Employee' computed for the four selected banks during 2001-02 to 2011-12 was shown in Table-9.12.

TABLE – 9.12: PROFIT PER EMPLOYEE IN SELECTED BANKS DURING 2001-02 TO 2011-12 (In Percentage)

Year	Banks Covered in the Study			
	Public Sector		Private Sector	
	SBI	Canara	HDFC	Karur Vysya
2001-02	1.2	1.6	9.8	3.8
2002-03	1.5	2.3	10.1	4.4
2003-04	1.8	3.0	9.4	5.7
2004-05	2.1	2.5	8.8	3.8
2005-06	2.2	3.0	7.4	4.7
2006-07	2.4	3.2	6.1	4.9
2007-08	3.7	3.7	5.0	5.8
2008-09	4.5	5.0	4.2	6.0
2009-10	4.5	7.4	6.0	8.1
2010-11	3.9	9.8	7.4	9.1
2011-12	5.3	8.2	8.1	8.8
Average	**3.0**	**4.5**	**7.5**	**5.9**

Source: RBI: Report on Trend and Progress of Banking in India: Relevant Issues.

In the case of SBI, the profit per employee is 1.2 percent in 2001-02 and has increased to 5.3 percent by 2011-12. In the same way, the profit per employee in Canara bank increased from 1.6 percent (2001-02) to 8.2 percent (2011-12) while in Karur Vysya bank this has increased from 3.8 percent (2001-02) to 8.8 percent (2011-12). HDFC bank recorded a 9.8 percent profit per employee during 2001-02 which is 8.1 percent during 2011-12. Here also the variations in these figures are partly due to the variations in the number of employees. Among the two public sector banks considered, the average of 'profit per employee' was higher in the Canara Bank (4.5 percent) than in SBI (3.0 percent). In the same way, among the two private sector banks considered here, the average 'profit per employee' was more in the case of HDFC bank (7.5 percent) than in the Karur Vysya bank (5.9 percent). The average 'profit per employee' was found to be comparatively high in HDFC bank (7.5 percent) during the reference period. This was followed by the Karur Vysya bank (5.9 percent), Canara bank (4.5 percent) and SBI (3.0 percent). The maximum amount of profit that the employee generates would determine the skill of the employee as well as HR policies of the bank. Good HR policies would benefit the banks with respect to profit increment. It was evidently clear that there was a variation in profit per employee between public sector and private sector banks and also among four selected banks. This may be attributed due to variation in profit earning capacity and also control on expenses. But there was no variation between selected two public sector banks and between two private sector banks. The reason may be due to rate of profit earned may be more or less similar between two selected public sector and between two private sector banks.

10. SUGGESTIONS

- Banks should examine the viability of the project before providing financial assistance. It is required to ensure that the project will generate sufficient returns on the recourses invested in it.
- Banks should minimize the cost of maintenance of lendable funds.
- Banks should always maintain effective monitoring and control system for collecting loans periodically.
- It is suggestible to minimize bad debts as it effects the performance of the banks.

11. CONCLUSION

The banking institutions, especially in the Indian setup, cannot be judged, just by the profitability or turn over ratios in isolation. Banking in India, historically and even at present is not merely an organization with profit motive only, it is a multi objective organization working to achieve some economic and social objective. With the world-wide activities getting closely integrated and globalization gaining greater importance, internationally accepted norms become the standards for bench marking the performance of domestic entities. It is envisaged that the rapport between the banker and the borrowers improves and the administration of credit portfolio is made more effective, efficient and transparent and above all free from all possible malpractices like corruption, ever greening of advances, extending undue favors and connected lending.

13. SCOPE FOR FURTHER RESEARCH

Further research may be aimed at the following:
1) Studying the strength and weakness of legal system and to suggest legal reforms required for debt recovery.
2) Developing a Borrower's Credit Rating System to enable banks to have effective Credit Appraisal.
3) Developing comprehensive software for appraisal and monitoring of borrowers.

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THE STOCHASTIC MODELLING AND RELIABILITY ANALYSIS OF A BEER BOTTLE FILLING PLANT IN AN INDUSTRY

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ABSTRACT

A model of Beer Bottle Filling Plant is developed for its stochastic analysis by personally visiting factory situated at District Samba in State Jammu and Kashmir. The said filling plant consists of five units- Conveyer belt, Filler, Crowner, Pasteurizer and Labeling Machine. Conveyer Belt is in series with other four units. The other four units are in parallel form but Filler machine is unified with crowner machine such that if any one of the two units fail, the other are kept in standby mode. After random period of time, if repair of failed unit is not completed then other units are kept in standby mode. If one unit is already in repair and within this period some other unit also fails then the whole system is put under emergency repair in order to make system ready as early as possible. A single repair facility is always available with the system to repair a failed unit. All the failure time distributions are taken to be negative exponential and all the repair time distributions are taken as arbitrary.

KEYWORDS

Reliability; Availability; Busy period; Expected number of Repairs; Profit Analysis; Graphical study of Model.

1. INTRODUCTION

Although a lot of work has been done in the field of reliability by formulating and analyzing various kinds of system models, but most of the work done is of hypothetical nature and is not of much practical utility. Singh, S.K. and G. Nair Sheeba [10] have analyzed stone crushing system used in iron ore mines. Kumar Pawan and Bharti Ankush [7] formulated and carried out reliability analysis of a battery production system in an industry. Gupta and Ramkishan[5] developed a model pertaining to electric power, inverter and generator and obtained various reliability measures. Gupta and Shivakar [6] carried out the analysis w.r.t. reliability characteristics of a cloth manufacturing system model. Gupta,Varshney and Sharma[3] obtained various measures of system effectiveness of a milk powder making system in dairy plant. Besides these Malik et. al. [8,9] formulated and analyzed a system model of concrete mixture plant with preventive maintenance and also carried out a study on the comparison of various reliability characteristics of Haryana textile units. Sharma and Panigrahi [12], Arora and Kumar [1] have also studied the industrial system models with real existing situations.

For the purpose of analyzing real existing system, a model of beer bottle filling plant is developed for its stochastic analysis by personally visiting the plant situated in Samba district of state J&K.

The given plant consists of five units of varying nature. The working of different units of the system is described as follows:

1. **CONVEYOR BELT:** The conveyer belt conveys bottles from one machine to another one.
2. **FILLER MACHINE:** The bottle is pressed against the filling head and the evacuation valve of filler machine is opened, thereafter bottle is evacuated. By additional opening of preparatory valve, CO_2 is fed into the bottle and through second evacuation, the residual air is removed from it. Thereafter the beer valve opens and the beer flows along the wall into the bottle. The filling end is reached when the beer has reached the return pipe then beer and return valves are closed. The filler pressure, temperature and dosage of beverage quantity are preset.
3. **CROWNER MACHINE:** After filling, the bottles are directed to the crowner machine. It is necessary to fill the bottles as quickly as possible and subsequently to seal them immediately. For this purpose, the filler machine is unified with crowner machine. In the crowner machine, the first closure phase crown corks on bottles and second closure phase puts pressure on bottle to close rings of crown corks. Then the bottles are put on a slat conveyor belt.
4. **PASTEURIZER:** From slat conveyor belt, the bottles enter in pasteurizer. Pasteurizer is the best method of securing the shelf life of beverage. During pasteurization, the bottles, standing on conveyor belt, are fed slowly through the tunnel pasteurizer and at the same time warmed up by spraying on them warm and hot water of fixed temperature, then pasteurized and subsequently cooled down again.
5. **LABELING MACHINE:** After the pasteurization, the bottles are put forward to labeling machine by slat conveyor belt. The labeling machine has gluing pallets which roll against the gluing roller and are equipped there with a thin adhesive film. Each gluing pallet rolls against the label magazine and picks up one label at a time. The label is caught by gripping finger at the gripped cylinder and the glued backside facing outwards is transferred onto the bottle and brushed on.

Using the regenerative point technique the following important reliability characteristics of interest are obtained:

a) Transition probabilities and mean sojourn times.
b) Reliability and Mean time to system failure.
c) Point wise and steady-state availabilities of the system.
d) Expected up time of the system.
e) Expected busy time of the repairman during (0, t] and in the steady-state.
f) Expected number of repairs by repairman during (0, t] and in the steady-state.
g) Net expected profit incurred by the system during (0, t] and in the steady-state.

2. SYSTEM DESCRIPTION AND ASSUMPTIONS

a) The system consists of five non-identical units. Initially all the units are operative.
b) Conveyer Belt is arranged in series with other four units. The other four units are in parallel form but Filler machine is unified with crowner machine such that if any one of the two units fails, the other are kept in standby mode.
c) If repair of failed unit is not completed then after random period of time other units are kept in standby mode.

d) If one unit is already in repair and the other unit also fails within this period then the whole system is put under emergency repair in order to make system ready as early as possible.
e) A single repair facility is always available with the system to repair a failed unit.
f) A repaired unit is as good as new and is immediately reconnected to the system.
g) All the failure time distributions are taken to be negative exponential.
h) All the repair time distributions are taken as arbitrary.

3. NOTATIONS AND SYMBOLS

λ : Constant failure rate of another unit when one unit is already failed.
λ_1 : Constant rate with which the system is in down state.
α : Failure rate of unit **CB** (conveyer belt).
$G(.)$: C.d.f. of emergency repair time.
$G_1(.)$: C.d.f. of repair time of unit **CB**.
$\beta_i\ (i = 1,2)$: Failure rate of unit **F/C** respectively.
$\gamma_i\ (i = 1,2$: Failure rate of unit **P/L** respectively.
$H_i(.)\ (i = 1,2)$: C.d.f. of repair time of unit **F/C** respectively.
$F_i(.)\ (i = 1,2)$: C.d.f. of repair time of unit **P/L** respectively.
$m_i(i = 1,2)$: mean repair time of unit **F/C** respectively.
$n_i(i = 1,2)$: mean repair time of unit **P/L** respectively.
k_i/k : mean repair time of **CB**/ emergency repair.

Symbols for the states of the system

$CB_0/CB_s/CB_r$: Conveyer belt is operative/ in standby mode/ under repair.
$F_0/F_s/F_r$: Filler machine is operative/ in standby mode/ under repair.
$C_0/C_s/C_r$: Crowner machine is operative/ in standby mode/ under repair.
$P_0/P_s/P_r$: Pasteurizer is operative/ in standby mode/ under repair.
$L_0/L_s/L_r$: Labeling machine is operative/ in standby mode/ under repair.

Emergency Repair : system is put under emergency repair, when any two units of the system are failed.

With the help of the above symbols, the possible states of the system are:

$S_0 = [CB_0, F_0, C_0, P_0, L_0]$, $S_1 = [CB_0, F_r, C_s, P_0, L_0]$
$S_2 = [CB_0, F_s, C_r, P_0, L_0]$, $S_3 = [CB_r, F_s, C_s, P_s, L_s]$
$S_4 = [CB_0, F_0, C_0, P_r, L_0]$, $S_5 = [CB_0, F_0, C_0, P_0, L_r]$
$S_6 = [CB_s, F_r, C_s, P_s, L_s]$, $S_7 = [\text{Emergency repair}]$
$S_8 = [CB_s, F_s, C_r, P_s, L_s]$, $S_9 = [CB_s, F_s, C_s, P_r, L_s]$
$S_{10} = [CB_s, F_s, C_s, P_s, L_r]$

The transition diagram along with all transitions is shown in Fig. 3.1.

TRANSITION DIAGRAM

FIG. 3.1
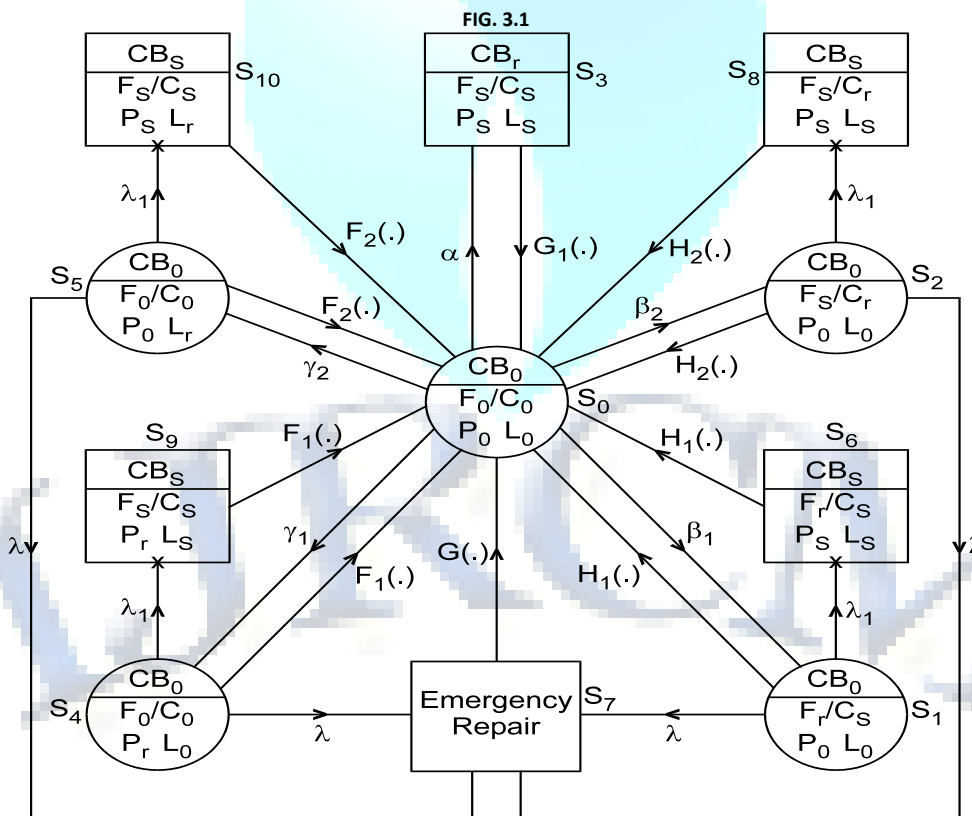
4. TRANSITION PROBABILITIES AND SOJOURN TIMES

Let $T_0(\equiv 0)$, T_1, T_2 …. denotes the regenerative epochs and X_n denotes the state visited at epoch T_{n+} i.e just after the transition at T_n. Then $\{X_n, T_n\}$ constitute a Markov-Renewal process with state space E, set of regenerative states and

$Q_{ij}(t) = P[X_{n+1} = j, T_{n+1} - T_n \le t | X_n = i]$

is the semi Markov kernel over E.

(a)   Thus steady state transition probabilities can be obtained as follows:

$p_{ij} = \lim_{t\to\infty} Q_{ij}(t)$

So that,

$p_{01} = \frac{\beta_1}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$ $p_{02} == \frac{\beta_2}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$

$p_{03} = \frac{\alpha}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$ $p_{04} = \frac{\gamma_1}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$

$p_{05} = \frac{\gamma_2}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$ $p_{10} = \tilde{H}_1(\lambda+\lambda_1)$

$p_{10}^{(6)} = \frac{\lambda_1}{(\lambda+\lambda_1)}\left[1-\tilde{H}_1(\lambda+\lambda_1)\right]$ $p_{17} = \frac{\lambda}{(\lambda+\lambda_1)}\left[1-\tilde{H}_1(\lambda+\lambda_1)\right]$

$p_{20} = \tilde{H}_2(\lambda+\lambda_1)$ $p_{20}^{(8)} = \frac{\lambda_1}{(\lambda+\lambda_1)}\left[1-\tilde{H}_2(\lambda+\lambda_1)\right]$

$p_{27} = \frac{\lambda}{(\lambda+\lambda_1)}\left[1-\tilde{H}_2(\lambda+\lambda_1)\right]$ $p_{40} = \tilde{F}_1(\lambda+\lambda_1)$

$p_{40}^{(9)} = \frac{\lambda_1}{(\lambda+\lambda_1)}\left[1-\tilde{F}_1(\lambda+\lambda_1)\right]$ $p_{47} = \frac{\lambda}{(\lambda+\lambda_1)}\left[1-\tilde{F}_1(\lambda+\lambda_1)\right]$

$p_{50} = \tilde{F}_2(\lambda+\lambda_1)$ $p_{50}^{(10)} = \frac{\lambda_1}{(\lambda+\lambda_1)}\left[1-\tilde{F}_2(\lambda+\lambda_1)\right]$

$p_{57} = \frac{\lambda}{(\lambda+\lambda_1)}\left[1-\tilde{F}_2(\lambda+\lambda_1)\right]$ **(1-17)**

It can be easily seen that the following results hold good:

$p_{01}+p_{02}+p_{03}+p_{04}+p_{05}=1$ $p_{10}+p_{10}^{(6)}+p_{17}=1$

$p_{20}+p_{20}^{(8)}+p_{27}=1$ $p_{40}+p_{40}^{(9)}+p_{47}=1$

$p_{50}+p_{50}^{(10)}+p_{57}=1$

$p_{30}=p_{60}=p_{70}=p_{80}=p_{90}=p_{10,0}=1$ **(18-23)**

(b)   Mean sojourn times:

The mean sojourn time in state S_i denoted by Ψ_i is defined as the expected time taken by the system in state S_i before transiting to any other state. To obtain mean sojourn time Ψ_i, in state S_i, we observe that as long as the system is in state S_i, there is no transition from S_i to any other state. If T_i denotes the sojourn time in state S_i then mean sojourn time Ψ_i in state S_i is:

$\Psi_i = E[T_i] = \int P(T_i > t)dt$ **(24)**

Thus

$\Psi_0 = \int e^{-(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)t}\,dt \quad = \frac{1}{(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)}$

$\Psi_1 = \int e^{-(\lambda+\lambda_1)t}\,\bar{H}_1(t)dt \quad = \frac{1}{(\lambda+\lambda_1)}\left[1-\tilde{H}_1(\lambda+\lambda_1)\right]$

$\Psi_2 = \int e^{-(\lambda+\lambda_1)t}\,\bar{H}_2(t)dt \quad = \frac{1}{(\lambda+\lambda_1)}\left[1-\tilde{H}_2(\lambda+\lambda_1)\right]$

$\Psi_3 = \int \bar{G}_1(t)dt \quad = k_1$

$\Psi_4 = \int e^{-(\lambda+\lambda_1)t}\,\bar{F}_1(t)dt \quad = \frac{1}{(\lambda+\lambda_1)}\left[1-\tilde{F}_1(\lambda+\lambda_1)\right]$

$\Psi_5 = \int e^{-(\lambda+\lambda_1)t}\,\bar{F}_2(t)dt \quad = \frac{1}{(\lambda+\lambda_1)}\left[1-\tilde{F}_2(\lambda+\lambda_1)\right]$

$\Psi_6 = \int \bar{H}_1(t)dt = m_1$

$\Psi_7 = \int \bar{G}(t)dt = k$

$\Psi_8 = \int \bar{H}_2(t)dt = m_2$

$\Psi_9 = \int \bar{F}_1(t)dt = n_1$

$\Psi_{10} = \int \bar{F}_2(t)dt = n_2$ **(25-35)**

5. ANALYSIS OF RELIABILITY AND MTSF

Let the random variable T_i be the time to system failure when system starts up from state $S_i \in E_i$, the the reliability of the system is given by

$R_i(t) = P[T_i > t]$

To determine, $R_i(t)$ we regard the failed states $(S_3, S_6, S_7, S_8, S_9, S_{10})$ of the system as absorbing. Using the simple probabilistic arguments, one can easily develop the recurrence relations among $R_i(t)$; i = 0, 1, 2, 4, 5. Taking the Laplace Transforms of these relations and simplifying the resulting set of algebraic equations for, $R_0^*(s)$ after omitting the arguments 's' for brevity, we get

$R_0^*(s) = N_1(s)/D_1(s)$ **(36)**

where,

$N_1(s) = (Z_0^* + q_{01}^* Z_1^* + q_{02}^* Z_2^* + q_{04}^* Z_4^* + q_{05}^* Z_5^*)$

and

$D_1(s) = [1 - (q_{01}^* q_{10}^* + q_{02}^* q_{20}^* + q_{04}^* q_{40}^* + q_{05}^* q_{50}^*)]$

where, $Z_0^*, Z_1^*, Z_2^*, Z_4^*, Z_5^*$ are the Laplace transforms of

$Z_0(t) = e^{-(\alpha+\beta_1+\beta_2+\gamma_1+\gamma_2)t}$, $Z_1(t) = e^{-(\lambda+\lambda_1)t}\,\bar{H}_1(t)$, $Z_2(t) = e^{-(\lambda+\lambda_1)t}\,\bar{H}_2(t)$

$Z_4(t) = e^{-(\lambda+\lambda_1)t}\,\bar{F}_1(t)$, $Z_5(t) = e^{-(\lambda+\lambda_1)t}\,\bar{F}_2(t)$

Taking inverse Laplace Transform of **(36)**, we get reliability of the system.

To get MTSF, we use the well-known formula

$E(T_0) = \int R_0(t)dt = \lim_{s\to 0} R_0^*(s) = N_1(0)/D_1(0)$ **(37)**

where,

$N_1(0) = (\Psi_0 + p_{01}\Psi_1 + p_{02}\Psi_2 + p_{04}\Psi_4 + p_{05}\Psi_5)$

and

$D_1(0) = [1 - (p_{01}p_{10} + p_{02}p_{20} + p_{04}p_{40} + p_{05}p_{50})]$

Here we use the relations $q_{ij}^*(0) = p_{ij}$ and $\lim_{s\to 0} Z_i^*(s) = \int Z_i(t)dt = \Psi_i$.

6. AVAILABILITY ANALYSIS

Define $A_i(t)$ as the probability that the system is up at epoch't' when it initially started from regenerative state $S_i \in E_i$. Using the definition of $A_i(t)$ and probabilistic concepts, the recurrence relations among $A_i(t)$ where i = 0, 1, 2, 3, 4, 5, 7 can easily be developed.

Using the technique of L.T., the value of $A_0(t)$ in terms of its L.T. is as follows:

$A_0^*(s) = N_2(s)/D_2(s)$ **(38)**

where,

$N_2(s) = (Z_0^* + q_{01}^* Z_1^* + q_{02}^* Z_2^* + q_{04}^* Z_4^* + q_{05}^* Z_5^*)$ **(39)**

and

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$$D_2(s) = 1 - [q_{01}^*(q_{10}^* + q_{10}^{(6)*} + q_{17}^*q_{70}^*) + q_{02}^*(q_{20}^* + q_{20}^{(8)*} + q_{27}^*q_{70}^*) + q_{03}^*q_{30}^* + q_{04}^*(q_{40}^* + q_{40}^{(9)*} + q_{47}^*q_{70}^*) + q_{05}^*(q_{50}^* + q_{50}^{(10)*} + q_{57}^*q_{70}^*)]$$

(40)

The steady state availability of the system, i.e probability that in the long run the system will be up, is given by

$$A_0 = \lim_{t\to\infty} A_0(t) = \lim_{s\to 0} s\, A_0^*(s) = \lim_{s\to 0} \frac{sN_2(s)}{D_2(s)} = \lim_{s\to 0} N_2(s) \lim_{s\to 0} \frac{s}{D_2(s)}$$

As $s \to 0$, the above equation becomes indeterminate form.

Hence on using L'Hospital's rule, A_0 becomes

$$A_0 = N_2(0)/D_2'(0)$$

(41)

where,

$$N_2(0) = (\Psi_0 + p_{01}\Psi_1 + p_{02}\Psi_2 + p_{04}\Psi_4 + p_{05}\Psi_5)$$

(42)

and

$$D_2'(0) = \Psi_0 + p_{01}\Psi_1 + p_{02}\Psi_2 + p_{03}k_1 + p_{04}\Psi_4 + p_{05}\Psi_5 + Ak$$

(43)

where, $A = p_{01}p_{17} + p_{02}p_{27} + p_{04}p_{47} + p_{05}p_{57}$

The expected up time of the system during $(0, t]$ is given by

$$\mu_{up}(t) = \int_0^t A_0(u)\, du$$

So that,

$$\mu_{up}^*(s) = A_0^*(s)/s.$$

(44)

7. BUSY PERIOD ANALYSIS

Define $B_i(t)$ as the probability that the system having started from regenerative state $S_i \in E$ at time $t = 0$, is under repair at time 't' due to failure of the unit.

Using the definition of $B_i(t)$ and probabilistic concepts, the recurrence relations among $B_i(t)$ where i = 0, 1, 2, 3, 4, 5, 7 can easily be developed.

Using the technique of L.T., the value of $B_0(t)$ in terms of its L.T. is as follows:

$$B_0^*(s) = N_3(s)/D_2(s)$$

(45)

where,

$$N_3(s) = (q_{01}^*Z_1^* + q_{02}^*Z_2^* + q_{03}^*Z_3^* + q_{04}^*Z_4^* + q_{05}^*Z_5^*) + (q_{01}^*q_{17} + q_{02}^*q_{27} + q_{04}^*q_{47} + q_{05}^*q_{57})Z_7^*$$

(46)

In steady state, the probability that the repairman will be busy is given by

$$B_0 = \lim_{t\to\infty} B_0(t) = \lim_{s\to 0} s\, B_0^*(s) = N_3(0)/D_2'(0)$$

(47)

also as $s \to 0$, $q_{ij}^*(s)|_{s=0} = q_{ij}^*(0) = p_{ij}$ and $\lim_{s\to 0} Z_i^*(s) = \int Z_i(t)dt = \Psi_i$

where,

$$N_3(0) = (p_{01}\Psi_1 + p_{02}\Psi_2 + p_{03}k_1 + p_{04}\Psi_4 + p_{05}\Psi_5) + (p_{01}p_{17} + p_{02}p_{27} + p_{04}p_{47} + p_{05}p_{57})k$$

(48)

The expected busy period of the repairman during $(0, t]$ is given by

$$\mu_b(t) = \int_0^t B_0(u)\, du$$

So that,

$$\mu_b^*(s) = B_0^*(s)/s.$$

(49)

8. EXPECTED NUMBER OF REPAIRS

Let us define $V_i(t)$ as the expected number of repairs of the failed units during the time interval $(0, t]$ when the system initially starts from regenerative state S_i. Using the definition of $V_i(t)$ and probabilistic concepts, the recurrence relations among $V_i(t)$ where i = 0, 1, 2, 3, 4, 5, 7 can easily be developed.

Using the technique of L.S.T., the solution for $\widetilde{V}_0(s)$ is given by

$$\widetilde{V}_0(s) = N_4(s)/D_4(s)$$

(50)

where,

$$N_4(s) = \widetilde{Q}_{01}(\widetilde{Q}_{10} + \widetilde{Q}_{10}^{(6)} + \widetilde{Q}_{17}\widetilde{Q}_{70}) + \widetilde{Q}_{02}(\widetilde{Q}_{20} + \widetilde{Q}_{20}^{(8)} + \widetilde{Q}_{27}\widetilde{Q}_{70}) + \widetilde{Q}_{03}\widetilde{Q}_{30} + \widetilde{Q}_{04}(\widetilde{Q}_{40} + \widetilde{Q}_{40}^{(9)} + \widetilde{Q}_{47}\widetilde{Q}_{70}) + \widetilde{Q}_{05}(\widetilde{Q}_{50} + \widetilde{Q}_{50}^{(10)} + \widetilde{Q}_{57}\widetilde{Q}_{70})$$

(51)

$D_4(s)$ can be written on replacing q_{ij}^* by $\widetilde{Q}_{ij}$ in $D_2(s)$ given by **(40)**

In the steady state, the expected number of repairs per unit time is given by

$$V_0 = \lim_{t\to\infty}\left[\frac{V_0(t)}{t}\right] = \lim_{s\to 0} s\, \widetilde{V}_0(s) = N_4(0)/D_2'(0)$$

where,

$$N_4(0) = p_{01}(p_{10} + p_{10}^{(6)} + p_{17}p_{70}) + p_{02}(p_{20} + p_{20}^{(8)} + p_{27}p_{70}) + p_{03}p_{30} + p_{04}(p_{40} + p_{40}^{(9)} + p_{47}p_{70}) + p_{05}(p_{50} + p_{50}^{(10)} + p_{57}p_{70})$$

(52)

9. PROFIT FUNCTION ANALYSIS

Two profit functions $P_1(t)$ and $P_2(t)$ can easily be obtained for the system model under study with the help of characteristics obtained earlier. The expected total profits incurred during $(0, t]$ are:

$P_1(t) = $ Expected total revenue in $(0, t]-$ Expected total expenditure in $(0, t]$

$$= K_0\mu_{up}(t) - K_1\mu_b(t)$$

(53)

Similarly,

$$P_2(t) = K_0\mu_{up}(t) - K_2V_0(t)$$

(54)

where,

K_0 is revenue per unit up time.

K_1 is the cost per unit time for which repair man is busy in repair of the failed unit.

K_2 is per unit repair cost.

The expected total profits per unit time, in steady state, is

$$P_1 = \lim_{t\to\infty}[P_1(t)/t] = \lim_{s\to 0} s^2 P_1^*(s)$$

$$P_2 = \lim_{t\to\infty}[P_2(t)/t] = \lim_{s\to 0} s^2 P_2^*(s)$$

So that,

$$P_1 = K_0A_0 - K_1B_0$$

(55)

and

$$P_2 = K_0A_0 - K_2V_0$$

(56)

10. PARTICULAR CASE

If the repair time distributions are taken as negative exponential i.e.

$$G(t) = 1 - e^{-\eta t} \qquad\qquad G_1(t) = 1 - e^{-\alpha_1 t}$$

$$H_i(t) = 1 - e^{-\theta_i t} \qquad\qquad F_i(t) = 1 - e^{-\mu_i t} \qquad \text{where, } (i = 1,2)$$

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Then the variations in transition probabilities and mean sojourn times are as follows:

$p_{10} = \frac{\theta_1}{(\lambda+\lambda_1+\theta_1)}$ $p_{10}^{(6)} = \frac{\lambda_1}{(\lambda+\lambda_1+\theta_1)}$ $p_{17} = \frac{\lambda}{(\lambda+\lambda_1+\theta_1)}$

$p_{20} = \frac{\theta_2}{(\lambda+\lambda_1+\theta_2)}$ $p_{20}^{(8)} = \frac{\lambda_1}{(\lambda+\lambda_1+\theta_2)}$ $p_{27} = \frac{\lambda}{(\lambda+\lambda_1+\theta_2)}$

$p_{40} = \frac{\mu_1}{(\lambda+\lambda_1+\mu_1)}$ $p_{40}^{(9)} = \frac{\lambda_1}{(\lambda+\lambda_1+\mu_1)}$ $p_{17} = \frac{\lambda}{(\lambda+\lambda_1+\mu_1)}$

$p_{50} = \frac{\mu_2}{(\lambda+\lambda_1+\mu_5)}$ $p_{40}^{(10)} = \frac{\lambda_1}{(\lambda+\lambda_1+\mu_2)}$ $p_{57} = \frac{\lambda}{(\lambda+\lambda_1+\mu_2)}$

$\Psi_1 = \frac{1}{(\lambda+\lambda_1+\theta_1)}$ $\Psi_2 = \frac{1}{(\lambda+\lambda_1+\theta_2)}$ $\Psi_3 = \frac{1}{\alpha_1}$

$\Psi_4 = \frac{1}{(\lambda+\lambda_1+\mu_1)}$ $\Psi_5 = \frac{1}{(\lambda+\lambda_1+\mu_2)}$ $\Psi_6 = \frac{1}{\theta_1}$

$\Psi_7 = \frac{1}{\eta}$ $\Psi_8 = \frac{1}{\theta_2}$ $\Psi_9 = \frac{1}{\mu_1}$

$\Psi_{10} = \frac{1}{\mu_2}$

11. GRAPHICAL STUDY OF THE SYSTEM MODEL

For more concrete study of system behavior, we plot MTSF and Profit functions with respect to β_1 (failure rate of Filler machine) for different values of θ_1(repair rate of Filler machine).

Fig. 2 shows the variations in MTSF in respect of β_1 for different values of θ_1 as 0.25, 0.50 and 0.75 while the other parameters are fixed as $\lambda = 0.30$, $\lambda_1 = 0.10$, $\gamma_1 = 0.03$, $\gamma_2 = 0.03$, $\alpha = 0.20$, $\alpha_1 = 0.30$, $\beta_2 = 0.05$, $\eta = 0.04$, $\mu_1 = 0.02$, $\mu_2 = 0.02$, $\theta_2 = 0.05$. It is observed from the graph that MTSF decreases with the increase in the failure parameter β_1 and for higher values of θ_1, the MTSF is higher i.e., the repair facility has a better understanding of failure phenomenon resulting in longer lifetime of the system.

Fig. 3 represents the change in profit function P_1 and P_2 w.r.t. β_1 for different values of θ_1 as 0.25, 0.50 and 0.75 while the other parameters are fixed as $\lambda = 0.30$, $\lambda_1 = 0.10$, $\gamma_1 = 0.03$, $\gamma_2 = 0.03$, $\alpha = 0.20$, $\alpha_1 = 0.30$, $\beta_2 = 0.05$, $\eta = 0.04$, $\mu_1 = 0.02$, $\mu_2 = 0.02$, $\theta_2 = 0.05$, $K_0 = 1000$, $K_1 = 300$, $K_2 = 250$. From the graph it is seen that both profit functions decrease with the increase in failure rate β_1 and increase with the increase in θ_1. It is also observed that profit function P_2 is always higher as compared to profit function P_1 for fixed values of β_1 and θ_1. Thus the better understanding of failure phenomenon by the repairman results in better system performance.

12. CONCLUDING REMARKS

A model of Beer Bottle Filling Plant consisting of five units is developed and analyzed with respect to various reliability characteristics for its stochastic analysis by personally visiting the factory situated at District Samba in State Jammu and Kashmir. All the failure time distributions are taken to be negative exponential. All the repair time distributions are taken as arbitrary. The graphical study of some of the reliability characteristics has also been carried out.

FIG. 2

Behaviour of MTSF w. r. t. β_1 for different values of θ_1

FIG. 3

Behaviour of P_1 & P_2 w. r. t. β_1 for different values of Θ_1
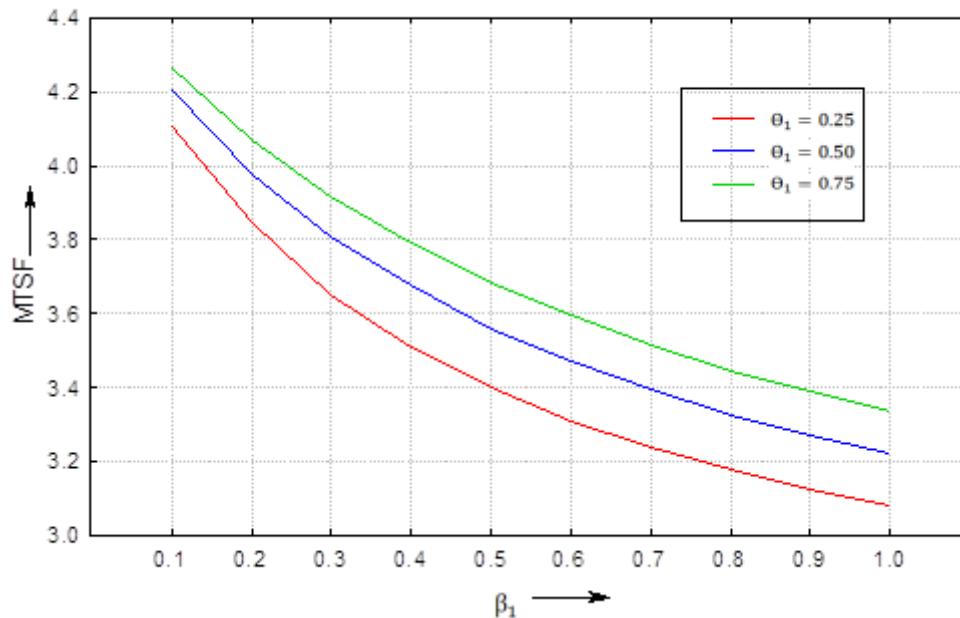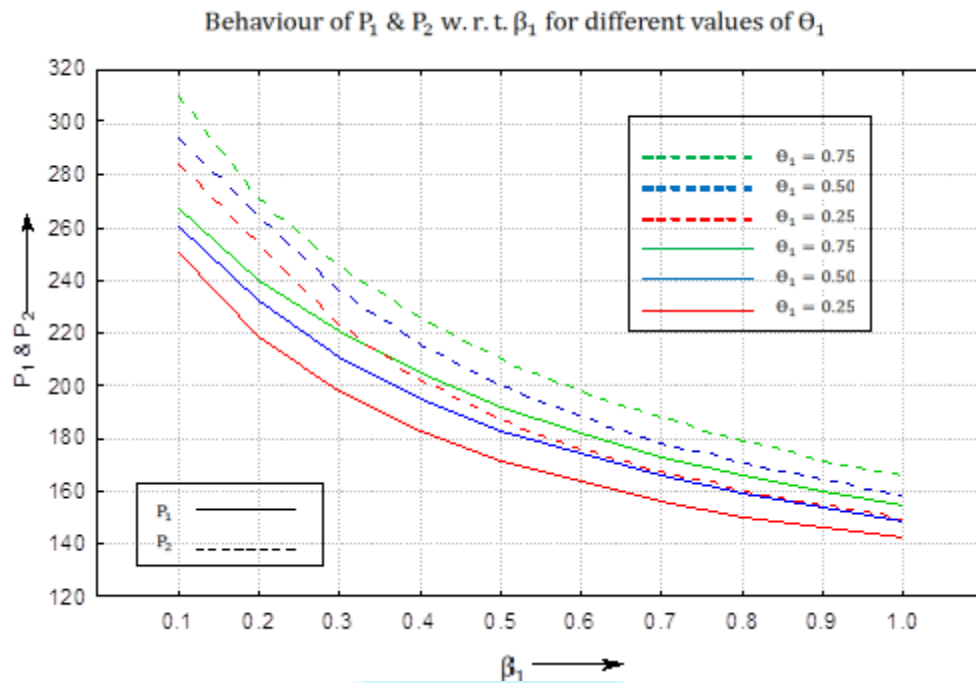
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PUBLIC RELATIONS INDIA: A STUDY OF LIFE INSURANCE CORPORATION OF INDIA

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ABSTRACT

Today's is an age of competition and to remain firm in the competition depends on how efficiently the Organization manages its Public Relation & projects the company's image. Public Relation will not sell goods and Services but it is bound to create an atmosphere which will make the free enterprise, a responsible enterprise. Public Relations, in fact will prove to be the most effective tool for communicating with the People who are still remote from industry for convincing them that corporate objectives are ultimately in the interest of the public. The PR Mantra has now become pervasive. Neither a individual nor the organization &not even the government Or a UN body can thrive or sustain in this age without effectively strategizing public relation.

KEYWORDS
public relations, LIC of India.

INTRODUCTION
Public relation (**PR**) is the practice of managing the spread of information between an individual or an organization (such as a business, government agency, or a nonprofit organization) and the public. Public relations may include an organization or individual gaining exposure to their audiences using topics of public interest and news items that do not require direct payment This differentiates it from advertising as a form of marketing communications. The aim of public relations is to inform the public, prospective customers, investors, partners, employees, and other stakeholders and ultimately persuade them to maintain a certain view about the organization, its leadership, products, or of political decisions and nonprofit organizations.

Public relations specialists establish and maintain relationships with an organization's target audience, the media, and other opinion leaders. Common activities include designing communications campaigns, writing news releases and other content for news and feature articles, working with the press, arranging interviews for company spokespeople, writing speeches for company leaders, acting as organization's spokesperson by speaking in public and public officials, preparing clients for press conferences, media interviews, and speeches, writing website and social media content, facilitating internal/employee communications, and managing company reputation and marketing activities like brand awareness and event management Success in the field of public relations requires a deep understanding of the interests and concerns of each of the client's many publics. The public relations professional must know how to effectively address those concerns using the most powerful tool of the public relations trade, which is publicity.

PUBLIC RELATION
Public relations (PR) are the way organizations, companies and individuals communicate with the public and media. A PR specialist communicates with the target audience directly or indirectly through media with an aim to create and maintain a positive image and create a strong relationship with the audience. Examples include press Releases, newsletters, public appearances, etc. as well as utilization of the World Wide Web The business of insurance is purely service which cannot be seen or held. Hence, the consumer relations activities of LIC concentrate on the customer public and building relations with prospective customer.

WHY TO NEED PUBLIC RELATION
- Media relationship-building
- Social networking
- Event planning
- Crisis prevention
- Crisis recovery
- Press release writing
- Brand development

OBJECTIVES OF PUBLIC RELATION
Building Product Awareness – When introducing a new product or relaunching an existing product, marketers can use a PR element that generates consumer attention and awareness through media placements and special events.

Creating Interest – Whether a Public relation placement is a short product article or is included with   other products in "round up" article, stories in the media can help entice a targeted audience to try the product. For example, around the holiday season, a special holiday food may be promoted with PR through promotional releases sent to the food media or through special events that sample the product.

Providing Information – PR can be used to provide customers with more in depth information about products and services. Through articles, collateral materials, newsletters and websites, PR delivers information to customers that can help them gain understanding of the product.

Reinforcing the Brand – In many companies the public relations function is also involved with brand reinforcement by maintaining positive relationships with key audiences, and thereby aiding in building a strong image. Today it is ever more important for companies and brands to build a good image. A strong image helps the company build its business and it can help the company in times of crises as well.

THE IMPORTANCE OF PUBLIC RELATIONS
- PR is all about building relationships to advance, promote, and benefit the reputation of you yourself, your department and institution
- PR is about communicating your message to gain allies, advocates, supporters, etc. in the community and the institution
- It aids in marketing the department for recruitment purposes and can lead to improved quality of student applicants

➤ It demonstrates to funding agencies that you are making a difference and actually have results
➤ It can improve the reputation of an individual department

THE MORE PUBLIC RELATION YOU DO, GREATER POTENTIAL FOR EVEN MORE MEDIA EXPOSURE PR IS NOT JUST MEDIA RELATIONS

1. Special Promotions
2. Public Affairs
3. Internal Relations
4. Community Relations
5. High Tech PR: blogging, social networking

As you can see, public relations professionals' No. 1 priority is to build and protect the image of a company. They do this by building beneficial and lasting relationships with other companies and professionals in their area, including news reporters, magazine editors and politicians.

HOW ARE PUBLIC RELATIONS DIFFERENT FROM MARKETING?

While Public relation focuses on relationships, marketing generally focuses on making sales. For example, a marketing professional might send out postcards offering free or discounted services, while a public relations professional might send out "Welcome to the neighborhood" cards that include helpful information about the community. Combining the efforts of public relations and marketing yields a much higher success rate than if one were implemented without the other.

WHY DOES YOUR COMPANY NEED PUBLIC RELATIONS?

As the CEO or manager of your company, you have a lot on your plate. Trying specifically to make a name for your company in the community is most likely not on the top of your priority list, even though it is vital to your survival and success. Maintaining a clean image makes potential customers feel at ease about working with you. Building community relationships often leads to increased sales because customers want to work with people they know and respect. For both of these reasons, it is important to have a public relations professional available to you, whether you create a department within your company to handle these responsibilities or hire an external PR firm. Either way, you will not regret the decision to integrate public relations practices into your company's everyday routine.

INSURANCE

Insurance is the equitable transfer of the risk of a loss, from one entity to another in exchange for payment. It is a form of risk management primarily used to hedge against the risk of a contingent, uncertain loss. An insurer, or insurance carrier, is selling the insurance; the insured, or policyholder, is the person or entity buying the insurance policy. The amount of money to be charged for a certain amount of insurance coverage is called the premium. Risk management, the practice of appraising and controlling risk, has evolved as a discrete field of study and practice.

INTEGRITY
1. Have the courage to stand up for what's right.
2. Do what we say we will - taking ownership
3. Are true to our word
4. Are honest and tell it how it is, respectful

INNOVATION
1. Create, improve and develop
2. Positively challenge and improve the status quo
3. Show initiative
4. Make the complex simple

IN TUNE WITH FARMING AND FARMERS
1. Demonstrate empathy with our customers
2. Keep connected to our customers
3. Listen, understand and respond
4. Demonstrate in everything we do that helping our customers achieve prosperity is our sole focus

OBJECTIVES OF LIC

LIC – Objectives of LIC are many but precise. Promote among all agents and employees of the corporation a sense of participation, pride and job satisfaction through discharge of their duties with dedication towards achievement of Corporate objectives is one of the objectives of LIC.

1. Spread life insurance widely and in particular to the rural areas and to the socially and economically backward classes with a view to reaching all insurable persons in the country and providing them adequate financial cover against death at a reasonable cost.
2. Maximize mobilization of people's savings by making insurance linked savings adequately attractive.
3. Bear in mind, in the investments of funds, the primary obligation to its policy holders, whose money it holds in trust. Without losing sight of the interest of the community as a whole; the finds to be deployed to the best advantage of the investors as well as the community as a whole, keeping in view national priorities and obligations of attractive return.
4. Conduct business with utmost economy and with the full realization that the moneys belong to the policy holders.
5. Act as trustees of the insured public in their individual and collective capacities.

OBJECTIVES OF PUBLIC RELATION IN LIC

The objectives of understanding public relation in lic are manifold. in their citizen s charter the

1) To our community: Conduct all aspects of our business keeping in the interests of the community and the national priorities provide insurance cover and financial security to every insurable segment including the society and economically weaker sections of the society.
2) To our customers: We will provide them prompt, efficient and courteous service: act as trustees of their funds and invest them to their best advantage: build and maintain enduring relationship: Keep them informed about our products and services etc.
3) to our workforce: We will promote a sense of participation and make them partners in progress; work towards ensuring their job satisfaction and sense of pride provide an environment and the opportunities for growth to enable them to realize their full potential take steps to develop professional skills to enable them to handle their assignments more efficiently.

CONSUMER RELATIONS IN LIC

In consonance with the changes taking place in the insurance market, the corporation has undergone a transformation, simultaneously requiring a revamp in its image. Systematic and focused PR initiatives and widespread publicity has resulted in markedly improved visibility. The corporation has emerged with a much younger and sleeker image

PR ACTIVITIES FOR CONSUMER RELATION

The business of insurance is purely service which cannot be seen or held. Hence, the consumer relations activities of LIC concentrate on the customer public and building relations with prospective customer.

FINANCIAL RELATIONS IN LIC

There are quite a few financial publics of LIC.
1. Government Agencies
2. Banks and Financial Institutions

COMMUNITY REALTIONS IN LIC

IC regularly provides 'Health vans' to various organizations across the country. The corporation also sponsors many sports events at the national level. Numerous publicity projects with a social purpose are undertaken at the zone level. Recently the North Zone (Delhi) associated itself with the 'Perfect Health Mela' to propagate the cause of good health

PUBLIC RELATIONS ACTIVITIES AT L.I.C.

PRESS CONFERENCE
Press conference & interview are arranged periodically by all L.I.C. offices - i.e., Central, Zonal, Divisional and Branch offices at the time of launching any new scheme and to inform about the policies, programmers' and activities to the press so that it can be publicized.

LIC WEB SITE
LIC has its own web site Licindia.com which provides information about LIC and its subsidiaries and the products offered by them

USAGE OF INFORMATION TECHNOLOGY
With a view to providing quick and accurate service its Customers LIC has introduced on-line service through front – end terminals in 1993 branches and soon all our customers will be able to benefit by this

PUBLIC FUNCTIONS
Inauguration of new offices helps in communication as well as in enhancing the image of the corporation

ADVERTISEMENT IN NEWSPAPER AND MAGAZINE
Advertisement about LIC's products, activities and policies is published in newspapers and magazines.
House Magazine –YogkshemYogkshema is the house magazine of LIC. It provides information about the corporation, its activities, policies and programs.

METHODOLOGY

Research methodology may be under stated as signs of studying how research scientifically .it is a way to systematically solve the research problem.

RESEARCH DESIGN
For this research work descriptive design is used. It includes survey and fact finding enquiries of different kinds, the major purpose descriptive research is Description of the state of affairs, as it exists at present. In this method the research has not control over the variable he or she can only report what had happening.

SOURCES OF DATA
1) PRIMARTY DATA: The information collected for the first time is called primary data collection. In this research work. The research adopted questionnaire method.

2) SECONDARY DATA: This data is collected from sources of information like, website; Documents provided by the company and also referred some textbooks.

TOOLS OF DATA
The main tool used for data collection is questionnaire this questionnaire consisted of multiple choices statement as well as open ended question.

SAMPLING TECHNIQUE
For this research work, the researcher systematic sampling method. In systematic sampling only the first unit is selected and randomly and the remaining units of the sample or selected at fixed intervals.

SAMPLING SIZE
The sample size for this study is 50 only.

ANALYSIS AND INTERPRETATION

1) Reasons for investing in Insurance Plans of LIC?

TABLE 1

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Returns	18	36.0%
02	Schemes are good.	3	6.0%
03	Recommended by Family & Friends	18	36.0%
04	Needs to save tax	11	22.0%
	TOTAL	**50**	100.0%

FIG. 1
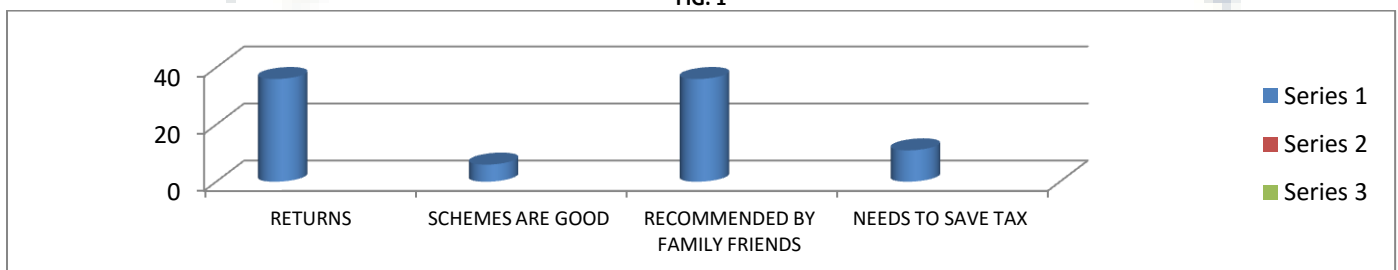
2). what do you feel after investing in Insurance Plans of LIC

TABLE 2

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	GOOD	25	50
02	Averagely Satisfied with the investment decision	20	40
03	Cheated	5	10
TOTAL		50	100

FIG. 2
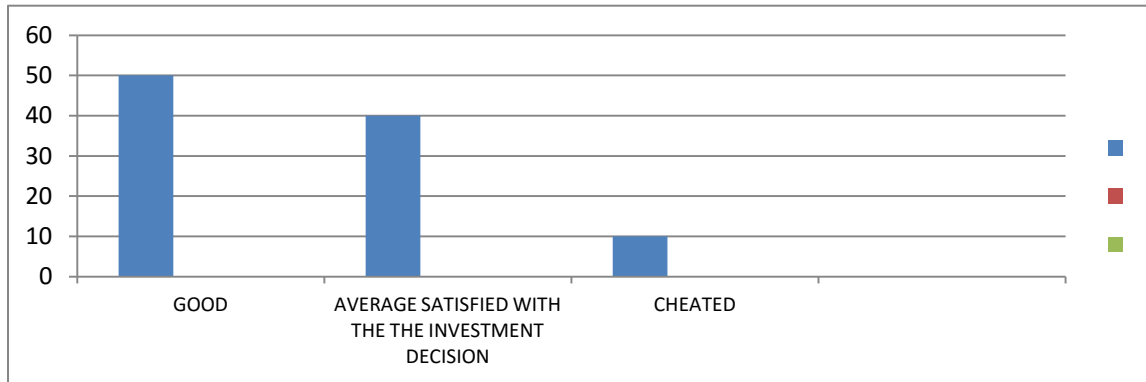
3) Grievance Redressal Mechanism

TABLE 3

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Fully Satisfied	15	30
02	Partially Satisfied	30	60
03	Not Satisfied	5	10
TOTAL		50	100

FIG. 3
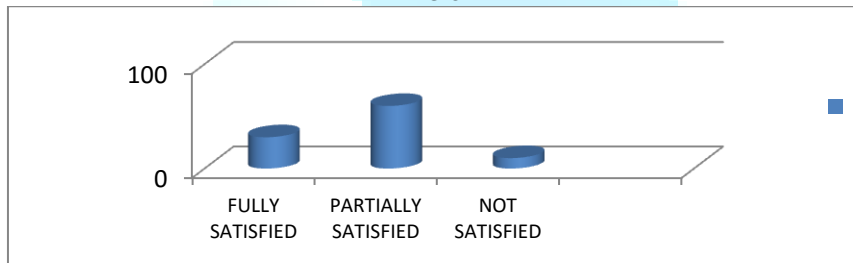
4) What do you feel after investing in Insurance Plans of LIC of India?

TABLE 4

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Good	30	60
02	Averagely Satisfied with the investment decision	15	30
03	Cheated	5	10
TOTAL		50	100

FIG. 4
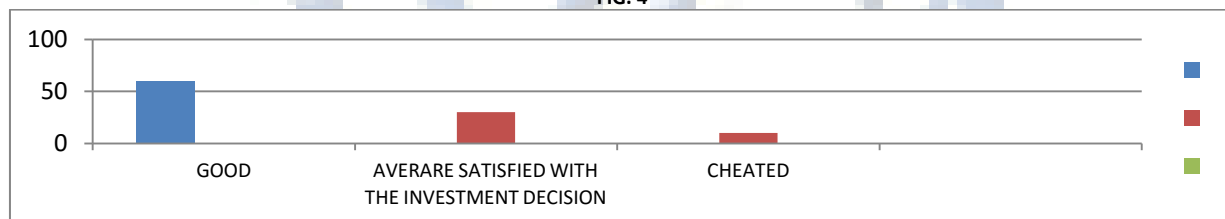
5) Rate your overall satisfaction with Insurance Policies of Life Insurance?

TABLE 5

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Highly Satisfactory	15	30
02	Satisfactory	10	20
03	Average	5	10
04	Dissatisfactory	10	20
05	Highly Dissatisfaction	10	20
TOTAL		50	100

FIG. 5
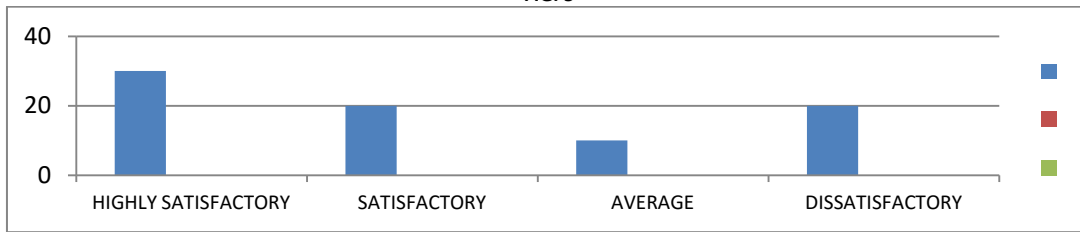
6) Do LIC have complex Formalities?

TABLE 6

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	YES	35	70
02	NO	15	30
TOTAL		50	100

FIG. 6
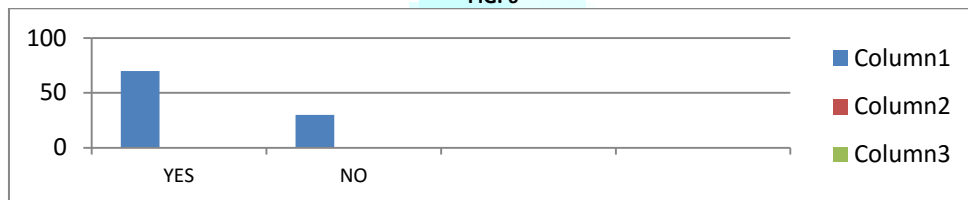
7) How is the Premium Amount to be paid in Insurance Plans of LIC?

TABLE 7

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Highly Satisfactory	15	30
02	Satisfactory	10	20
03	Average	15	30
04	Dissatisfactory	10	20
TOTAL		50	100

FIG. 7
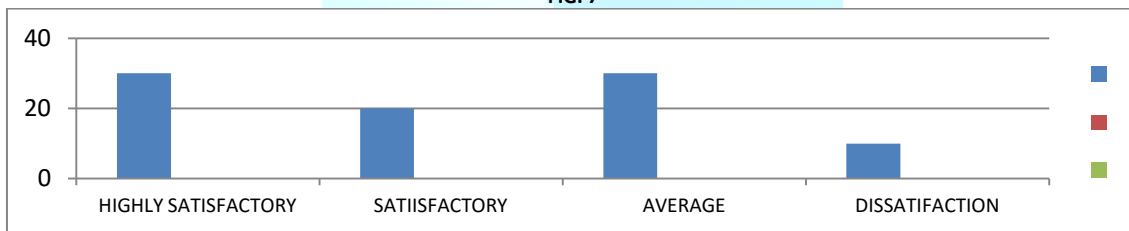
8) LIC emphasizes high quality service than the volume of sale

TABLE 8

Sl. No.	PARTICULARS	NO. OF RESPONDENTS	PERCENTAGE
01	Strongly Agree	35	70
02	Agree	10	20
03	Disagree	5	10
TOTAL		50	100

FIG. 8
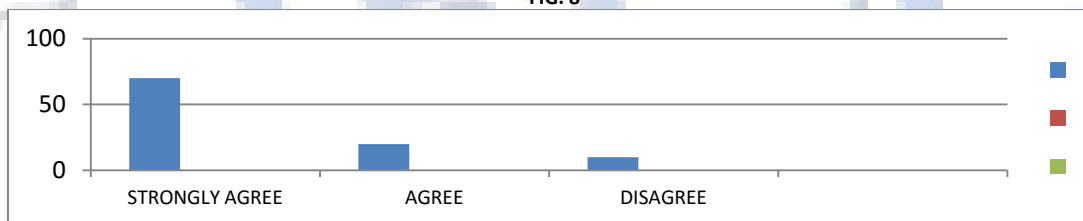
FINDINGS
1) 50% of the members satisfied with the insurance plan of LIC
2) Members 90% are satisfied with benefit and security in insurance plan
3) 30% of the members are highly satisfied with the insurance policies of life insurance
4) Majority of the of the members have complex formalities
5) 60% of the members are fully satisfied with services offered by LIC
6) 70% of members strongly agree on the emphasizes of high quality services than the volume sales

SUGGESTIONS
1) Investment schemes should be improve

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2)   Benefited should be proceeded more
3)   They should have control regarding grievance
4)   They should change in premium plan

CONCLUSION

Today's is an age of competition and to remain firm in the competition depends on how efficiently the Organization manages its Public Relation & projects the company's image. Public Relation will not sell goods and Services but it is bound to create an atmosphere which will make the free enterprise, a responsible enterprise. Public Relations, in fact will prove to be the most effective tool for communicating with the People who are still remote from industry for convincing them that corporate objectives are ultimately in the interest of the public. The PR Mantra has now become pervasive. Neither a individual nor the organization &not even the government Or a UN body can thrive or sustain in this age without effectively strategizing public relation.

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SWOT ANALYSIS OF IOCL: AN OVERVIEW

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ABSTRACT

Indian Oil Corporation Ltd. SWOT analysis provides depth information for strategic decision making. SWOT analysis of Indian Oil Corporation Ltd. Provides list of controllable and uncontrollable factors which influence the IOCL directly or indirectly. Controllable factors of IOCL which are unfavorable can be controlled through effective management. SWOT analysis of IOCL provides present position of company in the market. With the help of SWOT analysis IOCL can predict its future opportunities and threats. SWOT analysis is the basic need of every organization to survive in the market without SWOT analysis a firm cannot measure the present position in the market within the industry and among its competitors.

KEYWORDS

IOCL, effective management.

INTRODUCTION

Every business, small or large needs to analyze all surrounding factors carefully before planning and decision making. To forecast the business there are various analytical tools, one of them being the SWOT analysis? SWOT analysis is used to identify the favorable and unfavorable factors that influence the business firm directly or indirectly. SWOT analysis of IOCL (Indian Oil Corporation Ltd.) provides valuable information to the top management which is helpful in decision making and strategic planning.

IOCL came into existence on 30 June, 1959. Indian Oil Company was renamed in 1964 after the merger with Indian Refineries Ltd. Indian Oil Corporation Limited has celebrated its Golden Jubilee in September, 2009. IOCL is 18th largest petroleum company in the world. IOCL is India flagship energy corporate continued to lead the set of Indian companies in the prestigious Fortune Global 500 listing of the world's largest companies by sales for the year 2014 with an overall ranking of 96. SWOT analysis provides information about internal and external factors of environment. Internal factors include strengths and weakness while on the other hand.

External factors include opportunities and threats. With the help of SWOT analysis IOCL can analyze its internal as well as external factors and can make better prediction about its competitors.

SWOT

S   : Strenghts
W   : Weaknesses
O   : Opportunities
T   : Threats

OBJECTIVES OF THE STUDY

1. To know about the strength of IOCL.
2. To know about the weakness of IOCL.
3. To know about the opportunities of IOCL.
4. To know about the threats of IOCL.

SWOT ANALYSIS OF IOCL

SWOT analysis of IOCL provides data about strengths, weakness, opportunities and threats of company which is important for smooth running of the business in the competitive market.

STRENGTH- Indian Oil Corporation limited has been providing services since 1959, during these years it has gathered a lot of valuable expertise and learned the trick of trade. It has enjoyed unlimited protection and nutrition from the government, which helped it grow and gain substantial hold of the market.

- ✓ For a long time the company had monopoly power in the downstream sector.
- ✓ IOCL has a pipeline network of 6268 kms throughout the country running right from Guwahati in the East to Kanda in West. It also reaches the Northern Region to Jallandar and plans to extend till Udhampur. It reduces the transportation cost of the company.
- ✓ Rural Reach- the main strength of IOCL is that it has its reach in rural areas also. It has 231 multipurpose distribution centers. This helps to fulfill the need of rural population.
- ✓ Human resource is the main power of any organization. IOCL has over 35,000 employees.

WEAKNESSES

- ✓ The operation of IOCL is influenced by Government policy and regulation because government has 82% stake in the company. So there is a risk of political factors on IOCL.
- ✓ Bureaucracy
- ✓ Employee management
- ✓ Volatility in crude market and subsidy burden.

OPPORTUNITIES

- ✓ Modernization – due to the economic reforms 1991, Indian economy has attracted many foreigners' players to invest in our country.
- ✓ Increasing fuel and oil prices.
- ✓ Increasing natural gas product. More oil well discoveries and expand export market.

THREATS

- ✓ High competition- in present time there are many competitors of Indian Oil Corporation Ltd as like Bharat Petroleum, Hindustan Petroleum, Reliance Industries and ONGC.

CONCLUSION

On the basis of present study it can be concluded that SWOT analysis of Indian Oil Corporation provides valuable information for management which are helpful in strategic decision making. SWOT analysis of IOCL is helpful to compete the competitors in the market. SWOT analysis is helpful in decision making and prediction.

LIMITATION OF THE STUDY

The present study includes only the single company (IOCL) for research so the area of the research is limited. The present does not include the comparative study with its competitors. It only describes the SWOT analysis of Indian Oil Corporation Ltd.

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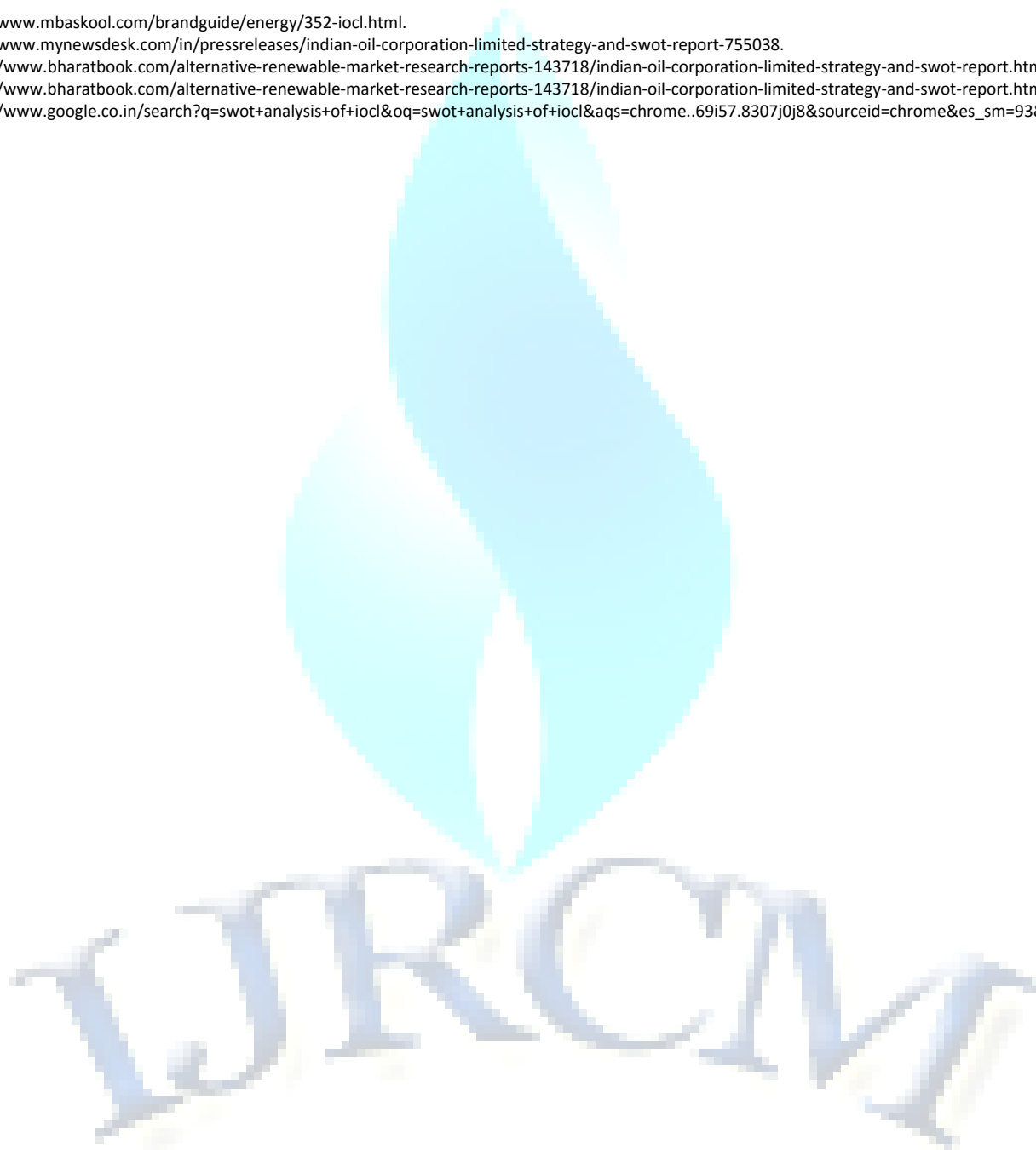
DETERMINANTS OF PROFITABILITY OF SELECTED NON BANKING FINANCIAL COMPANIES IN INDIA

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ABSTRACT

Financial institutions play an important role in the economy by channelizing funds and that act as a prominent stakeholders. Financial sector plays an indispensable role in the overall development of a country. NBFCs are financial intermediaries engaged primarily in the business of accepting deposits and delivering credit. Financial performance of a financial company basically depends on its some key financial determinants. Specially operating efficiency is main influencing factor which is calculated through operating income. Besides in capital structure of companies, total equity, total liability, operating expenses and total assets significantly affect the profitability of any non banking financial companies. This study investigates the determinants of profitability of non banking finance companies in India during the period from 2003-04 to 2012-13. Different statistical techniques such as descriptive statistics and multiple regressions have been used. This research is an attempt to analyze the trends in profitability and to find out the statistically significant key determinants variable and the level of influence over the net profit and return on total assets.

KEYWORDS

Return on Assets, Return on Capital Employed, Income Diversification, Capital Base, GDP, Inflation, Size, Interest Margin and Assets Quality.

INTRODUCTION

The financial system facilitates transfer of funds, through financial institutions, financial Markets, financial instruments and services. Financial institutions act as mobilizes and depositories of savings, and as purveyors of credit or finance. They also provide various financial services to the community. They act as intermediaries between savers and investors. All banks and many non-banking institutions also act as intermediaries and are called as non-banking financial intermediaries (NBFI). Financial institutions are divided into the banking and non-banking ones. The banking system in India comprises the commercial banks and co-operative banks. The examples of non-banking financial institutions are Life Insurance Corporation (LIC), Unit Trust of India (UTI), and Industrial Development Bank of India (IDBI). The non banking financial sector in India has recorded marked growth in the recent years, in terms of the number of Non-banking financial companies (NBFCs), their deposits and so on. Keeping in view the growing importance of NBFCs, the banking laws (miscellaneous provisions) act, and 1963 was introduced to regulate them. NBFCs are non-banking companies carrying business of a financial institution. These institutions are engaged in the principal business of loans and advances, acquisition of shares /stocks /bonds /debentures /securities issued by government or local authority, other securities of marketable nature, leasing, hire purchase, insurance business, and chit business. The institutions whose principle business is that of agricultural activity or any industrial activity or sale, purchase or construction of immovable property, do not fall under the definition of NBFCs. Unlike commercial banks, NBFCs cannot accept demand deposits, cannot write checking facility, and cannot issue cheques to the customers. NFBCs operate largely in vehicle financing, hire purchase, lease, personal loans, working capital loans, microfinance, consumer loans, housing loans, loans against shares, investments, distribution of financial products, etc. This paper made an attempt to analyse the performance of selected NBFCs.

REVIEW OF LITERATURE

To get an insight of profitability determinants, several studies have been executed with the help of ratios, Correlation and Regression analysis up to till date. But the fact suggests that, most of the researches have been conducted on banking industry. So, the evident with regard to profitability is scarce in the NBFI sector.

Suresh Vadde(2011) analysed the performance of NBFCs in India during 2008-09. Totally 1215 companies were selected as sample and were classified into five major groups according to their activity viz, share trading and investment holding, loan finance, asset finance, diversified and miscellaneous groups. A comparison is also made for the preceding two years 2006-07 and 2007-08 for the same set of companies. The study revealed that operating profits and the share of external sources of the select companies declined along with diminishing profitability during 2008-09.The major portion of funds raised during the year was deployed as loans and advances. The share of 'investment' in total use of funds increased during 2008-09 on account of investment in the mutual funds, shares and debentures of other Indian companies.

Fadzlansufian, and RoyfaizalRazali Chong (2008) examined the determinants of Philippines banks profitability during the period 1990-2005. Their empirical findings suggest that all the bank-specific determinant variables have a ststistically significantly impact on bank profitability. They also found that size, credit risk, and expenses performance behavior are negatively related to bank's profitability, while non interest income and capitalization have a positive impact. According to their analysis inflation has a negative impact on bank profitability, while the impact of economic growth, money supply, and stock market capitalization have not significantly explained the variations in tne profitability of Philippines banks.

Sarker and Das (1997) They compares the performance of public, private and foreign banks for the year 1994-95 by using measures of profitability, productivity and financial management. They found PSBs performing poorly with the other two categories. However, they give caution that no firm inference can be derived from a comparison done for a single year.

Shveeta and Satish Verma (2002) Thsey analyzed the inter-temporal profitability behavior of SBI group, other nationalized and foreign banks in India. They empirically estimated factors influencing the profitability of banks. They concluded that priority sector advances (in case of PSBs) and spread and burden (for all categories of banks) were the major and significant factors that influence the profitability of banks.

Thaigarajan et. al. (2011) They have carried out an analysis to empirically evaluate the determinants of profitability in the public and private sector banks in India using statistical tools such as correlation analysis, Multiple Regression Analysis and Factor analysis.

They have used ROA as the measure of profitability of the banks. This paper is the base for our study.

Smirlock & Brown, (1986) studied the impact of demand deposits as a function of total deposits on profitability. Their findings suggest that demand deposits had a significant positive relationship with profits.

Miller and Noulas, (1997) found that loan loss provision and net charge offs had a significant negative effect on the profitability of large banks. These results indicated that net charge offs were further affected by asset and liability composition. Thus, the asset liability portfolio decisions of commercial banks can be expected to affect the profitability of these institutions via net charge offs. It was also observed that higher salaries and benefits per employee were consistently

associated with higher net charge offs to total assets. This suggested that banks with higher salaries and benefits would require higher net interest margins to maintain profitability.

Ganesan, (2001) examined the profitability of public sector banks in India and found that interest costs, interest income, other income, deposits per branch, credit to total assets and proportion of priority sector advances were key determinants of profitability of these banks. **Ben Naceur and Goaied, (2008)** in a study done on Tunisian banks from 1980-2000, find that banks with relatively high amount of capital and overhead expenses tend to exhibit higher net-interest margin and profitability levels. They also find that bank size is negatively related to profitability. Additionally stock market development had a positive impact on bank profitability. Further private banks were found to be relatively more profitable than their state-owned counterparts.

Sufian, (2009) examined the determinants of Malaysian domestic and foreign commercial bank profitability during the period 2000-2004. It was found that Malaysian banks with higher credit risk and loan concentration exhibit lower profitability levels. On the other hand, banks that has a higher level of capitalization, higher proportion of income from non-interest sources, and high operational expenses proved to be relatively more profitable.

Sufian, (2009) found that economic growth negatively impacts the profitability of Malaysian banks. Higher inflation rates positively impacted the profitability of these banks. While studying a sample of eighteen European countries **Molyneux and Thornton, (1992)** found a significant positive relationship between the return on equity and the level of interest rates in each country, bank concentration, and government ownership.

OBJECTIVES OF THE STUDY

The study is carried out with following objectives:
1.   To analyze the profitability position of selected NBFCs in India.
2.   To identify the factors determining profitability of selected NBFCs in India.

METHODOLOGY

The data were collected from the official directory and data base of Center of Monitoring Indian Economy (CMIE) namely (PROWESS). The published annual reports of the selected non-banking financial companies taken from their websites, magazines and journals on finance have also been used sources of data. The study covers a period of ten years from 2003-04 to 2012-13. . Out of 14 NBFCs listed in NSE, only 4 companies were selected on convenient sampling method such as: Housing Development Finance Corporation Ltd (HDFC), Life Insurance Corporation Limited (LIC), Power Finance Corporation Limited (PFCL) and Industrial Development Finance Corporation Limited (IDFC). To assess the determinants of profitability of select non banking financial companies, the study adopted the statistical techniques like mean, standard deviation, coefficient of variation, skeweness, Kurtosis, Annual Compound Growth Rate and Multiple Regression Technique along with financial ratios.

VARIABLES FOR THE STUDY

In this section, an attempt has been done to find out the associations between profitability and performance indicating variables with assistance of few statistical tools. In this study, the Dependent Variables are Return on Assets and Return on Capital Employed and the Independent Variables are Income Diversification, Capital Strength, Size, Economic Growth, Inflation, Interest Margin Ratio and Asset Quality.

EMPIRICAL ANALYSIS

Trend in Profitability of select Non-Banking Finance Corporations have been presented in the following table:

TABLE 1: RETURN ON ASSETS AND RETURN ON CAPITAL EMPLOYED RATIO OF SELECTED NON-BANKING FINANCE COMPANIES IN INDIA DURING THE PERIOD 2003-04 TO 2012-13

Name of the Companies	HDFC		LIC		PFCL		IDFC	
Year	ROA	ROCE	ROA	ROCE	ROA	ROCE	ROA	ROCE
2003-04	2.54	3.24	2.17	2.79	4.72	5.85	4.83	5.38
2004-05	2.55	3.20	1.65	1.86	5.63	6.57	4.57	4.79
2005-06	2.42	3.10	1.17	1.67	6.32	8.32	3.60	3.83
2006-07	2.27	3.04	1.38	1.73	3.37	4.76	3.15	3.52
2007-08	2.25	3.14	1.56	1.98	2.84	3.54	2.60	3.22
2008-09	2.63	4.16	1.75	2.40	2.62	3.29	2.41	3.15
2019-10	2.25	3.32	1.92	2.63	2.55	3.47	2.49	3.26
2010-11	2.07	3.50	1.74	2.39	2.29	3.13	3.04	3.95
2011-12	3.11	6.04	2.33	3.09	2.91	3.72	3.36	4.55
2012-13	3.01	5.88	1.73	2.33	2.59	3.50	3.80	5.21
Mean	**2.51**	**3.86**	**1.74**	**2.29**	**3.58**	**4.62**	**3.39**	**4.09**
Standard Deviation	**0.34**	**1.15**	**0.34**	**0.47**	**1.44**	**1.75**	**0.83**	**0.84**
CV (%)	**0.11**	**1.33**	**0.12**	**0.22**	**2.08**	**3.06**	**0.69**	**0.71**
Skewness	**0.76**	**1.50**	**0.18**	**0.23**	**1.14**	**1.29**	**0.62**	**0.42**
Kurtosis	**-0.21**	**0.70**	**0.05**	**-0.93**	**-0.21**	**0.75**	**-0.58**	**-1.47**
Minimum	**2.07**	**3.04**	**1.17**	**1.67**	**2.29**	**3.13**	**2.41**	**3.15**
Maximum	**3.11**	**6.04**	**2.33**	**3.09**	**6.32**	**8.32**	**4.83**	**5.38**
Range	**1.05**	**3.00**	**1.15**	**1.42**	**4.03**	**5.19**	**2.42**	**2.23**
ACGR (%)	**1.38**	**6.87**	**2.12**	**3.18**	**-9.25**	**-8.42**	**-3.53**	**-0.45**

Sources: Compiled and Calculated from the CMIE Data Base.

It can be observed from Table 1 that the average Return on Assets of HDFC is 2.51 percent, which is followed by LIC 1.74 percent, PFCL 3.58 percent and IDFC 3.39 percent. The descriptive analysis reveals that the variations in the ROA were consistent during the period of study. The test of normality showed that the coefficient of skewness were positive for all the firms. The co-efficient of skewness and kurtosis indicates the non-normality of distribution. The above table also indicates the profitability of NBFCs in terms of Return on Capital employed. The average ratio of ROCE recorded at 3.86 per cent in the HDFC which is followed by LIC (2.29 %), PF (4.62%) and IDFC (4.09%). The measures of dispersion standard deviation and coefficient of variation indicates that the variation in the ROCE was consistent in the case of HDFC (0.32), LIC (0.22), PFCL (3.06) and IDFC (0.71) during the period of study. The co-efficient of skewness and kurtosis signifies the non non-normality of distribution. The annual compound growth showed an increasing trend in both measures of profitability ROA and ROCE in the case of HDFC and LIC. But in the case of Power Finance and IDFC the there has been declining trend in their profit earning capacity.

REGRESSION ANALYSIS

The empirical study has been done as a whole to find out the extent of relationship between dependent and independent variables. After performing the analysis, it will be likely to come to a supposition about the explanatory powers of the performance indicating variables towards the profitability. The dependent factors are Return on Assets and Return on Capital Employed and the Independent Variables are Income Diversification, Capital Strength, Size, Economic Growth, Inflation, Interest Margin Ratio and Asset Quality.

The specification of the model is as follows:

$$Y_{[t1,t2]} = \alpha + \sum_{i=1}^{n} \beta_i X_i + \varepsilon$$

Where,

$Y_{[t1,t2]}$ is Return on Assets (ROA)

$Y_{[t1,t2]}$ is Return on Capital Employed (ROCE)

X_i is the vector of independent variables and 'ε' is the error term

In order to understand the determinants of profitability more precisely, the above equation is elaborated as follows:

$$ROA_{it} = \alpha + \beta_1(IDV) + \beta_2(CAP) + \beta_3(SIZE) + \beta_4(GDP) + \beta_5(INFL) + \beta_6(IMR) + \beta_7(AQ) + \mu_t \text{ --------- Model}$$

(1)

$$ROCE_{it} = \alpha + \beta_1(IDV) + \beta_2(CAP) + \beta_3(SIZE) + \beta_4(GDP) + \beta_5(INFL) + \beta_6(IMR) + \beta_7(AQ) + \mu_t \text{ ---------}$$

Model (2)

IDV	=	Income Diversification
CAP	=	Capital Strength
SIZE	=	Size
GDP	=	Economic Growth
INFL	=	Inflation
IMR	=	Interest Margin Ratio
AQ	=	Asset Quality

To apply regression models, the ordinary least square (OLS) method have been used to find out the relationship between selected independent variables and profitability measures.

TABLE 2: REGRESSION RESULTS – MODEL I

Variables	NAME OF THE COMPANIES			
	HDFC	LIC	PFCL	IDFC
Constant	-19.084* (-3.913)	5.476 (0.786)	4.768 (1.204)	1.167* (2.994)
IDV	0.897** (7.359)	0.557* (3.549)	0.996*** (63.270)	0.911*** (24.272)
CAP	-2.726 (-2.772)	-3.258 (-2.030)	-0.250 (-2.282)	-0.002 (-0.982)
SIZE	4.042** (4.010)	-1.979 (-1.281)	-0.863 (-1.059)	-0.187 (-2.017)
GDP	-0.086 (-2.680)	0.233* (3.106)	-0.017 (-0.748)	-0.014* (-3.327)
INFL	-0.002 (-0.083)	0.064 (1.455)	0.003 (0.283)	0.001 (0.187)
IMR	-0.195** (-3.499)	0.451* (3.372)	-0.042 (-0.579)	0.000 (-0.036)
AQ	0.100*** (10.309)	-0.357 (-0.731)	0.010 (0.349)	0.009 (1.893)
R^2	99.9	96.5	97.9	98.9
Adjusted R^2	99.7	84.4	93.9	97.98
F value	64.65***	57.97	70.66***	90.84***

* Significant at 10% level, ** Significant at 5% level, *** Significant at 1% level

Table 2 presents the regression results of model (1), which indicates the relationship between dependent independent variables. It is found from the analysis that the value of adjusted R^2 of estimated regression equation is found to be statistically significant as is evident from their 'F' values, it disclose the goodness of fit of the model. The value of adjusted R^2 tends to be high ranging in between 57.97% to 90.84% in the sample firms. The very high value of adjusted R^2 shows that all the explanatory variables taken together well explained the profit behavior of the firm. As per the regression model 1 the coefficient of Income Diversification were found positive and significant impact on the profitability of the sample firms. The explanatory variable CAP negatively associated with profitability but not statistically significant. The regression coefficient of Size was positive and significant only in the case of HDFC. The economic variable GDP negatively associated with profitability but statistically significant only in the case of IDFC. Inflation does not have impact on the profitability of the sample firms. The exogenous variable interest margin found to be an important variable in determining profitability of HDFC and LIC. The other variable Assets Quality found positive and significant influence on the profitability of HDFC.

Regression Model (2) has been presented in Table 3.

TABLE 3: REGRESSION RESULTS – MODEL II

Variables	NAME OF THE COMPANIES			
	HDFC	LIC	PFCL	IDFC
Constant	1.318 (0.893)	6.845* (3.485)	20.049 (0.894)	3.882 (2.044)
IDV	0.490*** (13.291)	0.437** (9.878)	0.742** (8.329)	1.398** (7.650)
CAP	-0.218 (0.732)	-2.785** (6.156)	-0.515 (0.829)	-0.064** (5.503)
SIZE	0.001 (0.003)	-2.008** (-4.612)	-3.932 (-0.853)	-0.882 (-1.954)
GDP	-0.045** (-4.581)	-0.138** (6.514)	-0.156 (-1.176)	-0.038 (-1.812)
INFL	-0.013 (-1.770)	0.056 (2.511)	0.010 (0.146)	-0.027 (-1.347)
IMR	0.069* (4.099)	0.302** (8.014)	0.152 (0.369)	0.146 (2.469)
AQ	0.019** (6.395)	-0.125 (-0.906)	-0.043 (-0.274)	0.078* (3.338)
R^2	99.93	97.47	98.09	94.92
Adjusted R^2	99.69	92.62	95.91	94.65
F value	93.51***	53.95**	31.15**	96.03***

* Significant at 10% level, ** Significant at 5% level, *** Significant at 1% level

In the model (2) we use the Return n Capital Employed as the dependent variable. The analysis indicates that the value of adjusted R^2 of estimated regression equation is found to be statistically significant in the selected sample firm as is evident from their 'F' values. The high adjusted R^2 value ranging in between 31.15% to 96.03% refers to variation in dependent variables (ROCE) are explained by the variation of independent variables. The explanatory variable IDV has positive sign in all the firms and found to be important determinants of profitability (ROCE). CAP negatively related with profitability and which is found to be an important determinants of profitability of LIC and IDFC.

The GDP has negative impact on profitability, however, it has been found to be important determinants of profitability of HDFC and LIC. The explanatory variable Inflation does not have significant impact on the profitability of the firm. The other variable interest margin positively associated with profitability; however it does not have any impact on the profitability of the sample firm. Asset Quality has positive and significantly related with profitability in the case of HDFC and IDFC.

FINDINGS & CONCLUSION

This paper examined the profitability of selected NBFCs in India during 2003-04 to 2012-13. The results of the study show that there has been an increasing trend in its profitability of HDFC and LIC. But in the case of PFCL and IDFC were showed a declining trend. This study also focused on the determinants of selected NBFCs in India. The results show that independent variables like Income Diversification, Capital Strength, Size, Economic Growth, Inflation, Interest Margin Ratio and Asset Quality haven taken together have influenced the profitability of the firm in both regression models. However, inflation does not have any impact on the profitability of the sample firms. Therefore it is concluded that higher the Inocem Diversification higher the profitability and; higher the capital base lower the profitability. Again, Interest Margin Ratio is the another variable which has a major impact on Return on Capital Employed. So it is undoubtedly true that if the revenue increases, ultimately it has a positive effect over the profitability. The results of multiple regressions suggest that the selected independent variables explain more than 93.80% changes in the ROA and in ROCE. All the results are statistically significant and overall results provide an idea that income diversification is the basic determinant of profitability in NBFI sector. So it can be inferred that this promising and potential sector can flourish very fast and enhance profitability by improving diversified income and interest margin.

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EFFECT OF FIRM CAPITALIZATION ON EQUITY RISK PREMIUM EXPECTATIONS OF THE INVESTORS: A STUDY OF INDIAN CAPITAL MARKET

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ABSTRACT

In this paper, the effect of the market capitalization, the proxy for the firm size has been analysed in estimating the equity risk premium expectations of the investors in the Indian Capital Market. The firms are classified into three categories: large cap, mid cap and small cap companies and various financial market factors are analysed in each category and hypothesized that if the firm size affects the ERP expectations of the investors and also which factors affect the most to the ERP expectations in these categories seperately. This study is crucial as the equity risk premium expectations of the investors determines the return expectations of the investors which is important for both the company and the investor as return to the investor is the cost to the company. So, higher the ERP expectation of the investors, higher is the cost of capital for the company.

KEYWORDS

Equity Risk Premium, Market capitalization, large cap, mid cap and small cap.

INTRODUCTION

The size of the firm is measured by the market capitalization. Market capitalization is the overall valuation of the company based on the current market price of the share and the total number of outstanding shares of the company. It is one of the most important measure for the investors in selecting the securities that meet their risk, return and diversification criterion.

The Indian capital market categorizes the whole market in three categories, the large cap stocks, the mid cap stocks and the small cap stocks.

The criterion for this categorization is not static but is dynamic depending on the current overall market position. One of the methods to categorize the firms into large cap, mid cap and small cap is the 80-15-5 rule which helps in the categorization of the companies into these three categories. The rule is as follows:

1. Arrange all the companies in the descending order of the market capitalization.
2. The group of companies from the top which together contribute 80% of the total market cap are called as large cap companies.
3. The next group which contribute the next 15% (80-95%) are the mid cap companies.
4. The remaining 5% companies are the small cap companies.

So, this rule is the dynamic as the market cap of the companies is not static but depends on the current market price of the share and the number of outstanding shares of the company, which also thereby alters the total market capitalization. So, the large cap, mid cap and the small cap companies are defines as follows:

1. **Large Cap Companies**: These are the stocks which are usually large and well established companies commonly called as the blue chip companies which have the strong market presence and generally considered to be the safe investments. The information about these firms is easily and readily available in the market in the newspapers and the magazines, so any internal information of these companies is easily accessed by the investors. They have the good disclosures and no dearth of information for the investors looking into them as they have the separate corporate responsibility divisions to audit the internal performance of each and every department to protect the interest of the investor.
2. **Mid Cap Companies**: Mid cap company stocks are relatively risky than the large cap with the parameters like the size, revenues, employee and the client base as these are less than the established large cap companies. The investors invest in these mid cap companies to become tomorrow's runaway success stories in the future as these are providing the higher returns in the long term as compare to the moderate returns in the short duration.
3. **Small Cap Companies**: These are the newly born companies with smaller revenue with small client base which includes the start ups in the early stage of development. These are potentially the big gainers in the market in the long run, as they are yet to be discovered in the sector with the higher potential growth rate once unfurl in the market, but these are risky also as majority of these companies do not have the financial strength to survive in the bad times due to the mismanaged businesses, lower capital base and less expertise as they are new in their business and may not sustain the tough times in the economy. Also the information for these newly startup companies is not readily available, and hence adding the risk factor for the investors. **Klein and Bawa 1977**[1] found that if insufficient information is about a subset of securities, investors will not hold these securities because of estimation risk, i.e., uncertainty about the true parameters of the return distribution. If investors differ in the amount of information available, they will limit their diversification to different subsets of all securities in the market.

So, seeing this, the size effect has been analysed for the equity risk premium expectations of the investors in the Indian Capital Market. **Sehgal and Tripathi 2005**[2] proposed the strong size affect existed in the Indian Capital market during the period 1990-2003. They had taken the various market and non market measures to measure the size of the company like market capitalization, enterprise value, net fixed assets, net sales, total assets and the net working capital. All these measures proved that the small cap companies provide the extra normal returns on the risk adjusted basis for a sufficient long period of time. **Xu 2002**[3] also reported the strong size affect in China with the market capitalization as the measure of the market size. The company returns also depend upon the size of the company. **Gabreil & Timmermann 2000**[4] predicted the presence of asymmetries in the variation of small and large firms risk over the economic cycle. Small firms with the little collateral were strongly affected by the tighter market conditions in a recession state than the large and better collateralized ones. They analysed that the small firms displayed the highest degree of asymmetry in the risk across the recession and expansion states which translated into higher sensitivity of the stock returns with the risk. The small listed firms yield higher average returns than the larger firms due to the high sensitivity of the returns to the risk. **Richard Roll 1981**[5] studied this effect by taking the other factors like P/E multiple and dividend yield to see this size effect on the stock returns. **Marc R. Reinganum 1982**[6] indicated that the small firms earn higher average rate of return than large firms even after accounting for the beta risk. The evidence showed that while the direction of the bias in beta estimation is consistent with the Roll's conjecture, the magnitude of the bias appeared to be too small to explain the firm size affect. **Brown & Phillip 1983**[7] also checked the size related anomalies in the stock returns. They showed that the small firms had tended to yield returns greater than predicted by CAPM and the size effect is linear in logarithm of returns and these returns are not stable over the period of time. The small firms are

providing more returns than the large firms only in the long term duration, but in a short term duration, small cap stocks are under performing the large cap stocks. **Dimson and Marsh 1999[8]** proved that small caps outperformed large ones by 4.1% per year between 1955 and 1983, but underperformed by 2.4% per year between 1983 and 1997.

Arbel, A., Carvell, S., & Strebel, P. 1983[9] stated that the Institutions, mutual funds, banks and money managers face several difficulties in investing in firms with small capitalizations. They behave somewhat like giraffes that have the more concentration on the tall trees in the investment forest ignoring the underbrush due to the good structural reasons and as a matter of preference. The first issue in small cap stocks is the thinly traded securities which created the liquidity problem for the firm. Secondly the small firms have very low paid up capital that even a small investment in these companies resulted in more than 5 per cent ownership, requiring an insider's report to comply with SEBI regulations which also become large enough to necessitate managerial input, which often falls outside the institution's area of interest and expertise. With respect to their preferences, institutional fund managers may not want to take the greater risk perceived to be associated with small firms. They are expected to follow a prudent investment policy, which frequently means doing what everybody else does. But it was found that the small cap stocks have higher returns than the large cap stocks because of the information deficiency premium that the consumers demand a discount on items with low quality information to compensate them for the additional uncertainty involved or for the cost of acquiring the information to avoid this uncertainty. The availability of higher quality information raises the price of the security and lowers its return relative to the return on small cap securities. The second reason for the large returns in the small cap securities is the inefficient pricing, causing some securities, at least for a while, to be overpriced or underpriced. The factors that make it costly for institutions to invest in certain firms represent a market barrier separating institutions and other investors. If, after adjustment for any information deficiency premium, the excess returns on small cap securities are greater than the market barrier, institutions will obviously step in to take advantage of the difference and eliminate the abnormal returns arising from market inefficiency. As a result, adjusted returns in the small cap will not exceed the market barrier for any length of time.

So, therefore with the prospect of higher returns on the small cap securities, financial institutions and private investors might consider investing part of the pre designated less liquid portion of their portfolios in small cap companies which is the best way for large institutions, in particular, to participate in the small cap segment of the market and earn the higher returns with the minimum risk.

HYPOTHESIS FORMULATION

Null Hypothesis (H₀): Here the null hypothesis is that the market capitalization is independent in predicting the equity risk premium expectations of the investors in the Indian Capital Market. This means the risk premium expectations will not be reflected by the market cap or the size of the company, that is the equity risk premium expectations are same irrespective of large cap, mid cap and small cap companies.

Alternate Hypothesis (Hₐ): The alternate hypothesis is that the market capitalization affects equity risk premium expectations of the investors and the investor perception changes with the change in the market capitalization while investing in the Indian Capital markets and help in predicting the ERP expectations of the investors.

Different statistical tools have been applied to analyze this hypothesis and inferences have been drawn either to accept or reject the null hypothesis at a particular level of significance (5 % level of significance).

DATA COLLECTION & DATA ANALYSIS

For studying this objective, the 10 year data of the sixty companies taken in the last objective from 2004 to 2013 has been divided into three groups on the basis of the size of the company. The 60 companies are grouped into three groups with 20 companies each in every group of large cap, mid cap and small cap companies. The data has been analyzed for all the 10 years from 2004 to 2013. So, the list of 60 companies has been divided into three categories of 20 companies each of large cap, mid cap and small cap, and then analyzing the equity risk premium expectations in the different size companies. For the same, the annual returns of each company in each category from the years 2004 -2013 have been taken which is a measure of the returns for the small cap, mid cap and large cap companies. One way ANOVA is then applied among the large cap, mid cap and small cap returns to analyze the impact of size effect on the equity risk premium expectations of the investors in the Indian Capital Market at 5% level of significance.

Another set of analysis has also been done to explore the effect of variables which effect the most in the large cap, mid cap and small cap companies in which the multiple regression has been applied separately on the each category indicating which predictor variables (same as taken in the last objective) has a significant effect on the equity risk premium expectations of the investors. **Mohanty Pitabas 2001[10]** used the Fama and MacBath(1973) regression methodology to see if the size is related to the cross-section of the stock returns. He analysed various factors like size, market leverage, earning to price multiple, beta and price to book value which are also related to the returns of the stocks.

DATA ANALYSIS

ONE WAY ANOVA RESULTS

The following table showed the mean and standard deviations of the returns in the large cap, mid cap and the small cap companies:

TABLE 1: MEAN AND STANDARD DEVIATION OF THE RETURNS IN LARGE, MID AND SMALL CAP COMPANIES

	N	Mean	Std. Deviation
large cap equity returns	196	.0854	.14394
mid cap equity returns	200	.1091	.17979
small cap equity returns	200	.0836	.18770
Total	596	.0928	.17181

The above table shows that the small cap firms had the highest standard deviation and the large cap had the least standard deviations, signifying that the small cap stocks were more risky and volatile, as compared to the mid cap and large cap stocks due to the uncertainties involved in the small cap companies.

TABLE 2: ANOVA TABLE FOR THE LARGE CAP, MID CAP AND SMALL CAP COMPANIES

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		.081	2	.040	1.371	.255
	Linear Term	Unweighted	.000	1	.000	.010	.919
		Weighted	.000	1	.000	.012	.912
		Deviation	.080	1	.080	2.730	.099
Within Groups			17.483	593	.029		
Total			17.564	595			

The above table showed that the null hypothesis was accepted and there was no significant difference between the return expectations of the investors while investing in the different size companies with the significance value 0.255 which means the difference is not significant even at 5% level of significance.

REGRESSION RESULTS OF THE LARGE CAP COMPANIES

The regression results are shown below:

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TABLE 3: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE LARGE CAP COMPANIES

	Mean	Std. Deviation	N
Return	.0819	.14050	194
Net Profit Margin(%)	.0756	.03010	194
Return on Assets Including Revaluations	.4566	.22294	194
Current Ratio	.2807	.15585	194
Debt Equity Ratio	.1613	.15905	194
Dividend Payout Ratio Net Profit	1.3398	.36835	194
Beta	.2268	.08467	194
Earning Per Share (Rs)	1.5566	.49284	194
P/E	1.7522	.92795	194
P/B	.5316	.20591	194

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the large cap companies. The lesser the standard deviation, the more reliable is the mean value of the variable.

TABLE 4: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN LARGE CAP COMPANIES

	Return	Net Profit Margin(%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.336*	.034	-.086	.026	-.036	.151**	-.405*	-.196*	.221*
Net Profit Margin(%)	-.336*	1.000	-.065	.250*	-.318*	.165**	-.242*	.393*	.206*	.181*
Return on Assets Including Revaluations	.034	-.065	1.000	.032	.116	.034	.167*	.108	-.003	-.216*
Current Ratio	-.086	.250*	.032	1.000	-.352*	.446*	-.266*	.131**	-.030	.160**
Debt Equity Ratio	.026	-.318*	.116	-.352*	1.000	-.383*	.291*	-.002	.031	-.205*
Dividend Payout Ratio Net Profit	-.036	.165**	.034	.446*	-.383*	1.000	-.211*	-.086	.007	.174*
Beta	.151**	-.242*	.167*	-.266*	.291*	-.211*	1.000	-.177*	-.133**	-.200*
Earning Per Share (Rs)	-.405*	.393*	.108	.131**	-.002	-.086	-.177*	1.000	.423*	-.009
P/E	-.196*	.206*	-.003	-.030	.031	.007	-.133**	.423*	1.000	.109
P/B	.221*	.181*	-.216*	.160**	-.205*	.174*	-.200*	-.009	.109	1.000

Source: SPSS Output

* - 1 % level of significance
** - 5% level of significance

The above table shows the correlation matrix among all the predictor and the outcome variables. This helps in finding the relationship between the outcome variable (return) and the other predictor variables. The table shows there are strong positive correlations between return –beta, return – P/B ratio, Net Profit Margin – Current Ratio, Net Profit Margin – D/P ratio, Net Profit Margin – EPS, Net Profit Margin – P/E Multiple, Net Profit Margin – P/B Multiple, Return on Assets – Beta, Current Ratio – D/P Ratio, Current Ratio –EPS, Current Ratio – P/B Ratio, D/E ratio – Beta, D/P Ratio – P/B ratio and EPS – P/E multiple and strong negative correlations between Return – Net Profit Margin, EPS, P/E Multiple; Net Profit Margin – P/E Multiple, Beta; Return on assets – P/B Multiple; Current Ratio – D/E ratio, Beta; D/E ratio – D/P ratio, P/B multiple; D/P ratio – beta; Beta – EPS, P/E multiple and P/B multiple at 1 or 5 % level of significance.

TABLE 5: REGRESSION MODEL SUMMARY FOR LARGE CAP COMPANIES

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.544	.296	.261	8.586	.000	1.663

Source: SPSS Output

The table shows the overall regression summary of the model. So, here the R value is 0.544 which means that the correlation between the return and all the variables combined is 0.544. The R square value of the regression model in large cap stocks comes to be 0.296 which means that 29.6 % of the variance in the return variables is explained by the predictor variables in the model.
This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.
The Durbin-Watson test value in the table is 1.663 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.

For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots, which are shown below:

FIGURE 1: NORMAL CURVE OF THE RESIDUALS IN LARGE CAP COMPANIES

FIGURE 2: P-P PLOT OF THE STANDARDIZED RESIDUALS IN LARGE CAP STOCKS
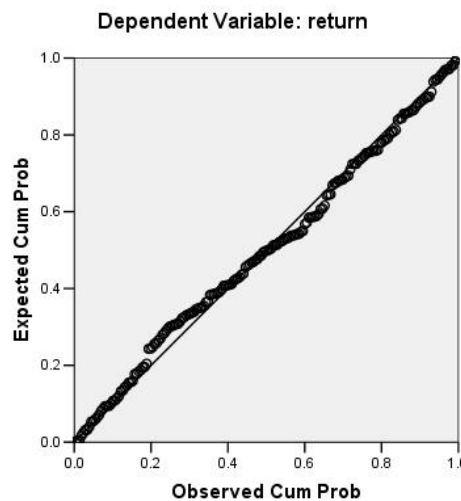
The figures above show the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 6: RESIDUAL STATISTICS OF REGRESSION MODEL IN LARGE CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.0887	.2521	.0819	.07641	194
Std. Predicted Value	-2.233	2.228	.000	1.000	194
Residual	-.35787	.40276	.00000	.11791	194
Std. Residual	-2.964	3.335	.000	.976	194
Stud. Residual	-3.233	3.444	-.002	1.010	194
Deleted Residual	-.42579	.42945	-.00040	.12629	194
Stud. Deleted Residual	-3.319	3.551	-.002	1.018	194
Mahal. Distance	2.342	36.701	8.954	5.215	194
Cook's Distance	.000	.198	.007	.019	194

Source: SPSS Output

The above table shows the means Cook's distance of 0.007 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.954 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULI-COLINEARITY

The variables which have the significant t value (less than 0.05), have a significant effect on the outcome variable at 5 % level of significance. The multicollinearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

TABLE 7: INDIVIDUAL REGRESSION COEFFICIENTS IN LARGE CAP COMPANIES

	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.188	.068	2.778	.006		
Net Profit Margin(%)	-1.146	.342	-3.356	.001	.715	1.399
Return on Assets Including Revaluations	.072	.041	1.741	.083	.893	1.119
Current Ratio	-.003	.066	-.047	.962	.704	1.421
Debt Equity Ratio	-.049	.064	-.765	.445	.719	1.391
Dividend Payout Ratio Net Profit	-.031	.028	-1.117	.266	.701	1.427
Beta	.125	.114	1.096	.275	.813	1.230
Earning Per Share (Rs)	-.084	.022	-3.833	.000	.650	1.540
P/E	-.006	.011	-.601	.549	.783	1.277
P/B	.212	.045	4.681	.000	.870	1.149

Source: SPSS Output

For checking the multi collinearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the values less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-collinearity condition.

The above table shows that the Net Profit Margin, EPS and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the large cap stocks.

The regression equation for predicting the return expectations in the large cap companies can be framed as follows:

Return = 0.188 - 1.146 Net Profit Margin + .072 Return on Assets - 0.003 current ratio - 0. 049 D/E ratio - 0.031 D/P ratio + 0.125 beta - 0.084 EPS - 0.006 P/E multiple + 0.212 P/B multiple

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the large cap securities by putting the values of the various variables prevailing in the future.

REGRESSION RESULTS OF THE MEDIUM CAP COMPANIES

The regression results are shown below:

TABLE 8: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE MID CAP COMPANIES

	Mean	Std. Deviation	N
Return	.1091	.17979	200
Net Profit Margin(%)	.0593	.05244	200
Return on Assets Including Revaluations	.3431	.21329	200
Current Ratio	.2527	.10900	200
Debt Equity Ratio	.2046	.17792	200
Dividend Payout Ratio Net Profit	1.3474	.50855	200
Beta	.1852	.08677	200
Earning Per Share (Rs)	1.3546	.59105	200
P/E	1.7500	.94917	200
P/B	.5021	.24298	200

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the mid cap companies, which generally describes the characteristics of the variables including the measures of the central tendency and the standard deviations. The standard deviation shows the degree of variability in the variable value, the higher the value of standard deviation, the more is the variability in the data.

TABLE 9: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN MID CAP COMPANIES

	Return	Net Profit Margin (%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.276*	.034	-.117**	.122**	-.040	.152**	-.348*	-.040	.175*
Net Profit Margin(%)	-.276*	1.000	.359*	.142**	-.196*	.181*	-.271*	.562*	.243*	-.075
Return on Assets Including Revaluations	.034	.359*	1.000	.067	.170*	-.080	-.191*	.151**	.017	-.342*
Current Ratio	-.117**	.142**	.067	1.000	-.275*	-.004	-.254*	.239*	.087	.057
Debt Equity Ratio	.122**	-.196*	.170*	-.275*	1.000	-.234*	.342*	-.147**	-.112	-.422*
Dividend Payout Ratio Net Profit	-.040	.181*	-.080	-.004	-.234*	1.000	-.279*	.057	.069	.288*
beta	.152**	-.271*	-.191*	-.254*	.342*	-.279*	1.000	-.264*	-.195*	-.354*
Earning Per Share (Rs)	-.348*	.562*	.151**	.239*	-.147**	.057	-.264*	1.000	.449*	.108
P/E	-.040	.243*	.017	.087	-.112	.069	-.195*	.449*	1.000	.145**
P/B	.175*	-.075	-.342*	.057	-.422*	.288*	-.354*	.108	.145**	1.000

Source: SPSS Output

* - 1 % level of significance
** - 5% level of significance
The above table shows the correlation matrix among all the predictor and the outcome variables. The significant value in the matrix means that those variables are highly positively or negatively correlated at 5 % or 1% level of significance. The above table shows that there are strong positive correlations between Return – D/E ratio, Beta, P/B multiple; Net Profit Margin – Return on Assets, Current Ratio, D/P ratio, EPS, P/E multiple; Return on Assets – D/E Ratio, EPS; Current ratio – EPS; D/E Ratio – Beta; D/P Ratio – P/B multiple; EPS – P/E multiple; P/E multiple – P/B multiple and strong negative correlations between Return – Net Profit Margin, Current Ratio, EPS; Net Profit Margin – D/E Ratio, Beta; Return on Assets – Beta, P/B multiple; Current Ratio – D/E Ratio, Beta; D/E Ratio – D/P ratio, Beta, P/B multiple; D/P Ratio – Beta; Beta – EPS, P/E Multiple, P/B multiple at 1% or 5% level of significance. This helps in finding the relationship between the outcome variable (return) and the other predictor variables.

TABLE 10: REGRESSION MODEL SUMMARY FOR MID CAP COMPANIES

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.527	.277	.243	8.103	.000	1.336

Source: SPSS Output

The table shows the overall regression summary of the model, which shows the effectiveness of applicability of the linear multiple regression models. So, here the R value is 0.527 which means that the correlation between the return and all the variables combined is 0.527. The R square value of the regression model in mid cap stocks come to be 0.277 which means that 27.7 % of the variance in the return variables is explained by the predictor variables in the model.
This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. So, the significant value of the F shows the effectiveness of the Regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.
The Durbin-Watson test value in the table is 1.366 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.
For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots, which are shown below:

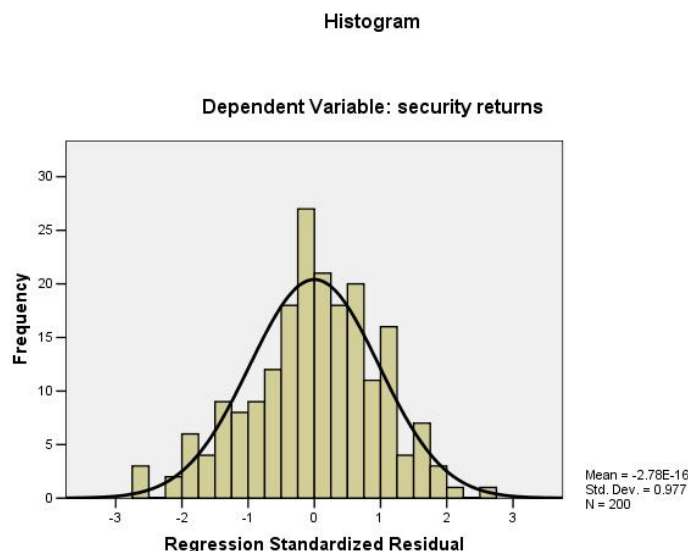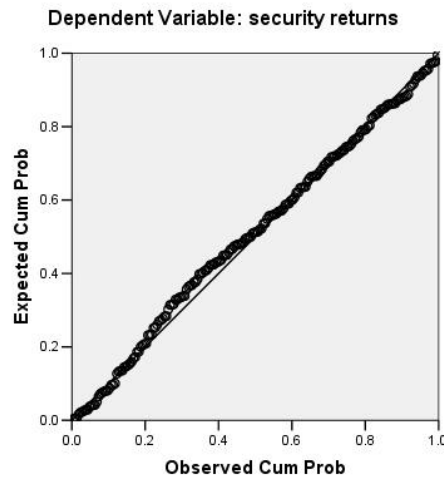**FIGURE 3: NORMAL CURVE OF THE RESIDUALS IN MID CAP COMPANIES**

FIGURE 4: P-P PLOT OF THE STANDARDIZED RESIDUALS IN MID CAP STOCKS

Normal P-P Plot of Regression Standardized Residual

The figures above shows the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 11: RESIDUAL STATISTICS OF REGRESSION MODEL IN MID CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.1206	.3583	.1091	.09468	200
Std. Predicted Value	-2.426	2.631	.000	1.000	200
Residual	-.42207	.40063	.00000	.15283	200
Std. Residual	-2.698	2.561	.000	.977	200
Stud. Residual	-2.752	2.589	-.001	1.002	200
Deleted Residual	-.46381	.40946	-.00022	.16095	200
Stud. Deleted Residual	-2.802	2.629	-.001	1.008	200
Mahal. Distance	1.298	43.181	8.955	6.799	200
Cook's Distance	.000	.125	.005	.011	200

Source: SPSS Output

The above table shows the means Cook's distance of 0.005 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.955 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULI-COLINEARITY

The individual predictor variables are now observed in the regression model, that how much the each predictor variable affects the outcome variable by observing the b values in the Table below. The multicollinearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

TABLE 12: INDIVIDUAL REGRESSION COEFFICIENTS IN MID CAP COMPANIES

	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	-.103	.085	-1.207	.229		
Net Profit Margin(%)	-.276	.290	-.954	.341	.533	1.877
Return on Assets Including Revaluations	.234	.063	3.713	.000	.680	1.471
Current Ratio	.030	.111	.271	.787	.843	1.186
Debt Equity Ratio	.123	.076	1.622	.107	.678	1.475
Dividend Payout Ratio Net Profit	-.008	.024	-.345	.731	.828	1.207
Beta	.443	.158	2.799	.006	.650	1.538
Earning Per Share (Rs)	-.116	.026	-4.537	.000	.540	1.852
P/E	.027	.013	2.016	.045	.785	1.275
P/B	.309	.059	5.255	.000	.604	1.656

Source: SPSS Output

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For checking the multi co linearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the value less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-collinearity condition.

The above table shows that the ROA, Stock Beta, EPS, P/E multiple and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the mid cap stocks .

The regression equation for predicting the return expectations in this category can be framed as follows:

Return = -0.103 – 0.276 Net Profit Margin + 0.234 Return on Assets + 0.03 current ratio + 0. 123 D/E ratio - 0.008 D/P ratio + 0.443 beta - 0.116 EPS + 0.027 P/E multiple + 0.309 P/B multiple

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the mid cap securities by putting the values of the various variables prevailing in the future.

REGRESSION RESULTS OF THE SMALL CAP COMPANIES

The regression results are shown below:

TABLE 13: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE SMALL CAP COMPANIES

	Mean	Std. Deviation	N
Return	.0857	.18593	199
Net Profit Margin(%)	.0521	.03282	199
Return on Assets Including Revaluations	.2662	.16973	199
Current Ratio	.2790	.18183	199
Debt Equity Ratio	.2037	.19758	199
Dividend Payout Ratio Net Profit	1.2367	.51300	199
Beta	.2198	.09228	199
Earning Per Share (Rs)	1.3096	.59635	199
P/E	1.6758	.98746	199
P/B	.2995	.20240	199

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the small cap companies, which generally describes the characteristics of the variables including the measures of the central tendency and the standard deviations. The standard deviation shows the degree of variability in the variable value, the higher the value of standard deviation, the more is the variability in the data.

TABLE 14: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN SMALL CAP COMPANIES

	Return	Net Profit Margin(%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.308*	-.133**	-.138**	.018	.126**	.121**	-.354*	-.142**	.271*
Net Profit Margin(%)	-.308*	1.000	.350*	.354*	-.406*	.238*	-.353*	.700*	.247*	-.099
Return on Assets Including Revaluations	-.133**	.350*	1.000	.300*	-.124**	.104	-.160**	.293*	.120**	-.177*
Current Ratio	-.138**	.354*	.300*	1.000	-.471*	.183*	-.136**	.235*	.091	.217*
Debt Equity Ratio	.018	-.406*	-.124**	-.471*	1.000	-.246*	.338*	-.292*	.002	.133**
Dividend Payout Ratio Net Profit	.126**	.238*	.104	.183*	-.246*	1.000	-.147**	.100	.007	.052
beta	.121**	-.353*	-.160**	-.136**	.338*	-.147**	1.000	-.265*	-.197*	.031
Earning Per Share (Rs)	-.354*	.700*	.293*	.235*	-.292*	.100	-.265*	1.000	.461*	-.094
P/E	-.142**	.247*	.120**	.091	.002	.007	-.197*	.461*	1.000	.097
P/B	.271*	-.099	-.177*	.217*	.133**	.052	.031	-.094	.097	1.000

Source: SPSS Output

* - 1 % level of significance
** - 5% level of significance

The above table shows the correlation matrix among all the predictor and the outcome variables. The significant value in the matrix means that those variables are highly positively or negatively correlated at 5 % or 1% level of significance. There are strong correlations between Return – D/P Ratio, Beta, P/B Multiple; Net Profit Margin – Return on Assets, Current Ratio, D/P Ratio, EPS, P/E Multiple; Return on Assets – Current ratio, EPS, P/E Multiple; Current Ratio – D/P Ratio, EPS, P/B Multiple; D/E Ratio – Beta, P/B Multiple and EPS – P/E Multiple and strong negative correlations between Return – Net Profit Margin, Return on Assets, Current ratio, EPS, P/E multiple; Net Profit Margin – D/E Ratio, Beta; Return on Assets – D/E Ratio, Beta, P/B Multiple; Current ratio – D/E Ratio, Beta; D/E Ratio – D/P ratio, EPS; D/P Ratio – Beta; Beta – EPS, P/E Multiple. This helps in finding the relationship between the outcome variable (return) and the other predictor variables.

TABLE 15: REGRESSION MODEL SUMMARY FOR SMALL CAP COMPANIES

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.525	.276	.241	7.994	.000	1.526

Source: SPSS Output

The table shows the overall regression summary of the model, which shows the effectiveness of applicability of the linear multiple regression model. So, here the R value is 0.525 which means that the correlation between the return and all the variables combined is 0.525. The R square value of the regression model in small cap stocks come to be 0.276 which means that 27.6 % of the variance in the return variables is explained by the predictor variables in the model.

This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. So, the significant value of the F shows the effectiveness of the Regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.

The Durbin-Watson test value in the table is 1.526 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.

For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots:

FIGURE 5: NORMAL CURVE OF THE RESIDUALS IN SMALL CAP COMPANIES

FIGURE 6: P-P PLOT OF THE STANDARDIZED RESIDUALS IN SMALL CAP STOCKS
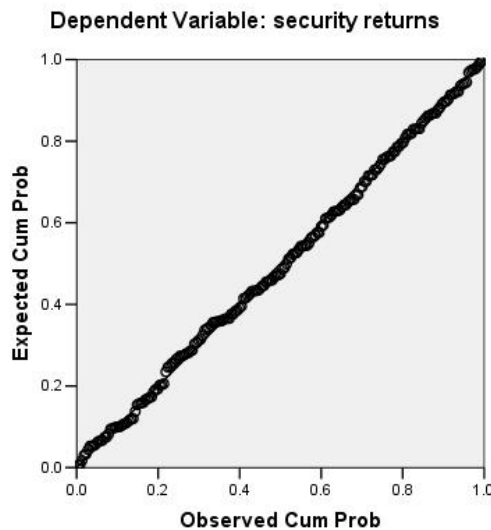
The figures above show the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 16: RESIDUAL STATISTICS OF REGRESSION MODEL IN SMALL CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.1514	.3869	.0857	.09763	199
Std. Predicted Value	-2.428	3.085	.000	1.000	199
Residual	-.40822	.50667	.00000	.15823	199
Std. Residual	-2.521	3.128	.000	.977	199
Stud. Residual	-2.652	3.192	-.004	1.007	199
Deleted Residual	-.45178	.52738	-.00128	.16836	199
Stud. Deleted Residual	-2.695	3.273	-.003	1.013	199
Mahal. Distance	1.715	39.594	8.955	5.779	199
Cook's Distance	.000	.094	.007	.014	199

Source: SPSS Output

The above table shows the means Cook's distance of 0.007 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.955 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULI-COLINEARITY

The individual predictor variables are now observed in the regression model. The multi co linearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

TABLE 17: INDIVIDUAL REGRESSION COEFFICIENTS IN SMALL CAP COMPANIES

	Unstandardized Coefficients		T	Sig.	Co linearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.134	.062	2.160	.032		
Net Profit Margin(%)	-.873	.549	-1.591	.113	.409	2.447
Return on Assets Including Revaluations	.107	.077	1.379	.169	.768	1.303
Current Ratio	-.274	.082	-3.337	.001	.592	1.689
Debt Equity Ratio	-.251	.076	-3.298	.001	.585	1.709
Dividend Payout Ratio Net Profit	.057	.024	2.393	.018	.896	1.116
Beta	.166	.140	1.185	.237	.794	1.259
Earning Per Share (Rs)	-.080	.030	-2.665	.008	.410	2.439
P/E	.002	.014	.160	.873	.728	1.375
P/B	.304	.064	4.748	.000	.790	1.265

Source: SPSS Output

For checking the multi co linearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the value less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-co linearity condition.

The above table shows that the Current Ratio, Debt Equity Ratio, Dividend Payout Ratio, EPS, and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the small cap stocks .

The regression equation for predicting the return expectations for investors in this category can be framed as follows:

Return = 0.134 – 0.873 Net Profit Margin + 0.107 Return on Assets - 0.274 current ratio - 0. 251 D/E ratio + 0.057 D/P ratio + 0.166 beta - 0.08 EPS + 0.002 P/E multiple + 0.304 P/B multiple.

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the small cap securities by putting the values of the various variables prevailing in the future.

SUMMARY OF THE ALL REGRESSION RESULTS

The following are the regression coefficients of the various variables making the regression line for the large cap, mid cap and small cap companies individually seeing that the variables with the ** shows that they are significant at 5 % level of significance and * shows that they are significant at 1% level of significance.

TABLE 18: SUMMARY OF THE REGRESSION RESULTS OF THE SIZE EFFECT IN ERP EXPECTATIONS

Variables	Large Cap Stocks	Mid Cap Stocks	Small Cap Stocks
(Constant)	.188	-.103	.134
Net Profit Margin(%)	-1.146*	-.276	-.873
Return on Assets	.072	.234*	.107
Current Ratio	-.003	.030	-.274*
Debt Equity Ratio	-.049	.123	-.251*
Dividend Payout	-.031	-.008	.057**
Beta	.125	.443*	.166
Earning Per Share	-.084*	-.116*	-.080*
P/E Multiple	-.006	.027**	.002
P/B Multiple	.212*	.309*	.304*

RESULTS & CONCLUSIONS

The following results can be inferred from the above table:

a. The Net profit margin, Earning per share and the price to book multiple are significant variables for the investors investing in the large cap companies as the investors intend to invest in these companies as these are the blue chip stable companies and have the stable and high profits which therefore impacts the profit margin and the earning per share of the companies.

b. With the addition of the risk factor in the mid cap companies as these companies are smaller in size as compared to the large cap and have the greater uncertainties involved in the business cycle, the beta of the stock also becomes significant for the investors while investing in the mid cap companies.

c. In small cap companies, the investor is investing to make profits in the long term, so he is more concern for the future profitability of the company than the current position, so the Debt Equity ratio, Current Ratio and the Dividend Payout Ratio becomes significant which predicts the future of the company as the firms with the high debt level in the capital structure may have the less profitability opportunities for the equity holders, and the dividend payout ratio which signifies the dividend distribution policy of the company which states the future position of the company.

So, in this paper, the equity risk premium expectations of the investors are analysed on the basis of the size effect measured by the market capitalization of the firm and the various variables are explored which have the impact on the equity risk premium expectations of the investors while investing in the large cap, mid cap and the small cap companies.

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ASSESSMENT QUEUING THEORY AND ITS APPLICATION: ANALYSIS OF THE COUNTER CHECKOUT OPERATION IN BANK
(A CASE STUDY ON DASHEN DILLA AREA BANK)

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ABSTRACT

This paper contains the analysis of Queuing systems for the empirical data of bank checkout service unit. In any service system, a queue forms whenever current demand exceeds the existing capacity to serve. This occurs when the checkout operation unit is too busy to serve the arriving costumers, immediately. One of the expected gains from studying queuing systems is to review the efficiency of the models in terms of utilization and waiting length, hence increasing the number of queues so customers will not have to wait longer when servers are too busy. In other words, trying to estimate the waiting time and length of queue(s) is the aim of this research paper. We may use queuing simulation to obtain a sample performance result and we are more interested in obtaining estimated solutions for multiple queuing models. This paper describes a queuing simulation for a multiple server process as well as for single queue models. This study required an empirical data which includes the variables like, arrival time in the queue of checkout operating unit (server), departure time, service time, etc. A questionnaire is developed to collect the data for such variables and the reaction of Dashen Dilla area bank from the customers separately and the researchers observe the trend of queue in the bank. This model is developed for a counter checkout operation in the bank, Dilla. The models designed for this example are both single server single queue and single queues multiple-server model. The model contains two servers (with one additional model server which is server 3 to compare with the existing servers).

KEYWORDS
Queue Model, bank efficiency, customer satisfaction.

INTRODUCTION

Waiting for service is part of our daily life. We wait to eat in restaurant, we 'queue up' at the checkout counters in grocery stores, and we 'line up' for service in post offices and banks. And the waiting phenomenon is not an experienced limited to human beings only: jobs wait to be processed on a machine, planes circle in stack before given permission to land at an airport, and cars stop at traffic lights. Waiting cannot be eliminated completely without incurring inordinate expenses, and the goal is to reduce its adverse impact to ''tolerable'' levels (Taha, 2007).

Queuing theory is the formal study of waiting in line and is an entire discipline within the field of operations management. Queuing theory has been used in the past to assess such things as staff schedules, working environment, productivity, customer waiting time, and customer waiting environment (Nosek and Wilson, 2001)

Today banks are one of the most important units of the public. Since the foundational work of banks, many researchers try to get full advantage of any new technology to increase customer satisfaction. Therefore an active research has focused on analyzing the queues to optimize their operations and to reduce waiting time for customers.

This paper focuses on the bank lines system and the different queuing algorithms that used in banks to serve the customers. Most banks used standard queuing models. To avoid standing in a queue for a long time or in a wrong line, most banks use automatic queue system to give tickets to all customers. The customer can push a specific button in a tickets supplier device according to their needs (www.ijacsa.thesai.org).

The main purpose of this study is to assess the application of queuing theory and to evaluate the parameters involved in the service unit for the counter checkout operation in Dashen bank. Therefore, a mathematical model is developed to analyze the performance of the checking out service unit. Three important results need to be known from the data collected in the bank by the mathematical model: one is the 'service rate' provided to the customers during the checking out process, and the second, is the gaps between the arrival times (inter-arrival time) of each customer per hour, and the other is cost efficiency of servers. In order to get an overall perspective of the customer's quality of service, the questionnaires which indicate the result in percentages, are also used to get the evaluation from the counters directly.

There were two counters in Dashen bank at the time of the study, which means consisting of two servers with multiple queues (infinite calling population) in terms of Queuing Theory. A queue forms whenever current demand exceeds the existing capacity to serve when each counter is so busy that arriving customers cannot receive immediate service facility. So, each server process is done as a queuing model in this situation.

STATEMENT OF THE PROBLEM (MANAGEMENT SCIENCE PROBLEM)

Waiting causes not only inconvenience, but also frustration to people's daily lives. Often, customers may be discouraged from pursuing valuable services by a sheer length of the waiting line. At other times, waiting might even cause the customer to delay or miss important events because Peoples spend their golden time on queue so as to get service in different organization.

Since waiting involves people, time, and environment, it is vital to also incorporate issues related to both the social and psychological perspectives in order to reduce the negative impact of waiting on customer satisfaction and perceived quality. Outstanding problems on waiting line (queue) are Queue affects the quality service, Customer dissatisfaction and it consumes time and add cost

If the manager is not on the position to solve the above problem it will lead to losing of customers to competitors.

OBJECTIVES OF THE STUDY

The main aim of the study is to assess of queuing theory and its application: analysis of the counter checkout operation in Bank which is confined to Dashen Dilla area bank. On top of this the following are Specific objectives of the study.
1.　To review Queuing Theory and its empirical analysis based on the observed data of checking out sales service unit.
2.　To measure the expected queue length in each server and the service rate provided to the customers while checking out by using mathematical model.
3.　To give insight view of the steady-state behavior of queuing processes and running the simulation experiments to obtain the required statistical results.
4.　To find out the relative cost contribution of each servers in assuring quality service

LITERATURE REVIEW

OVERVIEW OF QUEUING MODEL THEORY

The word *queue* comes, via French, from the Latin *cauda*, meaning tail. The spelling "queuing" over "queuing" is typically encountered in the academic research field. In fact, one of the flagship journals of the profession is named "Queuing Systems".

Queuing theory is generally considered a branch of operations research because the results are often used when making business decisions about the resources needed to provide service. It is applicable in a wide variety of situations that may be encountered in business, commerce, industry, healthcare, public service and engineering. Applications are frequently encountered in customer service situations as well as transport and telecommunication (William III, 2006).

EVOLUTION OF QUEUING THEORY

Queuing Theory had its beginning in the research work of a Danish engineer named Erlang. In 1909 Erlang experimented with fluctuating demand in telephone traffic. Eight years later he published a report addressing the delays in automatic dialing equipment. At the end of World War II, Erlang's early work was extended to more general problems and to business applications of waiting lines

QUEUES

Queues (waiting lines) are a part of everyday life. We all wait in queues to buy a movie ticket, make a bank deposit, pay for groceries, mail a package, obtain food in a cafeteria, start a ride in an amusement park, etc. We have become accustomed to considerable amounts of waiting, but still get annoyed by unusually long waits (madang.ajou.ac.kr)

Queuing is a situation familiar to everyone is waiting in a line. A typical example might be the line of customers that forms in front of the service windows at any organization. The number of customers in the line grows and shrinks with time, and, as anyone who has had the experience knows, the wait can be highly unpredictable. Because the number in line is a random variable that changes with time, the system of customers and servers fits the definition of a stochastic process.

Basically, a queue results whenever existing demand temporarily exceeds the capacity of the service facility; i.e., whenever an arriving customer cannot receive immediate attention because all servers are busy. This situation is almost always guaranteed to occur at some time in any system that has probabilistic arrival and service patterns. Tradeoffs between the cost of increasing service capacity and the cost of waiting customers prevent an easy solution to the design problem. If the cost of expanding a service facility were no object, then theoretically, enough servers could be provided to handle all arriving customers without delay. In reality, though, a reduction in the service capacity results in a concurrent increase in the cost associated with waiting. The basic objective in most queuing models is to achieve a balance between these costs.

One of the key insights gained from studying queuing systems is that they may not be very efficient in terms of resource utilization. Queues form and customers wait even though servers may be idle much of the time. The fault is not in the model or underlying assumptions. It is a direct consequence of the variability of the arrival and service processes. If variability could be eliminated, systems could be designed economically so that there would be little or no waiting, and hence no need for queuing models.

OBJECTIVE OF QUEUING

The objective of queuing model is to offer a reasonably satisfactory service to waiting customers. Unlike other tools of management science or operational research, queuing theory is not an optimization technique; rather, it determines the measure of performance of waiting lines, such as the average waiting time in queue and the productivity of the service facility, which can then be used to design the service installation (Taha, 2007).

Now, let us see some interesting observation of human behavior in queues:

Balking – Some customers even before joining the queue get discouraged by seeing the number of customers already in service system or estimating the excessive waiting time for desired service decide to return for service at a later time. In queuing theory this is known as balking.

Reneging - customers after joining the queue wait for some time and leave the service system due to intolerable delay, so they renege.

For example, a customer who has just arrived at a grocery store and finds that the salesmen are busy in serving the customers already in the system, will either wait for service till his patience is exhausted or estimates that his waiting time may be excessive and so leaves immediately to seek service elsewhere.

Jockeying - Customers who switch from one queue to another hoping to receive service more quickly are said to be jockeying.

QUEUE MODELS

There are two possible models for multiple-server system: *Single-Queue Multiple-Server model*, and *Multiple-Queue Multiple-Server model*.

Using the same concept of model, the sales checkout operating units are all together taken as a series of servers that forms either single queue or multiple queues for sales checkout (single service facility) where the arrival rate of customers in a queuing system and service rate per busy server are constants regardless of the state of the system (busy or idle). For such a model the following assumptions are made:

ASSUMPTIONS

a) Arrivals of customers follow a Poisson process

1. The number of the customers that come to the queue of sales checkout server during time period [t, t+s] only depends on the length of the time period 's' but no relationship with the start time 't'

2. If 'S' is small enough, there will be at most one customer arrives in a queue of a server during time period [t, t+s]

BASIC STRUCTURE OF QUEUING MODELS

THE BASIC QUEUING PROCESS

The basic process assumed by most queuing models is the following. *Customers* requiring service are generated over time by an *input source.* These customers enter the *queuing system* and join a *queue.* At certain times, a member of the queue is selected for service by some rule known as the *queue discipline.* The required service is then performed for the customer by the *service mechanism,* after which the customer leaves the queuing system. Many alternative assumptions can be made about the various elements of the queuing process; they are discussed next (madang.ajou.ac.kr)

QUEUE IN THE OPERATIONS RESEARCH PERSPECTIVE

Why then is there waiting? The simplest answer to this is that when the demand for a particular product or service exceeds the available capacity, a waiting line forms. Reasons for this may be a shortage of available products in stock or servers, or there may be limitations to the available space where the service or product is provided. To understand the true problems behind, one must know how much service or products should be made available that is reflected by factors such as the average length of waiting, number of people in a waiting line, service rate, …etc. All these factors can be taken into account with the use of the queuing theory, which will be discussed in the following section.

QUEUING THEORY

Every queue takes place within a system that involves processes including customers arriving for a service or product, waiting when the service is not immediate, and eventually leaving the system once being served. The word 'customers' does not necessarily infer a true human being, but rather, it is used in a general sense, say, it could represent an airplane waiting to take off. The queuing theory is essentially the study of a queue through the use of mathematical modeling to evaluate the efficiency of queues. It is the basis to finding the optimal solution to queue management.

CHARACTERISTICS OF QUEUING PROCESSES

The queuing theory considers mainly six general characteristics of any queuing processes: (1) arrival pattern of customers, (2) service pattern, (3) system capacity, (4) queue disciplines (5) service capacity and (6) behavior of arrival.

1. **Arrival Pattern of Customers**

    Customer arrivals are the input processes of a queuing system that is defined by:

- **Number of arrivals at a given time period.** Single arrivals vs. bulk arrivals
- **Statistical distribution of customers' inter-arrival times**. This is the pattern that infers the times between successive customer arrivals. The Poisson process is the most commonly used in situations when the distribution of the time until the next customer arrival is independent of the last arrival.

- *Other unusual aspects*. Stationary (time-dependent) vs. non-stationary arrival patterns (non time-dependent).

2. Service Pattern

The service pattern is the output process that depends upon the followings:

- *The distribution of the service time*. This refers to the time elapsed during the service process from the beginning of service to its completion, assuming that it is independent of the number of customers present. The exponential distribution is most commonly used in this regard.
- *Number of servers*. This number directly affects the arrangement of a waiting line, which could be either in parallel or in series.

3. Service Capacity

The service capacity is the available room for waiting that is defined into 2 categories:

- *Finite service capacity*. A customer finds the waiting area full upon arrival, and he/she cannot join the system, so he/she leaves and never return.
- *Infinite*. When the maximum permissible number of customers of the waiting area is significantly large, it is assumed to be infinite. This is a standardized assumption for most queuing system.

4. Queuing Disciplines

I. Order of Service

This specifies the order in which customers were chosen for service within a queue.

Among the disciplines under this category:

FCFS: First Come, First Served. This is the most commonly used discipline applied in the real world situations, such as check-in counters at the airport.

LCFS: Last Come, First Served. This illustrates a reverse order service given to customer versus their arrival.

SIRO: Service in Random Order.

PD: Priority Discipline. Under this discipline, customers will be classified into categories of different priorities

II. STRUCTURE OF THE QUEUE

This specifies the physical setup of the queue, which combines two main factors: the number of servers and lines available. Among the disciplines under this category:

Type 1: Single line and single server

This is one of the most prevalent forms of queuing, which customers enter a system, get priority in terms of their arrival and get served by one single server.

With proper enforcement, a high level of social justice will be maintained, while the higher ability of making social comparisons will be emphasized, particularly in the situations where queues are visible to the customers, such as queuing at a bus stop.

Type 2: Single line and multiple servers

In this situation, customers enter the system and line up in a single queue based on their arrival. However, there are multiple servers available in this case, where each of the customers is served by the next available server among all. Examples of such a situation can be found in airline check-in areas, or some fast-food restaurants, where customers follow a single line waiting to check in luggage or purchase food respectively, and the customer at the front of the line is called by the next available (Sheu and Babbar, 1996).

Slightly more complex than the single-server queuing system is the single waiting line being serviced by more than one server (i.e., multiple servers). Examples of this type of waiting line include an airline ticket and check-in counter where passengers line up in a single line, waiting for one of several agents for service, and a post office line, where customers in a single line wait for service from several postal clerks.

In multiple-server models, two or more independent servers in parallel serve a single waiting line. These formulas, like single-server model formulas, have been developed on the assumption of a first-come, first-served queue discipline, Poisson arrivals, exponential service times, and an infinite calling population. The parameters of the multiple-server model are as follows:

$\lambda=$ the arrival rate (average number of arrivals per time period)

$\mu=$ the service rate (average number served per time period) per server (channel)

$C=$ the number of servers

$c\mu=$ the mean effective service rate for the system, which must exceed the arrival rate

The formulas for the operating characteristics of the multiple-server model are as follows.

$c\mu>\lambda$ the total number of servers must be able to serve customers faster than they arrive.

The probability that there are no customers in the system (all servers are idle) is

$$Po = \frac{1}{\sum_{n=0}^{n=c-1} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n + \frac{1}{c!}\left(\frac{\lambda}{\mu}\right)^c \left(\frac{c\mu}{c\mu-\lambda}\right)}$$

The probability of n customers in the queuing system is

$p_n = \frac{1}{c!c^{n-c}}\left(\frac{\lambda}{\mu}\right)^n p_0$, for $n > c$; $p_n = \frac{1}{n}\left(\frac{\lambda}{\mu}\right)^n p_0$, for $n \le c$

The average number of customers in the queuing system is

$$L = \frac{\lambda\mu(\lambda/\mu)^c}{(c-1)!\,(c\mu-\lambda)^2}p_0 + \frac{\lambda}{\mu}$$

The average time a customer spends in the queuing system (waiting and being served) is

$$W = \frac{L}{\lambda}$$

The average number of customers in the queue is

$$Lq = L - \frac{\lambda}{\mu}$$

The average time a customer spends in the queue, waiting to be served, is

$$Wq = W - \frac{1}{\lambda} = \frac{Lq}{\lambda}$$

The probability that a customer arriving in the system must wait for service (i.e., the probability that all the servers are busy) is

$$Pw = \frac{1}{c!}\left(\frac{\lambda}{\mu}\right)^c \left(\frac{c\mu}{c\mu-\lambda}\right)p_0$$

Notice in the foregoing formulas that if c = 1 (i.e., if there is one server), then these formulas become the single-server formulas (Taylor III, 2006).

Type 3: Multiple line and single server

This situation involves only one server attending multiple waiting lines. An example to this would be car washing service, where only one washing area is available for cars lining in two queues.

Type 4: Multiple lines and multiple servers

This is the case involving multiple servers and multiple waiting lines, in which each line is served by a single server. This situation can commonly be found in

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Supermarket check-out queues or Immigration Custom queues, where customers arrive at the system, join in one of the waiting lines and wait until they move towards the front of their chosen line (Mandia,)

In these models, three various sub-processes may be distinguished:

• **Arrival Process**: includes number of customers arriving, several types of customers, and one type of customers' demand, deterministic or stochastic arrival distance, and arrival intensity. The process goes from event to event, i.e. the event "customer arrives" puts the customer in a queue, and at the same time schedules the event "next customer arrives" at some time in the future.

• **Waiting Process**: includes length of queues, servers' discipline (First In First Out). This includes the event "start serving next customer from queue" which takes this customer from the queue into the server, and at the same time schedules the event "customer served" at some time in the future.

• **Server Process**: includes a type of a server, serving rate and serving time. This includes the event "customer served" which prompts the next event "start serving next customer from queue". (Troitzsch, 2006)

5.   Service Mechanism

The service mechanism consists of one or more *service facilities,* each of which contains one or more *parallel service channels,* called **servers.** If there is more than one service facility, the customer may receive service from a sequence of these (*service channels in series*). At a given facility, the customer enters one of the parallel service channels and is completely serviced by that server. A queuing model must specify the arrangement of the facilities and the number of servers (parallel channels) at each one. Most elementary models assume one service facility with either one server or a finite number of servers (http://faculty.ksu.edu.sa/72966/Documents/chap17.pdf).

6.   Behavior of arrivals

Another thing to consider in the queuing structure is the behavior or attitude of the customers entering the queuing system.

On this basis, the customers may be classified as being

(a) Patient, or

(b) Impatient.

If a customer, on arriving at the service system stays in the system until served, no matter how much he has to wait for service is called *a patient customer*.

Whereas the customer, who waits for a certain time in the queue and leaves the service system without getting service due to certain reasons such as a long queue in front of him is called an *impatient customer* (http://businessmanagementcourses.org/Lesson21QueuingTheory.pdf).

QUEUING ANALYSIS

Providing quick service is an important aspect of quality customer service. Like decision analysis, queuing analysis is a probabilistic form of analysis, not a deterministic technique. Thus, the results of queuing analysis, referred to as operating characteristics, are probabilistic. These operating statistics (such as the average time a person must wait in line to be served) are used by the manager of the operation containing the queue to make decisions (Taylor III, 2006)

DECISION MAKING

Queuing-type situations that require decision making arise in a wide variety of contexts.

For this reason, it is not possible to present a meaningful decision-making procedure that is applicable to all these situations. Instead, this section attempts to give a broad conceptual picture of a typical approach.

Designing a queuing system typically involves making one or a combination of the following decisions:

1. Number of servers at a service facility

2. Efficiency of the servers

3. Number of service facilities.

When such problems are formulated in terms of a queuing model, the corresponding decision variables usually are s (number of servers at each facility), μ (mean service rate per busy server), and λ (mean arrival rate at each facility). The *number of service facilities* is directly related to λ because, assuming a uniform workload among the facilities, λ equals the total mean arrival rate to all facilities divided by the number of facilities. decisions regarding the amount of service capacity to provide usually are based primarily on two considerations: (1) the cost incurred by providing the service, (hil61217_ch26.qxd 5/15/04 11:51 Page 26-3) shown in Fig. 9, and (2) the amount of waiting for that service, as suggested in Fig. 10.

Figure 10 can be obtained by using the appropriate waiting-time equation from queuing theory. (For better conceptualization, we have drawn these figures and the subsequent two figures as smooth curves even though the level of service may be a discrete variable.)

These two considerations create conflicting pressures on the decision maker. The objective of reducing service costs recommends a minimal level of service. On the other hand, long waiting times are undesirable, which recommends a high level of service. Therefore, it is necessary to strive for some type of compromise. To assist in finding this compromise,

Figs. 9 and 10 may be combined, as shown in Fig. 11. The problem is thereby reduced to selecting the point on the curve of Fig. 26.3 that gives the best balance between the average delay in being serviced and the cost of providing that service.

Obtaining the proper balance between delays and service costs requires answers to such questions as, how much expenditure on service is equivalent (in its detrimental impact) to a customer's being delayed 1 unit of time? Thus, to compare service costs and waiting times, it is necessary to adopt (explicitly or implicitly) a common measure of their impact. The natural choice for this common measure is cost, which then requires estimation of the cost of waiting.

Given that the *cost of waiting* has been evaluated explicitly, the remainder of the analysis is conceptually straightforward. The objective is to determine the level of service that minimizes the total of the expected cost of service and the expected cost of waiting for that service. This concept is depicted in Fig. 12, where WC denotes *waiting cost,* SC denotes *service cost,* and TC denotes *total cost.* Thus, the mathematical statement of the objective is to: Minimize E(TC) = E(SC) + E(WC) (http://faculty.ksu.edu.sa/72966/Documents/chap17.pdf)

RESEARCH METHODOLOGY

RESEARCH DESIGN

Study is descriptive in nature because it describe the existing customer service capacity of the bank and customer arrival and banks efficiency. And also it is cross sectional study with one week data collection period (observation) which both data approach (qualitative and quantitative) were employed.

The researchers used convenience sampling method. Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researchers. The researchers used not only for his convenience they are the only respondents who have relevant data for the study.The selected respondents are those employees who are confronted with customers (serving on the counter) and their number is two. The data used in the Queuing model is collected for an arrival time of each customer in five days by the observation form. The observations for number of customers in a queue, their arrival-time and departure-time were taken without distracting the employees. The whole procedure of the service unit each day was observed and recorded using a time-watch during the same time period for each day.

The collected data are analyzed by using queue model

QUEUING MODELS WITH SINGLE STAGE (FACILITY)

The term queuing system is used to indicate a collection of one or more waiting lines along with a server or collection of servers that provide service to these waiting lines. The example of Dashen bank is taken for queuing system discussed in this chapter the researchers used a single waiting line and a single server, and multiple server. All results are presented in data analysis and discussion assuming that FIFO is the queuing discipline in all waiting lines and the behavior of queues is jockey and the queue is infinite.

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A. BASIC QUEUING PROCESS

Customers requiring service are generated over time by an input source. The required service is then performed for the customers by the service mechanism, after which the customer leaves the queuing system. We can have two types of models: Single-queue single- Servers model and the second one is Multiple-Queues single-Servers model (Sheu, C., Babbar S. (Jun 1996)).

ASSUMPTIONS

Assumptions of the basic single-server model

1. An infinite calling population
2. A first-come, first-served queue discipline
3. Poisson arrival rate
4. Exponential service times

PARAMETERS IN QUEUING MODELS (SINGLE SERVERS, SINGLE QUEUES MODEL)

p_n The probability that n customers are in the queuing system is

$Pn = (\lambda/\mu)^n \times Po$

L The average number of customers in the queuing system (i.e., the customers being serviced and in the waiting line) is

$L = \lambda/\mu - \lambda$

Lq The average number of customers in the waiting line is

$Lq = \lambda^2 / \mu(\mu-\lambda)$

W The average time a customer spends in the total queuing system (i.e., waiting and being served) is

$W = L/\lambda$

Wq The average time a customer spends waiting in the queue to be served is

$Wq = \lambda/\mu(\mu-\lambda)$

U The probability that the server is busy (i.e., the probability that a customer has to wait), known as the utilization factor, is

$U = \lambda/\mu$

po The probability that no customers are in the queuing system (either in the queue or being served) is

$Po = (1-\lambda/\mu)$

λ Arrival rate (1 / (average number of customers arriving in each queue in a system in one hour))

μ Serving rate (1 / (average number of customers being served at a server per hour))

(Taylor III, 2006)

The data collected from questionnaires were tabulated in a spreadsheet in order to calculate the required parameters of queuing theory analysis.

ANALYSIS AND DISCUSSION

A counter checkout service has single waiting line in a form of parallel cash counters. Customers are served on a first-come, first-served (similar with FIFO in accounting) basis as a counter of checkout operation unit becomes free. It is possible that some of the counter checkout units are idle. The data collected from observation were tabulated in a spreadsheet in order to calculate the required parameters of queuing theory analysis. Firstly, the confidence intervals are computed to estimate service rate and arrival rate for the customers. Then the later first part of the analysis is done for the model involving one queue and single servers, whereas the second part is done by queuing model for second model involving single queues for each corresponding parallel server.

We can estimate confidence intervals for average service rate and average arrival rate. Assuming the 95% confidence interval for arrival rate.

CONFIDENCE INTERVALS FOR WEEKDAYS

We have,

Mean (service time)	=	01:06 minutes per customer (read clock as min:sec)
SD (service time)	=	00:06 min
Mean (arrival time)	=	00:37 min per customer
SD (arrival time)	=	00:06 min
And n	=	41 customers

95% Confidence Intervals for Service Time:

Mean (service time) - 1.96 (SE (service time))	=	54 sec/customer
Mean (service time) + 1.96 (SE (service time))	=	78 sec/customer

$SE = SD/\sqrt{n}$

INTERPRETATION OF CONFIDENCE INTERVALS

The confidence interval shows that 73 to 150 customers arrive in 2-server system within an hour whereas 46 to 67 customers are served. That means there are still some customers not being served and are waiting for their turn in a queue to be served. This is due to a service time provided by a server to the customers. The service time can vary between 54 sec to 78 sec per customer.

EXPECTED QUEUE LENGTH

We can find the expected length of queue by using empirical data. In survey, the number of customers waiting in a queue was observed. The average of that number in a system is (1+1+3+…+2+0)/41 = 2.07 customers per minute on average waiting in a queue in a system within 25 min of data collection time.

QUEUING ANALYSIS

Customers arrive at an average of 98 customers per hour, and an average of 55 customers can be served per hour by a banker.

TABLE 1: RESPONDENTS PROFILE

Items		Respondents	
1. Gender		number	percentage
Male		2	100
Total	2	100	
2. Age	number		percentage
23-27	1		50
28-32	1		50
Total	2	100	
3. educational background			
1st degree		2	100
Total	2	100	

Source: questionnaires 2012.

From the above table 1, all (100%) of the respondents are male. And most of the respondents or counter workers are youth. In top of that their educational background shows they are first degree holders and competent to the position.

RESULTS FOR WEEKDAY APPLYING QUEUING MODEL 1

The parameters and corresponding characteristics in Queuing Model 1, assuming system is in steady-state condition, are:

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C   number of servers = 1

λ Arrival rate = 49 customers per hour

µ   serving rate = 55 customers per hour

The probability that no customers are in the queuing system (either in the queue or being served) is

Po= $1-(\lambda/µ)$

Po=1-(49/55)

Po= 0.11 the probability of no customers in the queuing system

The average number of customers in the queuing system (i.e., the customers being serviced and in the waiting line) is

L= $\lambda/µ-\lambda$

  49/(55-49)

L= 8.17 customers, on average, in the queuing system

The average number of customers in the waiting line is

Lq= ^{2}/(µ(µ-λ))

49^2/(55(55-49))

Lq= 2401/330= 7.28 customers, in the waiting line

The average time a customer spends in the total queuing system (i.e., waiting and being served) is W= L/λ

W= 8.17/49

W= 0.17 (10 min) average time in the system per customer

The average time a customer spends waiting in the queue to be served is

Wq= λ/(µ(µ-λ))

Wq= 49/(55(55-49))

Wq= 0.15 (9 min) average time in the waiting line per customer

The probability that the server is busy (i.e., the probability that a customer has to wait), known as the utilization factor, is

U= λ/µ

U= 49/55

U= 0.89 probability that the server will be busy and the customer must wait

I= 1-U

I= 1-0.89

0.11 probability that the server will be idle and customer can be served

INTERPRETATION OF RESULTS FOR QUEUING MODEL 1

The performance of the counter checkout service on weekday is sufficiently good. We can see that the probability for servers to be busy is 0.8909, i.e. 89.09%. The average number of customers waiting in a queue is Lq = 7.28 customers per server. The waiting time in a queue per server is Wq = 9 min which is normal time in a busy server. This estimate is based on probabilistic nature as the model shows that the customers make a single queue and choose an available server. Hence we can consider each server with a queuing model as a single-server single-queue model to get the correct estimate of the length of queue. Model 1 queue is a useful approximate model when service times have standard deviation approximately equal to their means.

RESULTS FOR WEEKDAY APPLYING QUEUING MODEL 2

The parameters and corresponding characteristics in Queuing Model 2, assuming system is in steady-state condition, are:

c   number of servers = 2

λ Arrival rate = 98 customers per hour

µ   serving rate = 55 customers per server per hour

cµ   (55x2) = 110 service rate for servers

P λ/(cµ) = 98 / 110 = 0.8909= 89.09%

I λ /µ = 1.7818

Overall system utilization = P = 89.09 %

The probability that all servers are idle (Po) = 0.5769

The probability that there are no customers in the system (all servers are idle) is

$$Po = \frac{1}{\sum_{n=0}^{n=c-1} \frac{1}{n!}\left(\frac{\lambda}{µ}\right)^n + \frac{1}{c!}\left(\frac{\lambda}{µ}\right)^c \left(\frac{cµ}{cµ-\lambda}\right)}$$

$$\frac{1}{\left(\frac{1}{0!}\left(\frac{98}{55}\right)^0 + \frac{1}{1!}\left(\frac{98}{55}\right)^1\right) + \frac{1}{2!}\left(\frac{98}{55}\right)^2 \left(\frac{2x55}{2x55-98}\right)}$$

Po= 0.058 probability that no customers are in the bank

The average number of customers in the queuing system is

$$L = \frac{\lambda µ(\lambda/µ)^c}{(c-1)!\,(cµ-\lambda)^2}p_0 + \frac{\lambda}{µ}$$

$$L = \frac{98x55(98/55)^2}{(2-1)!\,(2x55-98)^2}(0.058) + \frac{98}{55}$$

L= 8.66≈ 9 customers, on average, in the bank

The average time a customer spends in the queuing system (waiting and being served) is

$$W = \frac{L}{\lambda}$$
$$W = \frac{9}{98}$$

W= 0.092 hr. (5.5 min.) average time in the bank per customer

The average number of customers in the queue is

$$Lq = L - \frac{\lambda}{µ}$$

$$Lq = 9 - \frac{98}{55}$$

Lq= 7.2≈ 7 customer, on average, waiting to be served

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The average time a customer spends in the queue, waiting to be served, is

$$Wq = W - \frac{1}{\lambda} = \frac{Lq}{\lambda}$$
$$Wq = \frac{7}{98}$$

Wq= 0.07hr. (4.3 min.) Average time waiting in line per customer

The probability that a customer arriving in the system must wait for service (i.e., the probability that all the servers are busy) is

$$Pw = \frac{1}{c!}\left(\frac{\lambda}{\mu}\right)^c \left(\frac{c\mu}{c\mu - \lambda}\right) p_0$$

$$Pw = \frac{1}{2!}\left(\frac{98}{55}\right)^2 \left(\frac{2x55}{2x55 - 98}\right) 0.058$$

Pw= 0.85 probability that a customer must wait for service

If the bank management has decided that customers are frustrated by the relatively long waiting time of 9 minutes and the .89 probability of waiting. To try to improve matters, if management has decided to consider the addition of an extra counter checkout the operating characteristics for this system must be recomputed with c = 3 counter checkout but it may be less in reducing cost than server 2.

The parameters and corresponding characteristics in Queuing Model 3, assuming system is in steady-state condition, are:

c   number of servers = 3
λ arrival rate = 98 customers per hour
μ serving rate = 55 customers per server per hour
$c\mu$ (55x2) = 110 service rate for servers)

The probability that there are no customers in the system (all servers are idle) is

$$Po = \frac{1}{\sum_{n=0}^{n=c-1} \frac{1}{n!}\left(\frac{\lambda}{\mu}\right)^n + \frac{1}{c!}\left(\frac{\lambda}{\mu}\right)^c \left(\frac{c\mu}{c\mu - \lambda}\right)}$$

$$\frac{1}{\left(\frac{1}{0!}\left(\frac{98}{55}\right)^0 + \frac{1}{1!}\left(\frac{98}{55}\right)^1 \frac{1}{2!}\left(\frac{98}{55}\right)^2\right) + \frac{1}{3!}\left(\frac{98}{55}\right)^3 \left(\frac{3x55}{3x55 - 98}\right)}$$

Po= 0.060 probability that no customers are in the bank

The average number of customers in the queuing system is

$$L = \frac{\lambda\mu(\lambda/\mu)^c}{(c-1)!\,(c\mu - \lambda)^2} p_0 + \frac{\lambda}{\mu}$$

$$L = \frac{98x55(98/55)^3}{(3-1)!\,(3x55 - 98)^2}(0.060) + \frac{98}{55}$$

L= 2 customers, on average, in the bank

The average time a customer spends in the queuing system (waiting and being served) is

$$W = \frac{L}{\lambda}$$

$W = \frac{2}{98}$

W= 0.02 hr. (1.2 min.) average time in the bank per customer

The average number of customers in the queue is

$Lq = L - \frac{\lambda}{\mu}$

$$Lq = 2 - \frac{98}{55}$$

Lq=0.22 ≈ 0 customer, on average, waiting to be served

The average time a customer spends in the queue, waiting to be served, is

$$Wq = W - \frac{1}{\lambda} = \frac{Lq}{\lambda}$$
$$Wq = \frac{0.22}{98}$$

Wq= 0.002hr. (0.13 min.) Average time waiting in line per customer

The probability that a customer arriving in the system must wait for service (i.e., the probability that all the servers are busy) is

$$Pw = \frac{1}{c!}\left(\frac{\lambda}{\mu}\right)^c \left(\frac{c\mu}{c\mu - \lambda}\right) p_0$$

$$Pw = \frac{1}{3!}\left(\frac{98}{55}\right)^3 \left(\frac{3x55}{3x55 - 98}\right) 0.060$$

Pw= 0.20 probability that a customer must wait for service.

COMPARISON OF THE RESULTS FOR QUEUING MODEL 1 AND MODEL 2

The actual structure of our survey example Dashen bank has queuing model 2. A queuing model with single queue and multiple servers is not effective when we evaluate performance for each server. For instance, the utilization factor for both servers varies in each analysis, i.e. for model 1 its 89% whereas for model 2 its 94.2%. A simulation process shows the performance of each server with their corresponding queues. For instance, in server 2 each customer has to wait for 4.3 minutes in a queue, in server 1 each customer has to wait for 9 minutes in a queue, and in server 3 each customer has to wait only 0.13 minutes in a queue for being served.

However, server 3 is effective saving of customer's time but it saves cost of serving less as compared to that of server 2. When we see server 2 it seems inefficient in saving of customer's time, but this comes from in efficient utilization of resources.

CONCLUSION AND RECOMMENDATION

The empirical analysis of queuing system of Dashen bank is that they may not be very efficient in terms of resources utilization. Queues form and customers wait even though servers may be idle much of the time. The fault is not in the model or underlying assumptions. It is a direct consequence of the variability of the arrival and service processes. If variability could be eliminated, system could be designed economically so that there would be little or no waiting, and hence no need for queuing model.

With the increasing number of customers coming to the bank for different services either for usual saving, opening account, loan etc. there is a competent employee serving at each service unit. Counter checkout service has sufficient number of employees (2 servers) which is helpful during the peak hours of weekdays. Increasing more than sufficient number of servers may not be the solution to increase the efficiency of the service by each service unit. As we (researchers) have tried to indicate in appendix C (cost analysis) server 2 is efficient if it is used well (saves 260 birr than installing server 3 which saves 127 birr) and only natural line (queue) may be created which have no harm in the normal functioning of the bank.

The result also shows us if the bank use server 3 almost there may not be queue and this make create idleness of servers indirectly it is costly. Nevertheless, server 2 is more feasible because such kind of idleness may not be appear, thereby resources are efficiently employed in top of that customers will be delighted by the service provided, and the quality of service is affirmed.

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ANALYSIS ON THE ROLE OF EDUCATIONAL LEADERSHIP FOR THE REALIZATION OF QUALITY EDUCATION SYSTEM IN ETHIOPIA: THE CASE OF SOUTH AND NORTH GONDAR ADMINISTRATIVE ZONAL PREPARATORY SECONDARY SCHOOLS

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ABSTRACT

This research is aimed at to make intellectual analysis on the role of educational leadership for the realization of quality education system in Ethiopia in particular to South and North Gondar Administrative Zonal preparatory secondary schools. To hold this study, 'Mixed Methods Research Design' was employed in order to analyze facts about the role of educational leadership for the realization of quality education system which in turn helps schools audit, enhance and assure quality education. Qualitative data were obtained through interviews with the selected key participants; school principals. Questionnaire was mainly used to gather data from the sample respondents. Qualitative descriptions were done to analyze data from the interviews. Descriptive statistics was processed to analyze quantitative data obtained through the questionnaire. Thoroughly, it was discovered that the majority of the preparatory schools are being led by specialists in educational planning and management. However, a considerable number of schools are being led by non-professionals. The finding also stated that the majority of the respondents know that school principals were assigned as principals without the genuine acceptance of the school teachers regardless of their political point of view. They were not properly elected by the school community. However, a considerable number of schools have been led by those principals who have full professional acceptance which might let the school leadership system conducive to its overall teaching learning process. This may tell us though most of the school directors are not elected with their higher professional acceptance by the teachers, after their appointment their acceptance increases.In the study, ethical leadership system has been taken in to account by the majority of school principals in spite of some principals. And a considerable number of school principals do not have leadership training experiences which may imply that these leaders may not be professionals in educational policy and leadership. Principals' general approach daily shown to school teachers during their work process is vital for effective school leadership system. The study has also revealed that most of the school leaders found in the sample schools are free from bad addictions except in some of other schools. So we can guess that how much these some principals are truly and properly leading these public pre-college/university schools as far as bad addiction is prohibited by the law of academics. A lot of teachers put their strong belief on the practice of democratic leadership style in order to have quality education system for their own school. As educators it is foolish to desire rational decision making process and school leadership system from school principals who do not use their school's leadership policy as guide line. Briefly, it has also been examined that democratic leadership practice can be a true prerequisite to quality education system for effective school leadership system. There is a strong relationship between educational leadership practice and quality education of one's school. Therefore, it is safe to recommend that professional principals in the field of educational leadership and policy, or educational planning and management must be assigned to the preparatory secondary schools if we need to achieve quality education as national development goal.

KEYWORDS
educational leadership, quality education.

INTRODUCTION

The ancient Abyssinia, the current Ethiopia; has been consciously, keenly and vastly expanding education institutions from its smaller size background in to a larger size per its future marvelous social and economic national development vision. At the beginning of this very important time when the country has operationally planned a five year strategic plan for the latest transformation process being under execution, the education sector has been one of the sectors mainly planned to achieve its quality academic provision to its customers both at national and international level. Hence, achieving quality education to the required level has seriously become the major focus of this strategic plan as a national education policy. However, still the headache how to achieve quality education has been looking for major and relevant initiatives to execute it in higher education system. For that matter, all academic institutions are being tried to be organized very well based on each institution's organizational structure, vision, mission and goals which in turn may help the organization function very well at least with the nominated and proper leadership system being tried to be launched. In line with this, achieving quality in education has increasingly become crucial in strategic improvement plans of the developing countries.

While the concept of quality and its priority indicators may differ from country to country, it is commonly considered as a determining factor in facilitating the implementation of education for all initiatives (Boissiere, 2004; World Bank Independent Evaluation Group, 2006 in Fertig ,2008).At the Centre of strategies for accelerating the achievement of quality education is effective leadership at all levels of the school system (Fertig ,2008). As cited in Fertig (2008), the nature and scope of country context initiatives that aim at enhancing quality leadership for implementing quality education in developing countries is critical to our understanding of how global quality initiatives impact on local policy practices.

Unarguably, the central issue facing educational policy makers and practitioners in the developing world is one of the matching imperatives for quantitative expansion of educational provision with the need to ensure the quality of education provided for those children who do enter the school environment. As Leu & Price-Rom (2006:2) in Fertig (2008) have suggested that educational quality in developing countries has become a topic of intense interest, primarily because of countries' efforts to maintain quality…in the context of quantitative expansion of educational provision…Whether explicit or implicit, a vision of educational quality is always embedded within countries' policies and programs. This implies that the Educational leadership policy of ones nations based on the country's policies and programs is seen as integrative part of quality education.

Recently, an increasing interest in exploring the nature of educational leadership system of the academic institutions of ones country in accord with a range of various international contexts has been a warm topic for the national government as well as for policy researchers in education as a discipline.

In our case, the national education sector's policy statements emphasize the importance of attaining 'quality education'. National Education sector's policy statements again imply that academic organizations are to be with compatible academic leadership system which in turn constitutes the management of the input, process and output factors of the school organization. This is because through the education leadership system, the key factors affecting the notions of 'quality education' are the school's contextual setting, the basic inputs in to the educational process, and the processing of inputs in to the outputs or outcomes of the school (Mosha, 2000 in Fertig, 2008).On and on, Mosha also argues that it is imperative to consider context when assessing quality of any educational undertaking. This has been made an even more urgent consideration for school leaders as a result of the increasingly rapid journey towards the decentralization of educational decision-making (Therkildsen, 2000).

Similarly, the Ethiopian government belief in the existence of quality education leadership system in academia has become the major mandatory factor in education science just in order to process academics effectively in this current modern Era. Along with these all rationales, the researcher from his side has

become very much interested in the existence of quality academic leadership practice in an education system through which investigating and/or setting up the nationally accepted education leadership system for the existence of, or to assure quality education system in particular to preparatory secondary schools found in North and South Gondar Administrative Zones.

DEFINITION OF KEY TERMS

Educational Leadership: in this study educational leadership refers to administration roles at schools such as preparatory secondary schools that go beyond traditional management and administrative tasks.

Educational leaders: in the context of this research educational leaders mean those who usually are employed as school principals or administrators but take on additional roles, such as department chair or any academic directorship responsibility.

Quality Education: though the phrase quality education is a complex concept, in this study it refers to the provision of well standardized academic to the learners through standardized subject specialists i.e. teachers specialized in each academic subject as teaching professionals, standardized curriculum and outstanding education policy particularly at each level keeping the natural learning capability of each learner so as to bring him/her with desirable behavioral changes as learning outcomes. Its occurrence can be measured and evaluated through the existence of worth teaching learning process seen in ones preparatory secondary school as instance. Hence, it generally means fitness for purpose.

Quality Learning: : is a planned and systematic learning process conducted by the instructor for the learners considering acceptable standards of students' learning ability, teaching and learning process and the learning outcomes through observation and the actual practice.

Education Sectors: refer to zonal to woreda level education offices and academic institutions such as first and second cycle primary schools and high schools, and preparatory schools. So in this study it directly means preparatory secondary schools.

REVIEW OF LITERATURE

EDUCATIONAL LEADERSHIP

Educational Leadership is a term applied to school administrations that strive to create positive change in educational policy and processes. (Retrieved May 1, 2013 from http://degreedirectory .org)

The study source has also disclosed that Educational Leadership refers to administration roles at schools, universities and other educational institutions that go beyond traditional management and administrative tasks. Educational leaders are trained to advance and improve educational systems or institutions. Educational leaders usually are employed as school principals or administrators but take on additional roles, such as department chair or academic dean.

FUNCTION OF EDUCATIONAL LEADERSHIP

Educational leaders work to improve educational programming. They hire and manage teachers and staff, prepare budgets, set curriculum standards and set school-wide policy. They might work on team building efforts or restructure the organization to affect necessary change. Many educational leaders are involved with policy development or reform issues dealing with education on the local, state or national level.

CAREERES IN EDUCATIONAL LEADERSHIP

Careers in Educational Leadership can be found at all levels of education, from pre-school program directors to academic deans at universities. At the college or university level, educational leaders are employed as department chairs, athletic directors or curriculum directors. At elementary and secondary schools, educational leaders work as principals, assistant principals, athletic directors, headmasters, lead teachers or deans. Other educational leaders work with advocacy groups, lobby groups or other non-profit organization on creating or reforming policy and educational systems.

QUALITY EDUCATION

THE LINK BETWEEN QUALITY LEADERSHIP AND QUALITY EDUCATION

THE LINK BETWEEN EFFECTIVE LEADERSHIP, TEACHER QUALITY, AND STUDENT LEARNING

Much of the recent attention on increasing student achievement and decreasing the achievement gaps has focused on the critical relationship between effective teachers and student achievement. Indeed, Sanders and Horn (1998) asserted that the "single largest factor affecting academic growth of populations of students is differences in effectiveness of individual classroom teachers" (p.27). With the adoption of NCLB in 2001, all states were required to provide each student a highly qualified teacher, as well as to equalize teacher quality across schools (ECS, 2007). However, most states have failed to meet the teacher quality standards set forth by NCLB (Peske & Haycock, 2006), and there is little evidence that policies and programs focused on increasing the number and quality of teachers, such as teacher pay schemes, financial incentives, alternative certification, and mentoring and induction programs, have come to fruition (ECS, 2007; Peske & Haycock, 2006; Fuller & Brewer, 2005 in Policy Brief Series. Volume I, Issue I Fall 2007 by M.D. Young, E. Fuller, C. Brewer, B. Carpenter, K.C. Mansfield).

One overlooked aspect of increasing teacher quality is the role of the principal. Historically, principals have been viewed as managers rather than leaders. Contemporary views of school leadership, however, place the principal much closer to the heart of schooling process—teaching and learning (Zigarelli, 1996). Indeed, a number of researchers have found that school leadership has an important impact on schools and student achievement (see, for example, Heck & Hallinger, 1999; Leithwood, Louis, Anderson & Wahlstrom, 2004; Waters, Marzano & McNulty, 2003).

Further, a recent report from the National Staff Development Council (Killion, 2004) claimed that "strengthening school leadership" is essential for meeting the challenges facing schools (p. 1). While teachers have a direct impact on student achievement, principals typically have an indirect, albeit powerful, impact on student achievement. Based on the results of an analysis of research conducted between 1980 and 1995 on principals' effects on student achievement, Hallinger and Heck (1998) identified four "avenues of influence" (p. 171) through which principals influence both individuals in schools and the systems within which individuals work, thereby influencing student outcomes. Specifically, principals impact teacher and student performance through influencing the purposes and goals of the school, the school structure and social networks, the people, and the school culture.

The two avenues through which principals most directly affect student achievement are:

(a)   the creation of a school culture focused on learning and characterized by high expectations for all students and (b) recruiting and retaining high quality teachers. Indeed, as noted by Papa and his colleagues (Papa et al., 2003, p. 11), principals "have the potential to importantly shape the environment in which the students learn [as well as influence] the quality of the teaching work force." More specifically, principals can play a leading role in designing and supporting school social contexts that support teacher and student learning in ways that lead to improved student outcomes (Copland, 2003; Ervay, 2006; Hanushek, 1971; Miller & Rowan, 2006; Goldring & Rallis, 1993; Leithwood & Montgomery, 1982; Rosenblum, Louis & Rossmiller, 1994; Smylie & Hart, 1999).

There is wide consensus among researchers and policymakers that teachers are the single most powerful school factor affecting student achievement. A growing body of research has found that principals strongly influence teacher quality—and, therefore, student achievement- through recruiting and retaining high quality teachers (Fuller, Baker, &Young, 2007; Grissmer & Kirby,1987, 1997; Ingersoll, 2001; Levy, et al., 2006; Miller & Rowan, 2006; Papa, Lankford, & Wyckoff, 2002; Williby, 2004). In fact, Fuller, Baker, and Young (2007) found that Texas elementary schools in which principals decreased teacher turnover and increased teacher quality had positive impacts on gains in student achievement over time. A number of recent studies have found that principals strongly influence teacher turnover which has a significant impact on student achievement. For example, a series of studies by the Center for Teaching Quality using statewide surveys of teachers (see http://www.teachingquality.org/twc/whereware.htm) have found that leadership and leadership behavior profoundly influence the retention of teachers at a school across all different types of local and state settings. Indeed, Berry and Fuller (2007) found that specific principal behaviors can double the likelihood of a teacher staying at a school after controlling for student characteristics and achievement.

Although there is a growing body of evidence on the positive relationship between school leadership, teacher quality, and student achievement, we need further investments in high quality research that examines these relationships in a multitude of contexts across a number of years. In particular, we need to focus more attention on these relationships at the elementary school level (Miller & Rowan, 2006). Further, because of the ever-changing social, economic, and political contexts that vary dramatically across local and state contexts, we need to invest in large scale and longitudinal studies that seek to identify the specific,

observable, and measurable leadership characteristics that are associated with improvements in teacher quality and retention, and ultimately student achievement (Ballou & Podgursky, 1998; Hanushek, 1971; Miller & Rowan, 2006; Wayne & Young, 2003).

THREE PILLARS FOR LEADERSHIP SUCCESS

Effective leadership motivation can best be measured by how well leaders get results. But you can't get results by yourself. You need others to help you do it. The best way to have other people get results is not by ordering them around but by supporting and motivating them. Yet too many leaders fail to motivate their team to achieve results because those leaders misconstrue the concept of motivation. To understand leadership motivation and apply it daily, let's understand its three critical pillars. Know these pillars and put them into action to greatly enhance your abilities to lead for quality results *(retrieved 21 April, 2013 from Online Provider of Free Leadership Tools and Resources.)*

Pillar 1: MOTIVATION IS PHYSICAL ACTION

'Motivation' has common roots with "motor", "momentum", "motion", "mobile", etc. - all words that denote movement or physical action. An essential feature of leadership motivation is physical action. Motivation isn't about what people think or feel but what they physically do. When motivating people to get results, challenge them to take those actions that will realize incremental results. When you want to motivate people, you must do more than simply communicate information. Rather, you must help them believe in you and take action to follow you. A key outcome of every leadership talk must be physical action, physical action that leads to results. For instance, a newly-appointed director of a large marketing department wanted his department to achieve sizable increases in the team's results. However, the employees were a demoralized bunch who had been clocking tons of overtime under her predecessor and were feeling angry that their efforts were not being recognized by senior management. The new director could have simply tried to order them to get the increased results. Many leaders use this disastrous approach. In the long-run they tend to flounder in today's highly competitive, rapidly changing markets. True leadership motivation occurs when a team, instead of completing tasks because they are ordered to, completes each task because they WANT to for the overall benefit of the team leader and the organization. Team members "want to" work hard when they are motivated and begin to believe in the leadership. The belief is instilled by regular communication from the leader. Leadership motivation must take place. Physical action must take place. Don't give the vision talk until you know what precise actions you are going to set expectations around.

As an example, one team leader asked his CEO to come into the room after his leadership motivation talk. The CEO shook each employee's hand, and told each employee how much he appreciated their hard work - *physical action*.

After the CEO left, the team leader challenged each employee to write down on a piece of paper three specific things that they needed from him to help them get the increases in results and then hand those pieces of paper back to him - *physical action*. Mind you, that one leadership motivation talk was not the equivalent of magic dust sprinkled on the employees to instantly motivate them. To turn the department around so that it began achieving sizable increases in results, the team leader had to give many leadership talks in the weeks and months ahead. But it was a beginning.

Pillar 2: MOTIVATION IS DERIVEN BY EMOTION

Emotion and motion come from the same Latin root meaning, "to move". When you want to move people to take action, engage their emotions. An act of leadership motivation is an act of emotion. In any strategic management endeavor, you must make sure that the people have a strong emotional commitment to realizing the end result.

Recently, a chief marketing officer of a worldwide services company said, "Now I know why we're not growing! Our senior leaders developed our marketing strategy in a bunker!"The document was some 40 pages long, single-spaced. The points it made were logical, consistent, and comprehensive. It made perfect sense. That was the trouble. It made perfect intellectual sense to all of the senior leaders. But it did not make experiential sense to middle management who had to carry it out. Middle managers had about as much input into the strategy as the window washers at corporate headquarters. As a result, the document did not serve its intended purpose, or support executive management's vision. Middle and front-line employees are more effectively motivated when they can personally relate to the tasks necessary for carrying out the strategy. Only then does a business strategy have a real chance to succeed.

Pillar 3: LEADERSHIP MOTIVATION IS NOT WHAT WE DO TO OTHERS

It's what they do to themselves! The English language does not accurately depict the psychological truth of leadership motivation. The truth is that we cannot motivate anybody to do anything. The people we want to motivate can only motivate themselves.   The motivator and the motivated are always the same person. We as leaders communicate; they choose whether or not to be motivated. So our "motivating" others to get results really entails our creating an environment in which they motivate themselves to get results.

For example: a commercial division leader almost faced a mutiny on his staff when in a planning session, he put next year's goals (numbers much higher than the previous year's) on the overhead. The staff all but had to be scraped off the ceiling after they went ballistic. "We busted our tails to get these numbers last year. Now you want us to get much higher numbers? No way!"

The leader thought, "We can hit those numbers. I just have to change their belief system!"The team leader set about to create an environment in which the team would motivate themselves. So he had each team member assess what activities got results and what didn't. They discovered that they spent more than 60 percent of their time on things that had nothing to do with getting results. He then had the team develop a plan to eliminate any unnecessary work. Once his team experienced the joy of being put in charge of their own destiny, they were motivated! The team worked together and developed a great plan. Most importantly, they began to experience improved results. Over the long run your career success does not depend on what schools you attended or what degrees you have acquired. Success depends instead on your ability to attract self-motivated individuals and teams that believe in their ability to get results. Leadership motivation is like a high voltage cable lying at your feet. Use it the wrong way, and you'll get a serious shock. But apply motivation the right way by understanding and using the three pillars, (plug the cable in, as it were) and it will serve you well in many powerful ways throughout your career.

IMPORTANCE OF THE STUDY

 In the arena of science and philosophy of education, inquiry on the art of high-quality leadership system in any academic institution which deserves quality education is a worldwide academic agenda of international and national scholars being involved in the process of enhancing and assuring quality education in general. Therefore, exploring accepted educational leadership systems and its proficiency to quality education system for Ethiopian academic settings is extremely significant as far as the governments visualize and agree on the existence of quality education system as prerequisite to national and international development per the millennium development goals of the world. Hence, it is very wise to understand that the study serves as useful reference to policy issues for quality and superior academic leadership system for ones academic setting so as to conserve quality education culture to the present and new generation in Abyssinian case.

The finding is potentially trusted to serve as documented evidence and judgments for school management and leadership system, instructors, educators, and for the Agencies working on as national quality education auditors, and other international and national stakeholders pertaining to the roles of globally accepted educational leadership practice for quality education system.

Particularly, the recommendations forwarded at the end of this research work may serve as guidelines to the practitioners who are engaged in academic and policy research work in order to seek solutions in the overall process of quality teaching and learning in any education sector. Lastly, review of related literature, the design employed, the findings of the study, and the recommendations will instigate other interested researchers to conduct further investigation on related dimensions of the study area.

STATEMENT OF THE PROBLEM

Succeeding quality in education is the currently seen academic challenge especially for argumentative academic researchers and become the best agenda of scholars of universities in Ethiopia. Achieving quality in education goes beyond quantitative expansion in the number of pupils in classroom, increase in the number of school buildings and changes in the structure of our school system (Gyekye, 2000). Quality in education is both a quantitative and qualitative issue. Its

indicators should therefore convey notions of quantity and quality (Dare, 2005).Quality indicators of education can be seen as performance indicators that refer to a quality characteristic or objective, thus alluding to the broad context of performance evaluation in which the learners operate. Implicitly, it is unthinkable to manage these two vital wings, efficiently and effectively; without the existence of good education leadership system in the school system. Here, academic institution leaders such as head teachers are to recognize the importance of leadership proficiencies based on the literature, but practice of managing and organizing the school day's day–to-day functions take pre-eminence in the head teacher role (Zame et al, 2008:126). A key factor in this dissonance is the need to seek to check, monitor and examine the assessment procedures of teaching staff with in their schools which imply their necessity on clear leadership system. Ethiopian education academic institutions such as schools have their own leadership system and policy. However, in the history of Ethiopian modern education as a discipline; their leadership system cannot be concluded as it is strongly and scientifically studied and discussed a least at national level by the educators who can be able to redesign the existing leadership system so that they would devise comprehensive academic leadership discipline in accord with Ethiopian school context as they are professionally supposed to have the acquaintance on current real academic leadership system being observed in Ethiopian education systems such as schools. With these all facts, I could see the importance of this prevalently seen academic leadership challenge under this study on the institutionally practiced education leadership system for the existence of quality education system in Ethiopia and have compelled the researcher now to investigate it, thoroughly.

OBJECTIVES OF THE STUDY

In general, the study was intended to discover the role of educational leadership system in order to realize quality education system in ones school settings in Ethiopia.

In doing so, the specific objectives of this study are to:

1. Explore the foremost internationally accepted pillars of Quality Leadership System for ones school.
2. Examine if there is visible relationship between school leadership system and quality education system of ones school.
3. Identify the best leadership style which is mostly relevant to exercise quality education system existing in the selected school settings.
4. Summarize if there are significances of educational leadership system to the existence of Quality Education in ones school.

BASIC RESEARCH QUESTIONS/HYPOTHESIS

The study has been entirely depending on finding answers for the following basic questions:

1. What are the foremost internationally accepted pillars of quality academic leadership system for education systems?
2. Is there a direct and visible relationship between quality leadership system and quality education system of schools?
3. Which leadership style is mostly relevant to exercise quality education system in any school?
4. What are the major significances of educational leadership system to the existence of Quality Education in ones school?

RESEARCH METHODOLOGY

METHOD OF THE STUDY

The study aimed at investigating educational leadership role for the existence of quality education system in Ethiopia, there by examining proficient leadership practice recognized at national level in order to enhance and assure particularly quality education system at preparatory secondary schools, and then forwarding possible solutions or recommendations on the issue towards the successful accomplishments of quality teaching and learning. To come up with these all agendas, the study has employed exploratory and descriptive research methods both qualitatively and quantitatively.

RESEARCH DESIGN

This section explains the design of the study in detail. It consists of description of the manner in which discussion has been made about the type of data needed for the study, research participants, and other procedures that were critical to the study. The choice of methods is strongly influenced by the situation and the context in which a research is conducted. The task facing the researcher is to provide the most accurate information practically possible in an evenhanded manner. There are no rigid rules that can be provided for making data collection and methods' decisions in any research work. The art of academic and policy research involves creating a decision and gathering information that is appropriate for specific situation and particular policy context. It is rare to find a study based on only one method of data collection. Normally, a range of techniques from the core of an overall research strategy, thus ensuring that the information acquired has the depth and detail necessary to enable the research produce a report from which conclusions can be drawn with a certain degree of confidence. Therefore, since this research is a comprehensive study on research, mixed research design is preferable to a single design. Thus, for the winning path of the study; **both qualitative and quantitative research designs were employed.** In the case of qualitative research design, the researcher was the main instrument of data collection. Qualitative data were used to obtain details of the subjective experiences of school directors and participants in the process of leadership tasks. In addition to this, collecting primary data involves the use of research instruments, for example; questionnaires and interview schedules were constructed for the purpose of a specific study as such; they were designed to produce data considered by the researcher to be essential in order to address quality leadership issues generated by a particular policy, or program.

SOURCES OF DATA AND SAMPLE SELECTION

The data used for this study were obtained both from primary and secondary sources. Primary data were gathered through the questionnaire and interview schedules. The sources of data did process preparatory secondary school teachers and principals.

All the sample preparatory secondary schools were selected using purposive sampling technique. The respondents from each school were selected using stratified available sampling technique. Since the researcher got almost all these teachers and leaders/principals, the data were exhaustively gathered as much as possible.

INSTRUMENTS OF DATA COLLECTION

In general, the study simply used three types of instruments to gather the data:

INTERVIEW

During the interview session, the key top Managers and Leaders of preparatory secondary such as principals and vice principals were purposely selected and interviewed involving unstructured interview schedules. The researcher selected these respondents due to the fact that they were suggested to be more knowledgeable, skillful and responsible to the purpose, process and utilization of the educational leadership practice serving each preparatory school in order to achieve quality teaching and learning process, and assure quality education in general as well as their suggested recommendations on these issues were discussed and considered in detail as much as possible. These all gained data were used in the study that may initiate reliable policy guidelines used for quality leadership system to the school.

FOCUSED GROUP DISCUSSION/FGD

The available respondents i.e. teachers who have been teaching in the selected schools were invited. Consequently, the required first hand information was smoothly gathered involving follow up minutes.

QUESTIONNAIRE

Questionnaire to all school teachers currently available were administered. This questionnaire used to collect the teachers' perception towards quality educational leadership practice, and its role and degree of utilization in assuring and enhancing quality education system in preparatory secondary schools and then to their teaching learning process in particular. To do so available sampling technique for each stratum /school were used to select these respondents.

METHODS OF DATA ANALYSIS

The data gathered from questionnaire were tabulated and statistical techniques, namely, percentage and mean value were employed to analyze due to the fact that these techniques are appropriate for the nature of the study that is exploratory study type which is used to explore and describe the current role of quality academic leadership practice in the sample schools. The data obtained through open-ended questionnaire, unstructured interviews and focused group discussion have been analyzed qualitatively in the form of paraphrasing and interpretation considering the context in which the records were developed.

RESULTS AND DISCUSSION

CHARACTERSTICS OF THE PARTICIPANTS

Interview sessions were conducted with four (4) key informants among the preparatory secondary school principals. The characteristics of the interviewees are indicated in Table 1 below:

TABLE 1: CHARACTERISTICS OF KEY PARTICIPANTS INVOLVED IN THE INTERVIEWS

Participants	Working Place	Field of Study	Educational Status	Academic rank	Position	Year of Service	Sex
I-1	Debretabor Atse Tewodros Preparatory Secondary School	History	BA	Teacher/ Lecturer/	School Principal	1 year as school principal and 5 years in teaching	M
I-2	Woreta Preparatory Secondary School	Biology	BA	Teacher/ lecturer/	School Principal	1 year as school principal and 6 years in teaching	M
I-3	Addis Zemen Preparatory Secondary School	EdPm	BA	Teacher/ lecturer/	School Principal		M
I-3	Fasiledes Preparatory Secondary School	Biology	BA	Teacher/ lecturer/	School Principal	More than 5 years in teaching	M
I-3	Dabat Preparatory Secondary School	Geography	BA	Teacher/ lecturer/	School Principal	More than 3 years in teaching	M

As we can see the character of each research participant described in the last column of Table 1 above, all of the participants were males. When we see their working place and educational status, all of them were school principals and they were bachelor's degree holders .With regard to the participants' academic rank, all of them were in the rank of lecturer/teacher. With regard to their work experience, most of them have worked more than 2 years and above especially in teaching. .Questionnaire was used to collect quantitative data from the sample teachers selected from preparatory secondary schools. The characteristics of the sample respondents participated in responding to the survey questionnaire are summarized and presented next in Tables 2.

SCHOOL PRINCIPAL'S FIELD OF STUDY

TABLE-2: DIRECTOR'S FIELD OF STUDY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	25	27.8	28.1	28.1
	yes	64	71.1	71.9	100.0
	Total	89	98.9	100.0	
Missing	System	1	1.1		
Total		90	100.0		

As shown from the above table, the number of respondents who said 'Yes' is greater than those who said 'No'. Hence, 71.9% of the respondents responded that their school principal's field of study is in Educational Planning and Management and 28.1 % of them replied that their school principal's field of study is not in Educational Planning and Management. This figure tells us that the majority of the preparatory schools' principals are being led by professionals in leadership. However, a considerable number of schools are being led by non-professionals though they are subject specialist in various field of study.

To illustrate it more we can see the bar graph seen below:

FIGURE 1: BAR GRAPH DISPLAYING PRINCIPAL'S FIELD OF STUDY

Director's field of study
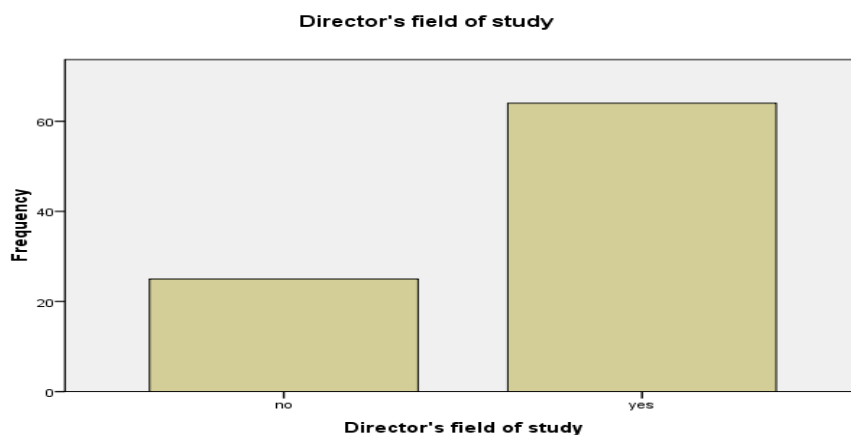
SCHOOL PRINCIPAL'S DEGREE OF ACCEPTANCE BY SCHOOL TEACHERS PER HIS/HER PROFESSION DURING VOTING

TABLE-3: DIRECTOR'S FULL PROFESSIONAL ACCEPTANCE BY SCHOOL TEACHERS DURING VOTING

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	54	60.0	60.7	60.7
	yes	35	38.9	39.3	100.0
	Total	89	98.9	100.0	
Missing	System	1	1.1		
Total		90	100.0		

As displayed in the above Table-3, 60.7% of the research participants said 'No', and 39.3 % of them said 'Yes'. Those who said 'No' is greater than those who said 'Yes'. From the figure, we infer that the majority of the respondents know that school principals were assigned as principals without the real acceptance of the school teachers. They were not properly elected by the school community. However, we can also see that considerable number of school principals have been led by those principals who have full professional acceptance which might let the school leadership system conducive for its overall teaching learning process.

In addition most of the respondents filled in the opened ended questions pointed out that most school principals have been elected based on their political outlook set as a criterion by the Woreda Education officers instead of election by professional merit and acceptance by the teachers unless their political outlook matches with their professional merit as a fortunate. However, from the above figure we can learn that the government has begun to assign school principals based on professional merits especially school leadership appointment based on field study, in particular qualified in Educational Planning and Management is being taken in to account.

For more understanding, we can also see the pie chart shown below:

FIGURE 2: PIE CHART DISPLAYING THE RATE OF PROFESSIONAL ACCEPTANCE OF SCHOOL PRINCIPAL

Director's full professional acceptance by school teachers during voting
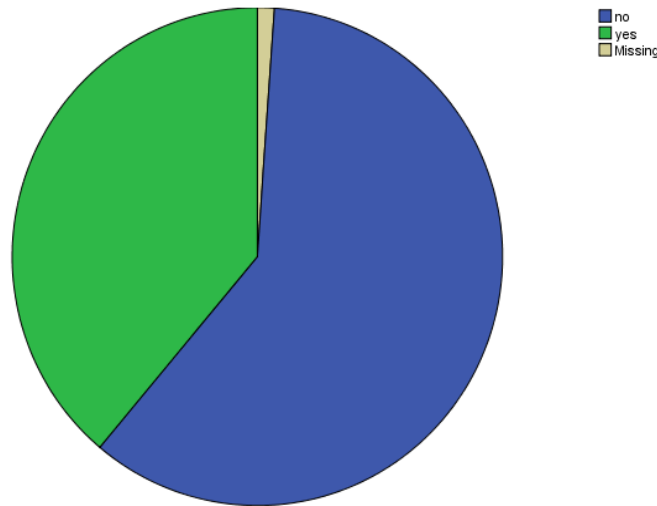
SCHOOL PRINCIPAL'S DEGREE OF ACCEPTANCE BY SCHOOL TEACHERS, STUDENTS AND THE COMMUNITY AFTER ASSIGNED AS SCHOOL DIRECTOR

TABLE-4: PRINCIPAL'S SOCIAL ACCEPTANCE BY TEACHERS, STUDENTS AND COMMUNITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	32	35.6	36.0	36.0
	yes	57	63.3	64.0	100.0
	Total	89	98.9	100.0	
Missing	System	1	1.1		
Total		90	100.0		

Briefly, as depicted in the above table; the majority of the teachers at preparatory secondary schools understand that school principals acceptance by the society after their appointment can be rated as good though is not true in some other school communities found in the study areas: administrative zones; North ans South Gondar. This may tell us though most of the school directors are not selected with thier higher professional acceptance by the teachers, after their appointment their acceptance increases.This is may be due to their effective leadership practices revealed practically to the community memebers.Otherwise, there is no another means of socially acceptance with out the reflection of this positive/effective leadership system.

THE RELATIONSHIP BETWEEN PRINCIPAL'S GENERAL INTERPERSONAL APPROACH TO SCHOOL TEACHERS AND EFFECTIVE SCHOOL LEADERSHIP SYSTEM

TABLE-5: THE CONTRIBUTION OF PRINCIPALS' GENERAL APPROACH TO SCHOOL TEACHERS FOR EFFECTIVE SCHOOL LEADERSHIP SYSTEM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	62	68.9	69.7	69.7
	Agree	24	26.7	27.0	96.6
	Disagree	2	2.2	2.2	98.9
	Strongly disagree	1	1.1	1.1	100.0
	Total	89	98.9	100.0	
Miss	System	1	1.1		
Total		90	100.0		

The table above has uncovered that 69.7% of the respondents strongly agree, 27% agree and 2.2 % disagree to their belief on the contribution of principals' general approach to school teachers for effective school leadership system. The number of those who strongly agree and agree is by far greater than those who disagree. This let us understand that principals' general approach daily shown to school teachers during their work process is vital for effective school leadership system.

DEGREE OF SCHOOL PRINCIPALS SCHOOL LEADERSHIP AND ADMINISTRATION ETHICS

TABLE 6: THE PRINCIPAL'S ETHICAL LEADERSHIP STYLE IN ACCORD WITH HIS/HER DEGREE OF INTERACTION AND CONDUCT SHOWN TO TEACHERS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	31	34.4	35.6	35.6
	yes	56	62.2	64.4	100.0
	Total	87	96.7	100.0	
Missing	System	3	3.3		
Total		90	100.0		

In any academic institutions such as in school systems ethics a professional mandatory part of discipline anticipated from every school teacher as well as the school leader. As pointed in Table-5, 64.4% of the respondents said 'Yes' and 35.6% said 'No'. The number of those who said 'Yes' is greater than those said 'No'. This directly reflects that the majority of school principals show social and administrative ethics towards school teachers. This may imply that in many schools, ethical leadership system is being practiced though a considerable number (35.5%) of respondents also replied that the school principals do not show moral or ethical leadership style to school teachers. Anyways what is important is it seems that ethical leadership system has been taken in to account in the majority of school principals.

For more comprehension, we can look at figure 3 below.

FIGURE 3: PIE CHART VIEWING THE PROPORTION OF TEACHER RESPONDENTS WITNESSED FOR PRINCIPALS' ETHICAL LEADERSHIP STYLE REVEALED.

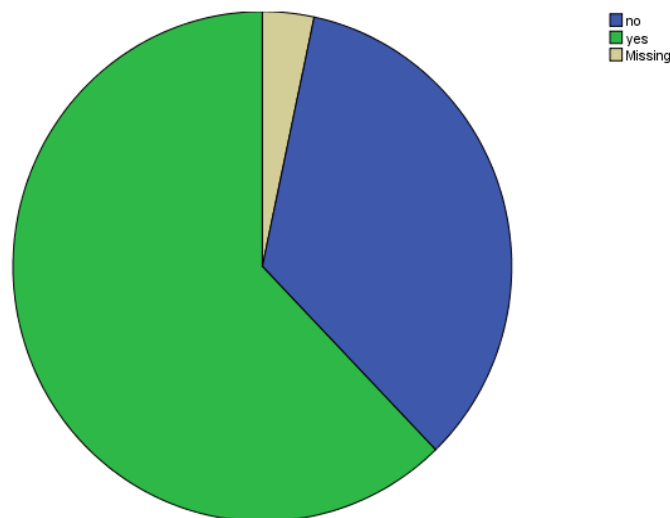The prinicipal's ethical leadership style in accord with his/her degree of interaction and conduct shown to teachers

THE POSITION OF SCHOOL PRINCIPALS TOWARDS TEACHER PUNISHMENT

TABLE- 7: PRINCIPAL'S POSITION WHILE TAKING MEASURES TO SOLVE LEADERSHIP CHALLENGES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	45	50.0	50.0	50.0
	yes	36	40.0	40.0	90.0
	see neutrally	9	10.0	10.0	100.0
	Total	90	100.0	100.0	

As depicted from the above table, 40% of the respondents replied as 'Yes' and 50% as 'No'. The number of participants who said yes is less than those said no though the difference is only 10%. This indicates that near to half of the school principals among the selected schools lean to teacher punishment. However, half of the school principals do not incline to teacher punishment. This states that there are school principals who do not take punishment as a corrective measure for their school leadership system. Rather, they may use another corrective mechanism to take measures. From the table, we can also see that 10% of the school principals see neutrally as it is instead of punishing teachers while passing the rule and regulation of the school system. This may tell us that these types of school directors follow laissez-faire leadership style which is not that much considered as effective.

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FIGURE 4: BAR GRAPH DEPICTING PRINCIPALS' POSITION WHILE TAKING MEASURES WHILE SOLVING LEADERSHIP CHALLENGES

Principal's position while taking measures while solving leadership challenges
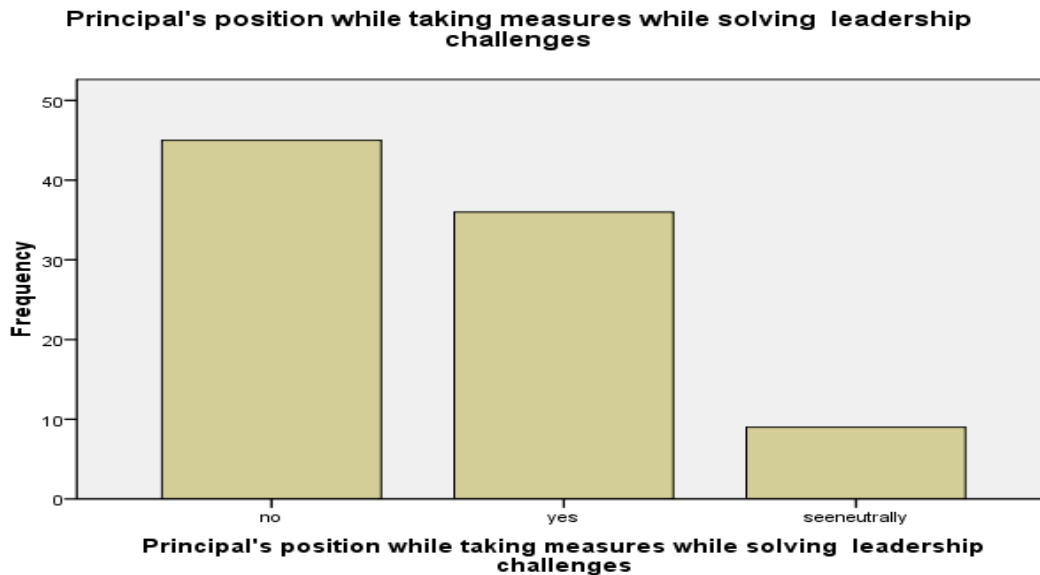
THE LEADERSHIP TRAINING CAPACITY OF THE SCHOOL PRINCIPALS

TABLE 8: PRINCIPAL'S USUAL TRAINING EXPERIENCE TO SCHOOL TEACHERS, DEPARTMENT HEADS AND OTHER STAKEHOLDERS
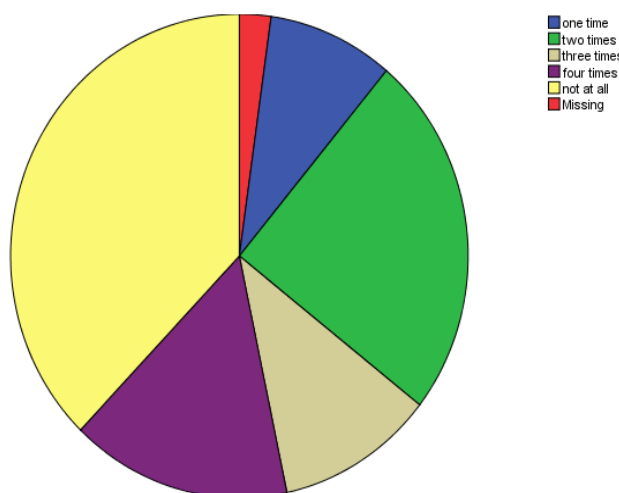
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	38	42.2	42.2	42.2
	yes	52	57.8	57.8	100.0
	Total	90	100.0	100.0	

As reflected in the above Table-8, 57.2% of teacher participants responded as 'Yes' and 42.2% as 'No'. The size of those said yes greater than those said no. This reveals that more than half of the school principals have experience of providing leadership training to school teachers, department heads and other stakeholders. However, a considerable number of school principals do not have such experience which may imply that these leaders may not be professionals in educational leadership. In addition, we can also see the following pie chart for more understandings on the availability of other training capacities.

FREQUENCY OF LEADERSHIP AND POLICY TRAINING PROVISION TO SCHOOL TEACHERS, DEPARTMENT HEADS AND OTHER STAKEHOLDERS

FIGURE 5: DEGREE OF LEADERSHIP AND POLICY TRAINING PROVISION TO SCHOOL TEACHERS, DEPARTMENT HEADS AND OTHER STAKEHOLDERS

Degree of leadership and policy training provision to school teachers, department heads and other stakeholders

PROBABILITY OF BEING ADDICTED BY CHAT CHEWING AND SMOKING NICOTINE

TABLE 9: PRINCIPAL'S DEGREE OF EXPOSURE TO CHAT CHEWING, ALCOHOLIC DRINK, SMOKING CIGARETTES AND SEXUAL HARASSMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	71	78.9	78.9	78.9
	yes	19	21.1	21.1	100.0
	Total	90	100.0	100.0	

Here in the above frequency table, we can see that 78.9% of the respondents said 'No' and 21.1 % said 'Yes'. The percentage of those said 'No' is more than three folds greater than those said 'Yes'. This reflects that size of principals exposed to bad addictions such as chat chewing, alcoholic drink, smoking cigarette, and sexual harassment in general is very less in preparatory secondary schools as compared to some (21.1%) school principals being exposed to the addictions.

Therefore, we can say that most of the school leaders found in the sample schools are free from bad addictions. However, there are school principals who are exposed to these addictions and assigned as school leaders/principals. So we can guess that how much these principals are truly and properly leading these public pre-college/University schools as far as bad addiction if prohibited by the law of academic leadership.

For more clarification, we can also look at the figure 6 and estimate especially the number of school principals exposed to bad addictions in view of the percentage of teacher respondents who replied as Yes as shown in the bar graph.

FIGURE 6: PREPARATORY SCHOOL PRINCIPALS' PROBABILITY OF BEING EXPOSED TO BAD ADDICTIONS; CHAT CHEWING, ALCOHOLIC DRINK, SMOKING CIGARETTES AND SEXUAL HARASSMENT
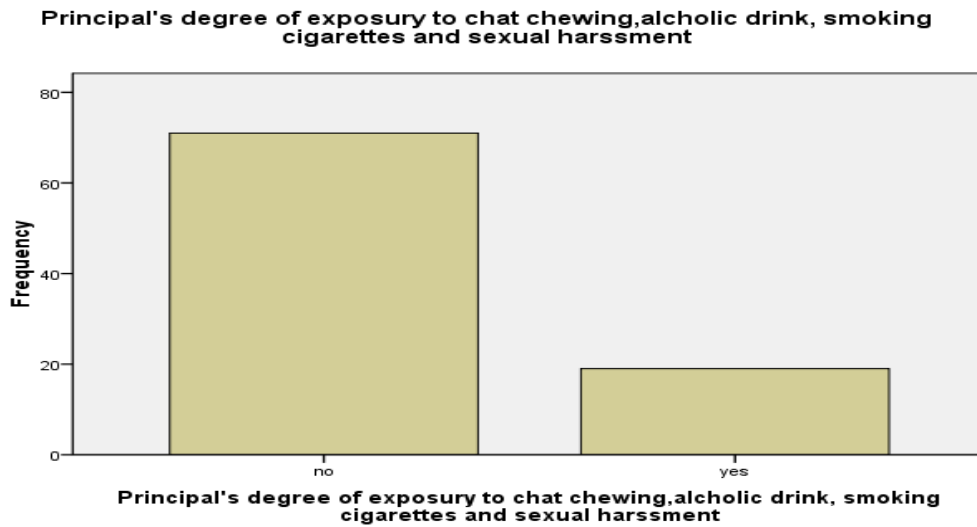
**PRINCIPAL'S DEGREE OF DECISION MAKING PROCESS BASED ON SCHOOL'S LEADERSHIP POLICY**

TABLE 10: PRINCIPAL'S DEGREE OF DECISION MAKING PROCESS BASED ON SCHOOL'S LEADERSHIP POLICY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	22	24.4	25.0	25.0
	yes	66	73.3	75.0	100.0
	Total	88	97.8	100.0	
Missing	System	2	2.2		
Total		90	100.0		

As shown in the above Table 10, the size of participants who did reply 'Yes' is 75% and 'No' is 25%. The percentage of those who said 'Yes' is three times greater than those who replied as 'No'. This percentage difference of the respondents tells us that more than half of the school principals make leadership decisions based on their schools leadership policy. This means that they read school leadership policy when they need just in order to make their decision as rational as possible basing their school contexts. However, from the teacher respondents' figure we can deduce that some of the school principals do make decisions without using their school leadership policy so that as school principals they are suspected that they are practicing their leadership role without any school leadership guidelines but they are assigned and trying to lead the school. Hence, as school teachers or educators it is foolish to desire rational decision making process and school leadership system from such school principals.

To illustrate it more, we can also refer figure 7 shown below.

FIGURE 7: PERCENTAGE OF RESPONDENTS WHO SUGGESTED ON PRINCIPALS' CAPACITY OF DECISION MAKING PROCESS BASED ON SCHOOL'S LEADERSHIP POLICY
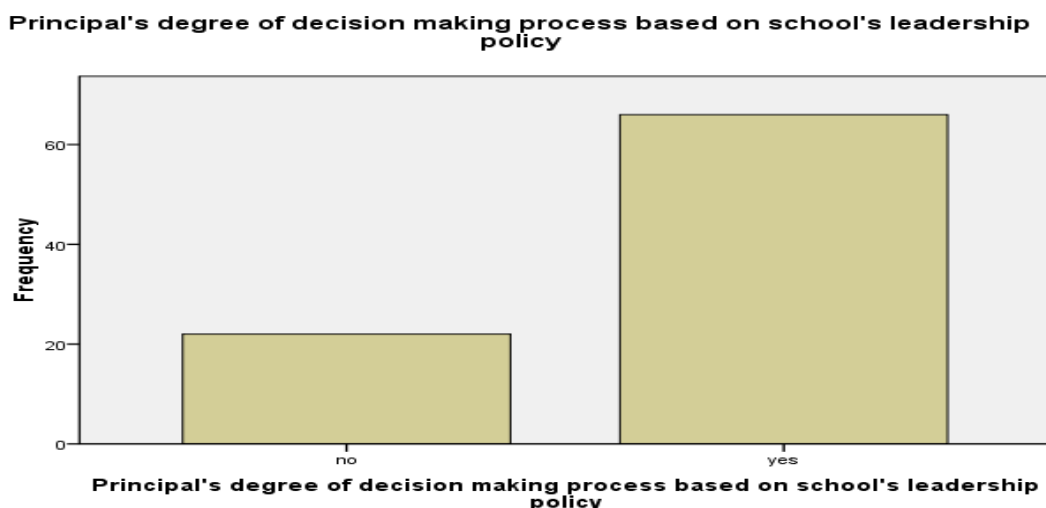
**STYLE OF LEADERSHIP BEING EXERCISED BY THE SCHOOL DIRECTOR**

TABLE 11: SCHOOL PRINCIPALS' LEADERSHIP STYLE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Democratic leadership style	51	56.7	56.7	56.7
	Autocratic leadership style	30	33.3	33.3	90.0
	Laissez-faire leadership style	9	10.0	10.0	100.0
	Total	90	100.0	100.0	

As reflected in the above table, the percentage of the research participants who answered as democratic leadership style is 56.7%, Autocratic leadership style is 33.3% and Laissez-faire leadership style is 10 %. The size of the respondents replied to the first variable is higher than the second variable and the highest of the third one. Here from the teacher respondents' figure shown in the table, we can infer that more than half of school principals use democratic leadership style, a considerable number other school directors employ autocratic leadership style and those schools which are being led using laissez-faire leadership style are very less in number. Generally, from the finding we can observe that preparatory school directors have been using various school leadership styles though most of them employ democratic leadership and autocratic leadership styles.

For more, understandings we shall view the bar graph shown below at figure 8.

FIGURE 8: FREQUENCY OF SCHOOL TEACHERS' RESPONSES ON SCHOOL PRINCIPALS' LEADERSHIP STYLE SEEN AT THEIR SCHOOL

School principal's leadership style
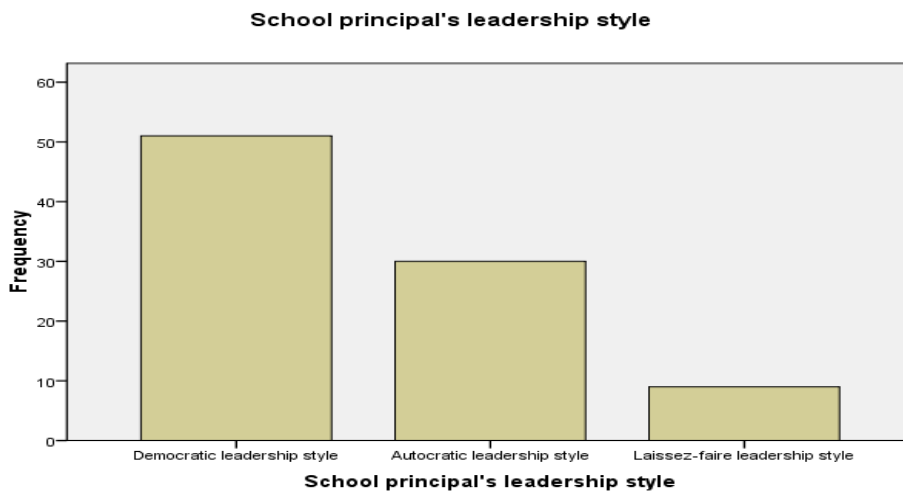
ATTITUDES OF SCHOOL TEACHERS TOWARD THE LINK BETWEEN QUALITY SCHOOL LEADERSHIP SYSTEM AND QUALITY EDUCATION

TABLE 12: STRONG EDUCATIONAL LEADERSHIP SYSTEM BRINGS WITH QUALITY EDUCATION SYSTEM FOR A SCHOOL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	11	12.2	13.6	13.6
	yes	70	77.8	86.4	100.0
	Total	81	90.0	100.0	
Missing	System	9	10.0		
Total		90	100.0		

When we refer to the above Table 12, 13.6% of the respondents said 'No' and 86.4% said 'Yes'. Those said 'No' are by far less than those said 'Yes'. This can reflect that most of the school teachers believe in the link between quality school leadership system and Quality Education. Hence, from such experiences we can say and conclude that there is a relationship between educational leadership and quality education of one's school. For more clarity, see figure 9.

FIGURE 9: DISPLAY ON THE RELATIONSHIP BETWEEN STRONG EDUCATIONAL LEADERSHIP SYSTEM AND QUALITY EDUCATION PRACTICE FOR A SCHOOL

Strong Educational leadership system brings with quality education system for a school

WHICH ONE IS BEST FOR THE EXISTENCE OF QUALITY SCHOOL LEADERSHIP SYSTEM?

TABLE 13: WHICH LEADERSHIP STYLE IS EFFECTIVE FOR THE PRESENCE OF QUALITY EDUCATION IN YOUR SCHOOL?
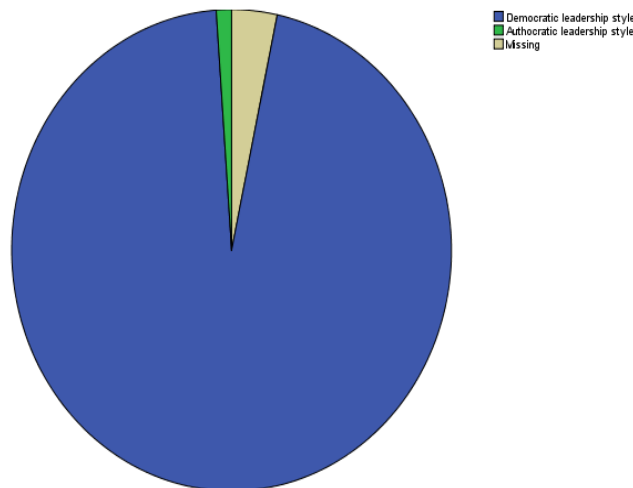
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Democratic leadership style	86	95.6	98.9	98.9
	Autocratic leadership style	1	1.1	1.1	100.0
	Total	87	96.7	100.0	
Missing	System	3	3.3		
Total		90	100.0		

The table shown above depicts that among the teacher respondents found in the sample preparatory secondary schools, 98.9% of the them favor as democratic leadership style, 1.1% of them favor autocratic leadership style and none of them favor laissez-faire leadership style for the presence of quality education system in their schools. The percentage of those who favor democratic leadership style is the highest one so that all school teachers, from their teaching learning experiences; has put strong belief on the practice of democratic leadership style in order to have quality education system for their own school. Therefore, we can deduce that even in order to audit, enhance and assure quality education in preparatory secondary schools, democratic leadership style is very mandatory. Briefly, we can simply say that democratic leadership practice can be a true prerequisite to quality education system for a particular preparatory secondary school.

In order to observe pictorially the percentage of respondents-school teachers, we can look at the figure shown below.

FIGURE 10: PERCENTAGE OF RESPONDENTS' BELIEF ON THE NECESSITY OF DEMOCRATIC LEADERSHIP STYLE FOR   THE EXISTENCE OF QUALITY EDUCATION

FINDINGS
- The overall findings of the study based on the discussed results and discovered so far are set as follows.
- The majority of the preparatory schools' principals are being led by professionals in leadership. However, a considerable number of schools are being led by non-professionals though they are subject specialist in various field of study.
- Most school principals have been elected based on their political outlook set as a criterion by the Woreda Education officers instead of elected by professional merit and acceptance by the teachers unless their political outlook matches with their professional merit as a fortunate. However, it has been learnt that the government has begun to assign school principals based on professional merits especially school leadership appointment based on field studies, in particular qualified in Educational Planning and Management.
- Most of the school directors are not selected with their higher professional acceptance by the teachers, but after their appointment their acceptance increases.This is may be due to their effective leadership practices observed practically by the community memebers.Otherwise, there is no another means of social acceptance with out the reflection of this positive/effective leadership system.
- Principals' general approach daily shown to school teachers during their work process is vital for effective school leadership system.
- Half of the school principals among the selected schools lean to teacher punishment. However, half of other school principals do not incline to teacher punishment. This states that there are school principals who do not take punishment as a corrective measure during the process of school leadership. Rather, they may use another corrective mechanism.
- More than half of the school principals have experience of providing leadership training to school teachers, department heads and other stakeholders. However, a considerable number of them do not have such experience which may in turn imply that these school leaders may not be professionals in school leadership.
- Most of the school leaders found in the sample schools are free from bad addictions. However, there are school principals who are exposed to these addictions and assigned as school leaders/principals. So we can guess that how much these principals may truly and properly leading these public pre-college/pre-university schools against the academic law that prohibits addiction during leadership practice.
- School principals read school leadership policy when they need to make their decision as rational as possible basing their school contexts. However, some of the school principals practice their leadership role without any school leadership guidelines but they are assigned and trying to lead the school.
- Preparatory school directors have various school leadership styles though most of them employ democratic and autocratic leadership styles.
- Most of the school teachers believe in the link between quality school leadership system and Quality Education, and hence from such experience it is possible to conclude that there is a relationship between educational leadership and quality education of one's school.
- In order to audit, enhance and assure quality education at preparatory secondary schools, democratic leadership style is very mandatory. Briefly, as it has been revealed throughout the study; democratic leadership practice can be a true prerequisite to quality education system for a particular preparatory secondary school.

RECOMMENDATIONS/SUGGESTIONS

1. Professional school directors/principals in the field have to be   assigned as school principals if we need to bring with quality school leadership practice with quality education system.
2. The government must assign school principals, or other academic leaders considering at least the following majors which must collocate /go together:
   a. Professionals in the field
   b. With good charismatic nature, i.e. naturally gifted in effective leadership.
   c. Successful political outlook if it is too compulsory.
3. Fortunately and /or unless their political outlook matches with their professional merit, hoping *quality academic leadership* for any school system cannot be beyond a dream as far as *quality education* must be achieved.

CONCLUSIONS

From the whole sprit of the findings seen, it has been concluded as follows:

1. There are assigned preparatory school principals who are not professionals in the field, i.e. in Educational planning and management or, Educational leadership and policy. Meaning   a number of schools have been led by non-professionals.
2. Principals/directors currently working in most schools did not have genuine acceptance by their school teachers during they are voted.
3. Most school principals have been elected based on their political outlook set as a criterion by the Woreda Education officers instead of election by professional merit and acceptance by the school teachers. However, the government has begun to assign school principals based on professional merits especially school leadership appointment based on field study regardless of their size.
4. There are some effective school leaders, or principals who are exercising effective leadership style though they are not professionals in the field.
5. Principals' helpful interpersonal communication skills daily shown to school teachers are very important to manage and lead the school successfully as an academic organization.
6. There are the so called school principals who do not have professional ethics for the school community during exercising the school's leadership and/or administration system.
7. Nearly half of the school principals studied utilizes punishment as a mechanism of solving school leadership   challenges
8. Almost half school leaders do have the capacity of giving leadership training to school teachers though almost half of them also do not have, but assigned as school principals.
9. There are some school directors/principals who are addicted to bad addictions such as chat chewing, smoking cigarette, and sexual harassment so that their leadership system is very poor. Democratic leadership style is best, or most preferable   to other leadership styles so as to bring with quality education system for ones school.
10. There are some school principals who are making decisions on school issues without employing their school leadership policy. Hence, as school teachers or educators it is foolish to desire rational decision making process and school leadership system from such school principals.
11. Preparatory school directors have been using various school leadership styles though most of them employ democratic leadership and autocratic leadership styles.
12. The number of school principals, who influence negatively, the school teachers behind the name of their leadership power found in their hand; is not very less.

LIMITATIONS

The study did seriously encounter time constraint and budgetary problems due to the fact that the researcher was in a position to travel throughout the study areas within a year time.

SCOPE FOR FURTHER RESEARCH

The study is particularly concerned with research on the contribution of the existing school educational leadership system in order to practice quality education in preparatory secondary schools found in North and South Gondar Administrative Zones. Currently, these schools have been trying their best to keep quality education to their first come customers; students. To be more clear, from the different necessities of these preparatory schools as education institutions; this study focuses on their events of educational leadership practices being exercised to achieve quality education in the system there by to secure quality teaching learning process. Further study should also stand up on and start from this scope broader than ever.

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A SKETCH OF IMPERATIVE ELEMENTS THAT AID IN STAFFING PROCESS OF HRM

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ABSTRACT
This article tells about the role played by all the essential contents in stages of staffing. The term staffing is used in the orb of employment. It has been in applied in many forms of the working environment. This article will focus on all the vitalities in staffing process and will also tell about need to bring some changes in staffing process to match today's globalization needs and changing trends. Staffing function is an important tool in any field because as long as the organization exists, employees need to be hired. Every slight switch in employees from top level to lower level of management will require human resource planning to fill the vacant positions.

KEYWORDS
Sketch, Staffing, Human Resource Management, Recruitment & Selection.

INTRODUCTION

Every Organization is comprised of people. Organization needs employees to have a smooth flow in activities which would aid the HR managers in choosing right kind of candidates for right job. Staffing is all pervasive. It exists in not only profit but also in non-profit organization. Staff is a group of persons, as employees, charged with carrying out the work of an establishment or executing some undertaking, a group of assistants to a manager, superintendent, Subordinates, or executives. Right from top level management to lower level of management staffing is required. It can help in staving right from CEO to foremen or workmen.

DEFINITION
According to Harold Koontz "Staffing means filling and keeping filled, positions in the organization structure."

METHODOLOGY
Methodology used for writing this article is purely of secondary nature. I have made use of reference from books, Government census , Previous research articles ,Official statistics, Mass media products, Diaries Letters, Government reports ,Web information, Historical data and information.

RECENT REPORTS WHICH TELLS US 'WHICH IS BETTER PERMANENT STAFFING OR TEMPORARY' STAFFING
Broadly speaking there are two main types of hiring – permanent and temporary staffing. Temporary staffing is usually to fulfill the organizations short-term requirements or to complete specific needs that may not be part of the core business operations, whereas permanent staffing is generally with the intent to retain the employee for a longer period of time and focused on critical business functions. It is important for an organization to understand the type of staff it requires, in light of its business needs and goals.

The staffing industry continues to enjoy growth, as the number of temporary workers reached an all-time high this year. At this time last year, staffing companies were enjoying a high demand for temporary labor and a record-high number of temporary jobs in the total workforce. Those trends have continued for the industry this year and should be on the same path for the foreseeable future.

High growth trends for the staffing industry started in the late 2000s as companies wearied by the Great Recession sought ways to balance increasing product demand with uncertainty about the stability of their workforces. Although the recession is over, the increased use of temporary labor remains.

"Following the recession, we've seen tremendous change in the industry, and the progression has accelerated in the last year. Employers are more strategic with their workforce planning," wrote Jorge Perez, senior vice president of staffing company ManpowerGroup in North America, in an email. "Employers are finding the right mix of contingent and permanent and part- and full-time employees to drive their businesses forward most efficiently while harnessing as much productivity as possible."

One explanation for the increased use of temporary labor is that many organizations are looking for more flexible workforces, said Paul McDonald, senior executive director for staffing firm Robert Half International. Temporary workers can lighten the burden placed on full-time staff by high demand for a product or service, reducing burnout and high turnover rates. On the other hand, a flexible workforce can ease an employer's payroll costs if demand decreases.

In other reports based on surveys conducted in India tells about IBM & other corporates.IBM is the biggest spender on IT contract workforce hiring in India, and the spend is almost double that of the next biggest spenders. The New York-based technology company spends over $150 million annually to hire contract IT staff, which as per estimates translates to more than 15% of its overall workforce.

Accenture, Microsoft and Cisco spend over $80 million each on maintaining a vast pool of contract workforce, while Cognizant, Oracle and HCL Technologies shell out over $50 million each to augment their IT staff with contract resources that work as an extended IT team.

Most of the organizations go for mixed staffing i.e Permanent staffing & Temporary staffing. Permanent employees are regular employees or the directly employed work for an employer and are paid directly by that employer. In addition to their wages, they often receive benefits like subsidized health care, paid vacations, holidays, sick time, or contributions to a retirement plan. But at times it has been seen specially with most of the bureaucrats, they are lazy, not enthusiastic at work, not punctual and are procrastinators when they are under employment. They are not worried because they have job security and a very strong union.

On the other hand, temporary employees can be grouped under contractual labour, seasonal, interim, casual staff, freelance etc. Temporary workers may work full-time or part-time, depending on the individual case. In some instances, temporary workers receive benefits (such as health insurance), but usually benefits are only given to permanent employees. Not all temporary employees find jobs through a temporary employment agency. For example, a person can simply apply at a local park for seasonal jobs. In 2008 there were a total of 13,722 temp agencies and staffing services in the United States with revenue of over $7.4 million per firm.

Figuratively, Temporary or contractual staffing is a short term based assignment, for which a talent is hired. This kind of a hiring diminishes the liability of an organization, as these assignment may not include all the benefits which the organization may offer its full time employees. More importantly, since these staffing are for a shorter duration these are primarily outsourced on a vendor payroll. This makes the transition of the talent post assignment hassle free to the organization.

FOLLOWING CHART INDICATES TRENDS IN TEMPS

FIG. 1
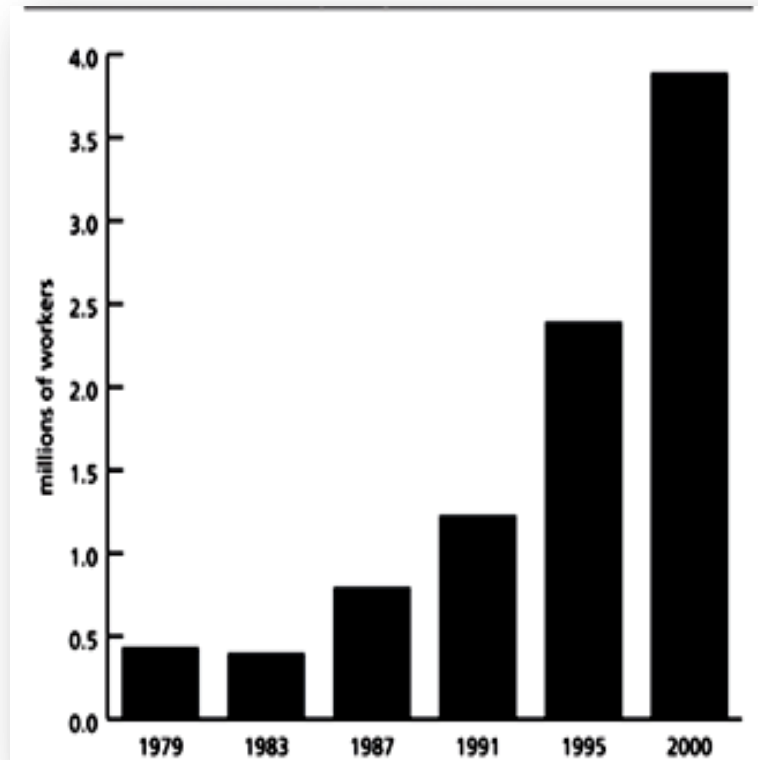
Trends in Temporary Work (US): source: D. H. Autor, Outsourcing at Will: The Contribution of Dismissal Doctrine to the Growth of Employment Outsourcing.
Over the past 3 decades, the U.S. Temporary Help Services (THS) industry grew five times more rapidly than overall employment. Contemporaneously, courts in 46 states adopted exceptions to the common law doctrine of employment at will that limited employers' discretion to terminate workers and opened them to litigation. This article assesses the contribution of "unjust dismissal" doctrine to THS employment specifically, and outsourcing more generally, finding that it is substantial—explaining 20% of the growth of THS between 1973 and 1995 and contributing 500,000 additional outsourced workers in 2000. States with smaller declines in unionization also saw substantially more THS growth.

ELEMENTS OF STAFFING IN HRM
It namely includes Recruitment, Selection, Training and Development, Motivation, Transfers, Promotion, Performance appraisals, Career development etc.
Following chart indicates what a staffing process is:

FIG. 2

Recruitment: It is a process of searching candidates for job and telling them to apply for the job. Recruitment can be advertised. There can be two forms in recruitments viz. Internal recruitment and External recruitment. Internal sources includes promotion of employees, Internal ads, Retirees, Transfers, etc. External recruitment includes taking help of Consultants, Giving advertisements in electronic and print media, Conducting campus interviews etc.
Selection & Introduction: It is a process of choosing right candidate for right job. Selection is done by using the traditional method of conducting interviews. When a candidate fits in all the brackets as per requirements, he/she is selected. Based on this the new employees in introduced in the organization which is called as Induction process, where a candidate is made familiar with the surrounding and subordinates where he is going to work.
Training and Development: Training is the process of planned programs and procedures undertaken for the improvement of employee's performance in terms of his attitude, skills, knowledge and behavior. These training and development programs can significantly improve the overall performance of organization. It is

a function of human resource management concerned with organizational activity aimed at bettering the performance of individuals and groups in organizational settings.

Performance and reward management: It is a session conducted by most of the companies to ensure that goals are consistently being met in an effective and efficient manner. Performance management can focus on the performance of an organization, a department, employee, or even the processes to build a product or service, as well as many other areas. It tells about employee's strengths and weaknesses. It helps to give a clear picture of employee's positive and negative highlights of their work. Based on ratings good employee's get promoted and vise-versa. Traditional and modern methods are used for PA. It includes Check List, Confidential reports, Critical Incident Method ,Ranking Method , BARS , HRA , MBO ,360 degree Appraisal etc. At times monetary and non-monetary awards are given to employee's who scored good in this session. Monetary includes rewards, Bonus etc. Non-monetary includes Gifts, Certificates or Merchandise etc.

Promotion: It is Vertical movement of an employee. Promotion will have change in level of employees from lower level to upper level of management. With promotion an employee's package may also expand as he employee may not working for same work again. As it is wisely said 'With great powers, Comes great Responsibility'. The level of difficulty of work and responsibility also increases.

Transfers: It is a horizontal movement of an Employee. It is not termed as severe punishment in HRM but it can also help in career development of employees.

Succession and Career Planning: Succession planning is a process for identifying and developing internal people with the potential to fill key business leadership positions in the company. Succession planning increases the availability of experienced and capable employees that are prepared to assume these roles as they become available. A very recent example was Ratan N Tata, Chairman of Tata Sons, said: "The appointment of Cyrus P Mistry as Deputy Chairman of Tata Sons is a good and far-sighted choice". He was replaced as TATA's successor when Ratan N Tata got retired in dec 2012.

Labor Relations: Labor relation is the study and practice of managing unionized employment situations. Labour relations is frequently a sub-area within human resource management. Courses in labor relations typically cover labor history, labor law, union organizing, bargaining, contract administration, and important contemporary topics. In HRM there should be good relations between Employer and Employees, Employer and Government. Good relations between all the parties must be maintained and enhanced throughout the existence of the organization.

SOME RECRUITING TRENDS, PROBLEMS AND OPPORTUNITIES FOR EMPLOYERS IN FUTURE

A focus on becoming a serial innovation firm increases the need for recruiting innovators — the wild economic success of serial innovation driven firms like Apple, Google, and FB have demonstrated to executives the high economic impact of hiring, retaining, and managing innovators. The renewed expectation for rapid corporate growth means that more innovators must be recruited. That simply can't happen unless current recruiting systems are redesigned so that they can now effectively recruit and hire these hard-to-land innovators.

Recruiting finally adopts the practice of monetizing its business impacts — even though it has long been a standard business practice, recruiting is finally beginning to move away from its long-held attempt to "align with business goals" and instead focus on having a direct impact on business goals. Because revenue is one of the prime corporate goals, by quantifying the revenue impacts of great compared to average and weak hires, recruiting can now convincingly demonstrate its "highest of all talent function business impacts" to executives. Demonstrating the direct connection between recruiting results and improved business results will eventually supplant quality of hire as the most important recruiting measurement. By monetizing its revenue impacts, recruiting can make a continuous business case, which will provide it with the necessary funding to meet this latest hiring surge.

Accepting social media profiles in lieu of resumes opens the door to many passives — the unabated corporate goal of targeting and recruiting those top prospects who are not in job search mode cannot be met if an up-to-date resume is required. That is because these individuals often resist applying for a job simply because they don't have the time to update their resume. Although there are still legal and administrative hurdles, more and more firms are learning that accepting a social media profile alone (usually a LinkedIn profile) is more than adequate at least initially to begin the hiring process.

A data-driven approach to operations continues to be the benchmark standard — even though most business functions have long ago shifted to data-driven decision making, the practice is strikingly unusual within recruiting. Google continues to separate itself from every other firm in its comprehensive data-driven approach to recruiting and its use of predictive metrics. Its recent data-driven research on the ineffectiveness of many traditional recruiting tools can only be classified as groundbreaking.

The mobile platform continues to be a critical tool — even though last year was "the year of the mobile platform," the impact of this platform in recruiting will continue to expand and grow. The emergence of the technical capability that allows the direct "instant" application for jobs from mobile phones will soon become main stream. A multitude of startups will continue their development of a variety of recruiting-focused mobile phone apps.

Remote work continues to expand the talent pool — the growth of technology and the willingness of managers to accept remote work positions will continue to dramatically expand the number of available recruits for those remote work jobs. This shift to remote work will also force recruiting to increase its capability to find and land candidates around the globe.

Live video interviewing steadily grows in acceptance — live video interviews has now proven its effectiveness, so its use will continue to expand until it becomes the standard practice, at least for initial interviews.

On-line candidate assessment continues toward the mainstream — as online technical knowledge and skill assessment options become cheaper and more effective, they will continue their growth until they become mainstream. Their impact is high because they reduce unnecessary interviews and they can dramatically improve the quality of hire.

Accelerated internal movement is still needed — continued uneven growth in business units will mean that there will be a much greater need for the rapid movement of current employees into new areas where they can have a higher impact. The most effective solutions have involved either using corporate recruiters to proactively move underused employees or encouraging employee referrals to quickly identify a wider range of talent for internal openings.

CONCLUSION

With the help of all elements of Staffing, the staffing process is more meaningful. Today's managers should try to grasp the new insights of globalization and grab the opportunities where he/she can get competent manpower and where they can prosper. If proper training provided to staff, employees can work better. Good incentives can help to retain employees which would reduce employee turnover and absenteeism. Industry experts agree that enhanced economic conditions have led to a more competitive environment for talent. With a scarcity of jobs during the recession and the years closely following, employers held the upper hand in employment situations, even for workers with specialized skill sets such as information technology and health care. As the economy continues to improve, though, those with specialized skill sets are increasingly at an advantage and have more control over their professional lives. The competition for the best workers among organizations is commonly referred to as the war for talent.

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POWER DYNAMICS IN THE INDIAN CORPORATE CORRIDORS: AN EMPIRICAL EVALUATION OF POWER STRUCTURE BETWEEN EMPLOYEE AND THEIR SUPERVISOR

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ABSTRACT

The present study which is on the power dynamics in the Indian corporate corridors conclude that, use of power bases is different in different industries and also across levels in an organization. Power shall be exercised which is most suitable for an organization, and which increases employee and organizational productivity.

KEYWORDS
Power dynamics, corporate corridors.

INTRODUCTION
ROLE OF POWER AND LEADERSHIP
Leadership is an inborn quality of an individual, which cannot be taught to an individual. There are many social and cultural characteristics that determine the qualities of a leader. From primitive age to modern age it is has been observed that leaders builds the bridge for our future pathways (J.B.P, 1995). In the Corporate world or in business, the leaders in varied position take challenges and accomplish their tasks, with unmatched performance and immense capability (Adhikari, 2010). Various styles of leadership such as the autocratic, the democratic or the lasses fair leadership comes into the focus of concentration, while discussing about leadership styles (Ansari, 1990). The above three styles of leadership might not always be an appropriate style of leadership in most organizations to achieve success and accomplish organizational objectives. According to (Adhikari, 2010) there is an absence of a balanced style of leadership. In the corporate world or business sectors, it assumes that the success factors are hidden within the style of leadership. According to (Saiyadain, 2003) the collegian model of management is considered an apt style of leadership for the success of the business in today's business world. The style of leadership is most critical to any business, because the most acceptable style of leadership is the one which encourages power sharing the most. Everybody can perform every piece work for the purpose of organizational benefit. It is a safe way to make an individual fit for all the business functions in an organization. So, basically it teaches fellow colleagues and subordinates to break the distance, and come out of their cocoon shell. So, in the corporate world the autocratic or democratic leadership are both not suitable for long-term success of a business. According to (Adhikari, 2010) power sharing in a decentralized manner is the most appropriate technique of leadership style in today's competitive and stressful business environment.

OBJECTIVES OF THE STUDY
- To identify the extent of reward power exercised by the Indian supervisor in the corporate sector i.e. the ability to mediate positive outcomes and avoid negative outcomes in their subordinates.
- The extent of cohesive power exercised by supervisors in the corporate sector i.e. the extent to which the subordinate believes that the supervisor will punish for not complying.
- The extent of referent power exercised by supervisors in the corporate sector i.e. the extent to which the subordinate will identify with their supervisor and their desire to maintain similarity with their supervisor.
- The extent of legitimate power exercised by supervisors in the corporate sector i.e. the extent to which the subordinates believe that his supervisor has the right to influence his actions and he himself is obligated to obey.
- The extent of expert power exercised by supervisors in the corporate sector i.e. the extent to which the subordinate believes that his supervisor has superior skills and knowledge.
- The extent of informational power exercised by supervisors in the corporate sector i.e. the importance of extent of communication provided by the supervisor in directing action.
- Type of supervisory power best accepted by subordinates.

LITERATURE REVIEW
WHAT IS POWER
In social science and politics, power is the ability to influence the behavior of people. Power, is the "probability that one individual within a social relationship will be in a position to carry out his own will despite resistance" (Max, 1947), "the ability to get things done despite the will and resistance of others or the ability to 'win' political fights and outmaneuver the opposition" (Fred, 2005) "a political ability to influence behavior, to change the course of events, to overcome resistance, and to get people to do things, that they would not otherwise do" (Fred, 2005). In the Corporate world, power is often expressed as upward or downward. With downward power, a company's superior influences subordinate's. When a company exerts upward power, it is the subordinates to influences the decisions of the leader.

POWER THEORIES
Social Psychologists John R.P. French and Bertram Raven argue that there are five significant categories of power in their Classic study "The bases of social power" (1959) (Raven, 1959).

1) **Reward Power** – Reward power refers to the degree to which an individual can give others a reward of some kind such as benefits, time-offs, desired gifts, promotions or increase in pay or responsibility. The problem with this type of power is that managers may not have complete control over salary increases, and other benefits, and often cannot control promotions all by themselves. Even a CEO needs permission from the board of directors for some actions to be taken. So when you use up available rewards or the rewards that do not have enough perceived value to others, your power weakens. One of the negatives of using reward power is that they always need to be bigger each time, if they are to have the same motivational impact. Also, if rewards are given frequently to people, chances are that it might lose its effectiveness. (Raven, 1959)

2) **Coercive power** – Coercive power is the use of negative influences. It means the ability to withhold other's rewards. Sometimes subordinates obey their seniors out of compulsion, since they fear that their rewards might be withheld with their supervisor. Coercive power is known to be the most common type of power exercised by managers, but unfortunately it is the least effective form of power as it builds resentment and resistance among the people who face it. Threatening and punishment are the most common tools of coercion. Punishing or threatening that you will be fired or demoted or denied privileges or given an undesirable assignment are examples of using coercive power. Excessive use of coercive power is rarely appropriate in an organizational setting, and relying only on this type of power, will result in a very cold, impoverished style of leadership. (Raven, 1959)

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3) **Referent Power** - Referent power is the power or ability of individuals to attract people and build loyalty. It is based on the qualities and skills of the leader. A person may be admired because of some specific personal attributes or traits, which influences others. Here the person under power desires to familiarize with these personal qualities of the power holder, and gains immense satisfaction from being an accepted follower. For an example, advertisers use referent power of sports figures for product advertisements. The charismatic appeal of the sports star supposedly leads to an acceptance of the brand as such. Referent power is not enough alone for a leader who wants longevity and respect. When combined with other kinds of power, it can help you achieve great success. (Raven, 1959)

4) **Legitimate Power** - It is the power of an individual because of the relative position and duties of the holder within an organization. "Legitimate power is formal authority delegated to the holder of the position" (Raven, 1959). It is also called as 'Positional Power'. (Raven, 1959)

5) **Expert Power** – Expert power is an individual's power deriving from the expertise of the person within an organization. When you have knowledge and skills in a particular field, people look up-to to you for suggestions and expertise. They seek your guidance and trust and respect you. (Raven, 1959)

6) **Informational Power** – Informational power stems from the logic, reasoning, thinking and analytics capabilities of the power holder, who influences his subordinates to seek guidance and information from him. (Raven, 1959)

POWER AND BUSINESS

India is an emerging nation and has been experiencing fast growth in its varied business sectors in the past decade. The Superior-subordinate relationship has been a long time focus of discussion and investigation. In this age of such intense inter-company and intra-company rivalry, dynamics of such a relationship can make or break an organization. (Afza, 2003-2005). Intense competition is on the rise in a fast emerging industrialized country like India (Raman, 2000). How to manage the superior-subordinate relationship to serve an organization's long-term objectives is a debatable question. However, all agree that somehow the relationship has to be managed to provide superior performance and productivity. "Power is the core of the superior-subordinate relationship". "Several classifications of the supervisory power have been presented by researchers over a period of time" (Afza, 2003-2005). The 'Bases of social power' by French and Raven (1959) which are coercive, reward, legitimate, expert and referent are significantly representative as well as well accepted by other researchers (AT, 1980) (Shukla, 1982). In this fast-paced environment, leadership and power have become the central behavioral concerns. French and Raven's (1959) 'five bases of social power' have been used to examine the relationship between different types of power that a supervisor uses and the subordinates work-related behavior such as organizational commitment, attitudinal and behavioral compliances, motivational level, etc. (Afza, 2003-2005).

POWER AND INDIAN CORPORATE SECTOR

'Survival of the fittest' is becoming an issue of utmost priority, since it is very clear to everyone that a typical formal organization involves lot of politics, power and rivalry, and is very difficult to survive. Power and politics are very closely related to each other and determine the power dynamics between the supervisor and his subordinate and its impact on the subordinate's performance. Internal politics, power struggle, manipulation, rivalry etc are very common in formal organizations. Power and politics are closely intertwined and influence the organizational goals and performance. "Organizational politics is caused by factors such as: criticality, scarcity, and introduction of new resources, ambiguity, complexity, technology, unplanned changes, turbulent environment, etc" (C, 2008). To have a healthy relationship between the supervisor and the subordinate, the organization must ensure that there is transparent communication, healthy work environment, mentoring, building team work, training, etc. This reduces the probability of power struggle, ambiguity, poor performance, high attrition rates, low productivity, absenteeism, etc. The performance of any formal organization ultimately depends on how its people channelize its competencies and exploit the technology and other resources available in the organization. Given the two characteristics of human errors (they are unintentional and it is difficult to detect one's own error), error prevention for quality performance requires a systematic management approach. "In the new competitive environment, zero-defect performance has become the new norm of working, which demands new behavior, new attitudes, new skill sets, new learning and problem solving systems" (Bhattacharya, Dec 2007). Such an organizational change would require people to work together and learn to solve organizational problems as a team (Bhattacharya, Dec 2007). Also, Kotter's work on leadership (P, 1999) provided some very useful guidance on how to handle leadership problems through more leading and less managing. Training, mentoring, coaching, counseling, improve team resource utilization, encourages free flow and exchange of ideas, improve team and inter-team communication, conflict management, etc are critical for employee performance and productivity (Bhattacharya, Dec 2007).

RESEARCH METHODOLOGY

INSTRUMENT DEVELOPMENT

In order to study the factors influencing power dynamics, a questionnaire was framed. The questionnaire had items for demographics and items relevant to analysis of power dynamics in the Indian corporate corridors. The items of the questionnaire were measured using a five point Likert scale, wherein the respondents indicate their degree of agreement or disagreement (Completely Disagree, Disagree, Neutral, Agree, and Completely Agree).

SAMPLE DESIGN

- Sampling Method – A questionnaire was prepared, in order to understand the power structure between employee and their supervisor in the Indian corporate sector.
- Sample size – 95 respondents (working professionals) have answered the questionnaire, giving their opinion of their supervisors in their respective organizations.
- Data Collection – Photocopies of the questionnaire were circulated to Executive MBA students, who are working professionals in varied industries.

STATISTICAL TOOLS

To analyze the data collected through the questionnaire, four statistical tools have been employed. Descriptives, One way Anova, Regression model and Frequencies.

RESULTS AND DISCUSSION
DESCRIPTIVE (LEVEL IN THE ORGANIZATION)

TABLE 1: DESCRIPTIVE

		N	Mean	Std. Deviation	Std. Error
Reward	Entry Level	15	3.0778	.70392	.18175
	Middle Level	41	3.2927	.67266	.10505
	Senior	20	3.1417	.70768	.15824
	Total	76	3.2105	.68495	.07857
Referent	Entry Level	15	2.6111	.94631	.24434
	Middle Level	41	2.7846	.89694	.14008
	Senior	20	3.1167	.60481	.13524
	Total	76	2.8377	.84939	.09743
Information	Entry Level	16	3.3958	.75247	.18812
	Middle Level	40	3.8833	2.18588	.34562
	Senior	19	3.3860	.76387	.17524
	Total	75	3.6533	1.68409	.19446
Coercion	Entry Level	15	2.7067	.85813	.22157
	Middle Level	38	2.9368	.82016	.13305
	Senior	20	3.0900	.62061	.13877
	Total	73	2.9315	.77976	.09126
Expertise	Entry Level	16	3.0469	.62562	.15641
	Middle Level	39	3.2724	.61430	.09837
	Senior	18	3.2569	.79228	.18674
	Total	73	3.2192	.66137	.07741
Legitimate	Entry Level	15	3.0889	.99576	.25710
	Middle Level	39	3.2906	.82426	.13199
	Senior	19	3.2105	.89035	.20426
	Total	73	3.2283	.86936	.10175

FINDINGS
- From the above table, we can see that for Reward power, the mean value is highest at the middle level of the organization, which reward power is more frequently used than other powers in the middle level management of an organization.
- Similarly, for referent power, Senior level has scored the highest in the mean value, which means referent is mostly used in senior positions of an organization.
- Similarly, for information power, the mean value is highest in the middle level management, which means information power is most used at the middle level.
- Coercion power has scored highest in Senior level management, which means it is used more frequently at senior level positions in organizations.
- Similarly, expertise power has a highest mean value at middle level management, which means it is most frequently used at middle level positions in organizations.
- And lastly, legitimate power has scored highest in middle level management, which means it is used most frequently at middle level management.

TABLE 2: ANOVA MODEL

ANOVA						
		N	mean	df	F	Sig.
Reward	Entry level	15	3.077	2	.672	.514
	Middle level	41	3.29			
	Senior level	20	3.14			
Referent	Entry level	15	2.611	2	1.725	.185
	Middle Level	41	2.784			
	Senior level	20	3.11			
Information	Entry level	16	3.39	2	.795	.455
	Middle level	40	3.88			
	Senior level	19	3.38			
Coercion	Entry level	15	2.70	2	1.039	.359
	Middle level	38	2.93			
	Senior level	20	3.09			
Expertise	Entry level	16	3.04	2	.693	.504
	Middle level	39	3.27			
	Senior level	18	3.25			
Legitimate	Entry level	15	3.088	2	.291	.748
	Middle level	39	3.290			
	Senior level	19	3.210			

H0: There is no significant difference in the kind of power used in different levels of the organization.

H1: There is a significant difference in the kind of power used in different levels of the organization.

Thus null hypothesis is accepted and H1 does not find support. (Sigma value > 0.05)

TABLE 3: DESCRIPTIVE (INDUSTRIES)

Descriptive		N	Mean	Std. Deviation	Std. Error
Reward	Retail	2	2.9167	1.29636	.91667
	Banking	4	3.4583	.99420	.49710
	IT	12	3.1389	.64680	.18672
	Health Care	1	3.1667	.	.
	Tourism & hospitality	1	3.0000	.	.
	Pharmaceuticals	3	3.3889	.19245	.11111
	Others	68	3.2721	.72500	.08792
	Total	91	3.2546	.70900	.07432
Referent	Retail	2	2.8333	.94281	.66667
	Banking	4	2.8333	.83887	.41944
	IT	12	2.8750	.85317	.24629
	Health Care	0	.	.	.
	Tourism & hospitality	1	1.6667	.	.
	Pharmaceuticals	3	3.2222	.53576	.30932
	Others	69	2.8599	.87710	.10559
	Total	91	2.8590	.85452	.08958
Information	Retail	2	2.8333	1.17851	.83333
	Banking	4	3.9167	.16667	.08333
	IT	12	3.6667	.71067	.20515
	Health Care	1	3.0000	.	.
	Tourism & hospitality	1	3.3333	.	.
	Pharmaceuticals	3	3.3333	1.45297	.83887
	Others	66	3.6364	1.77034	.21791
	Total	89	3.6142	1.57145	.16657
Coercion	Retail	2	2.7000	.42426	.30000
	Banking	4	3.2500	1.18181	.59090
	IT	11	2.8000	.68118	.20538
	Health Care	1	3.4000	.	.
	Tourism & hospitality	1	2.4000	.	.
	Pharmaceuticals	3	3.6667	.30551	.17638
	Others	67	3.1313	1.65751	.20250
	Total	89	3.0989	1.48297	.15719
Expertise	Retail	2	3.0625	.44194	.31250
	Banking	4	3.3438	.38696	.19348
	IT	11	3.4545	.51621	.15564
	Health Care	1	3.2500	.	.
	Tourism & hospitality	1	2.2500	.	.
	Pharmaceuticals	3	3.5417	.59073	.34106
	Others	66	3.2670	.72087	.08873
	Total	88	3.2869	.67385	.07183
Legitimate	Retail	2	2.6667	.94281	.66667
	Banking	4	3.9167	.16667	.08333
	IT	11	3.2727	.91674	.27641
	Health Care	1	3.6667	.	.
	Tourism & hospitality	1	2.0000	.	.
	Pharmaceuticals	2	4.3333	.47140	.33333
	Others	67	3.2587	.83449	.10195
	Total	88	3.2917	.84390	.08996

FINDINGS

- In regards to this, Banking has scored highest in use of reward power in its industry, mean value being 3.45.
- Pharmaceutical industry has scored highest in the use of referent power in its industry, mean value being 3.22

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- Banking industry has scored highest in use of information power, mean value 3.91
- Pharmaceutical industry has scored highest in the use of coercion power in its industry, mean value is 3.66
- Pharmaceutical industry has scored highest in the use of expertise power in its industry, mean value is 3.54
- Again, Pharmaceutical industry has scored highest in the use of legitimate power in its industry, mean value is 4.33

TABLE 4

ANOVA			N	Mean	df	F	Sig
Reward	Retail		2	2.91	6	.221	.969
	Banking		4	3.45			
	IT		12	3.13			
	Healthcare		1	3.16			
	Tourism & Hospitality		1	3.00			
	Pharmaceuticals		3	3.38			
	Others		68	3.27			
Referent	Retail		2	2.83	5	.485	.786
	Banking		4	2.83			
	IT		12	2.87			
	Healthcare		0				
	Tourism & Hospitality		1	1.66			
	Pharmaceuticals		3	3.22			
	Others		69	2.85			
Information	Retail		2	2.83	6	.149	.989
	Banking		4	3.91			
	IT		12	3.66			
	Healthcare		1	3.00			
	Tourism & Hospitality		1	3.33			
	Pharmaceuticals		3	3.33			
	Others		66	3.63			
Coercion	Retail		2	2.70	6	.216	.971
	Banking		4	3.25			
	IT		11	2.80			
	Healthcare		1	3.40			
	Tourism & Hospitality		1	2.40			
	Pharmaceuticals		3	3.66			
	Others		67	3.13			
Expertise	Retail		2	3.06	6	.615	.718
	Banking		4	3.34			
	IT		11	3.45			
	Healthcare		1	3.25			
	Tourism & Hospitality		1	2.25			
	Pharmaceuticals		3	3.54			
	Others		66	3.26			
Legitimate	Retail		2	2.66	6	1.555	.171
	Banking		4	3.91			
	IT		11	3.27			
	Healthcare		1	3.66			
	Tourism & Hospitality		1	2.00			
	Pharmaceuticals		2	4.33			
	Other		67	3.25			

H0: There is no significant difference in the kind of power used in different industries.
H1: There is a significant difference in the kind of power used in different industries
Thus null hypothesis is accepted since sigma value >0.05

REGRESSION MODEL

TABLE 5: MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694[a]	.482	.475	.73637
2	.714[b]	.510	.496	.72122
a. Predictors: (Constant), Expertise				
b. Predictors: (Constant), Expertise, Referent				

The higher the value of R square, the better is the regression line. If R square is 48.2%, which means 48% of the dependent variables have been explained by independent variables and the rest by other factors.

TABLE 6: CO-EFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.352	.416		-.846	.400
	Expertise	1.045	.124	.694	8.408	.000
2	(Constant)	-.487	.413		-1.179	.242
	Expertise	.887	.144	.589	6.160	.000
	Referent	.231	.113	.197	2.056	.043
a. Dependent Variable: Acceptance						

y = .231(referent)+.887(expertise)-.487

SAMPLE PROFILE

TABLE 7: AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<20	1	1.1	1.2	1.2
	20-40	83	87.4	96.5	97.7
	40-60	2	2.1	2.3	100.0
	Total	86	90.5	100.0	
Missing	System	9	9.5		
Total		95	100.0		

Frequency is highest in the age group of 20-40

TABLE 8: GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	60	63.2	69.0	69.0
	Female	27	28.4	31.0	100.0
	Total	87	91.6	100.0	
Missing	System	8	8.4		
Total		95	100.0		

Male respondents are more to have answered the questionnaire

TABLE 9: QUALIFICATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Graduation	64	67.4	77.1	77.1
	Post graduation	18	18.9	21.7	98.8
	Professional	1	1.1	1.2	100.0
	Total	83	87.4	100.0	
Missing	System	12	12.6		
Total		95	100.0		

Maximum respondents had graduation as their highest degree qualification

TABLE 10: REGION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North	13	13.7	17.3	17.3
	South	21	22.1	28.0	45.3
	East	8	8.4	10.7	56.0
	West	33	34.7	44.0	100.0
	Total	75	78.9	100.0	
Missing	System	20	21.1		
Total		95	100.0		

Maximum respondents are from the West region

TABLE 11: INDUSTRY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Retail	2	2.1	2.1	2.1
	Banking	4	4.2	4.2	6.3
	IT	12	12.6	12.6	18.9
	Health Care	1	1.1	1.1	20.0
	Tourism & hospitality	2	2.1	2.1	22.1
	Pharma	3	3.2	3.2	25.3
	Others	71	74.7	74.7	100.0
	Total	95	100.0	100.0	

Maximum respondents are from Other's industry

TABLE 12: LEVEL IN ORGANISATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Entry Level	16	16.8	20.3	20.3
	Middle Level	43	45.3	54.4	74.7
	Senior	20	21.1	25.3	100.0
	Total	79	83.2	100.0	
Missing	System	16	16.8		
Total		95	100.0		

Maximum respondents are working in mid-level positions in organizations.

DISCUSSION

The research indicates that there are five different power bases mainly used in organizations. Type of power exercised in an organization determines the performance of employee's, employee motivation and satisfaction, and overall success of the organization. Mentoring, coaching, free flow of information is important to have a healthy and good relationship between the superior and his subordinates.

RECOMMENDATIONS

As discussed above, mentoring, training, and coaching helps in building a good bond and understanding between a superior and his subordinate. Free flow of information is critical to avoid ambiguity and power struggle. Motivation and encouragement is also important to make the subordinate feel confident about himself, which in return increases his confidence, performance and productivity.

CONCLUSION

Thus we conclude that, use of power bases is different in different industries and also across levels in an organization. Power shall be exercised which is most suitable for an organization, and which increases employee and organizational productivity.

LIMITATIONS

The sample size was limited.

FUTURE SCOPE OF RESEARCH

The sample size can be increased to get more access to information, regarding power structure in Indian corporate sector. Also, more varied industries can be covered to get an understanding of the power dynamics prevailing in the Indian corporate sector.

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AN ANALYSIS OF THE RELATIONSHIP BETWEEN RUPEE-DOLLAR EXCHANGE RATE, CRUDE OIL PRICES AND THE GOLD RATE

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ABSTRACT

This study analyses the relationship between dollar exchange rate, gold and crude oil price. This paper proposes that gold price is likely to be a common driver of the two prices and therefore, the bilateral relationship is a part of a triangular system of gold price, dollar exchange rate and crude oil price. The results show that while in the short run gold price movement does not cause the movement of the dollar exchange rate and crude oil price, it is the causality between the two prices in the long run. Causality is also identified from dollar exchange rate to crude oil price in both short run and long run. But crude oil price is much less influential in its bilateral relationship with dollar exchange rate. As a result, a triangular system of gold price, dollar exchange rate and crude oil price is established. Dollar exchange rate not only has direct impacts on crude oil price, but also functions as an intermediary vehicle through which gold price movement indirectly affects crude oil price. However, the relationship between dollar exchange rate and crude oil price is unstable with multiple structural breaks over the sample period. This paper tries to establish a triangular system among dollar exchange rate, crude oil price, and gold price, hoping to fill the gap in past literature and present a new way to understand the connection between dollar exchange rate and crude oil price.

KEYWORDS
Rupee-Dollar exchange rate, crude oil prices.

INTRODUCTION

The value of one unit of a currency in term of other currency is crucial aspect of stability of the country's economy in current uncertain global financial condition. The global financial crisis has resulted in the demolition of giant financial institutions & banks, tightening the flow of capital into the market, with considerable effects on the real economy all over the world. The crisis has a direct impact on demand and supply of currencies, leads to fluctuation of exchange rate, INR/USD, across countries, a shock to one currency is spreading rapidly to the economy, thereby frightening the stability of the whole economy. The conditions which have been produced in the economy due to devaluation of INR against the USD reveals a close statistical relation on many sectors, during the time span of 8 years, April 2006 to April 2014. The exchange rate has been witnessed high levels of volatility from a low of 39.37 in January 2008 to 66.89 in Sep 2013 during the chosen period.

THEORY

Brief Market Movement Review U.S. dollar exchange rate and crude oil price are two of the most influential asset prices in today's world economy. The U.S. dollar is the major foreign reserve currency of almost all countries and the payment vehicle that facilitates a predominant proportion of international transactions. The changes of dollar exchange rate affect not only the values of global products, assets and wealth, but also the investment decisions of individuals, businesses and sovereign wealth funds. Crude oil, on the other hand, plays a role of key source of energy, indispensable supplier of various chemical raw materials, and increasingly important investment commodity. As a result, the crude oil price drives the price level of a variety of inputs and outputs in the economy, as well as inter-market and international capital flows. Because of the functions of dollar exchange rate and crude oil price in the global economy and their ever changing co-movement patterns, it is necessary to explore further their relationship and reveal the reasons behind the numbers and charts. A better understanding of the linkage between dollar exchange rate and crude oil price will be valuable for investors in commodity and foreign exchange markets to shape reasonable anticipations of market movements and for researchers to comprehend the dynamics of the two prices respectively.

FIG. 1
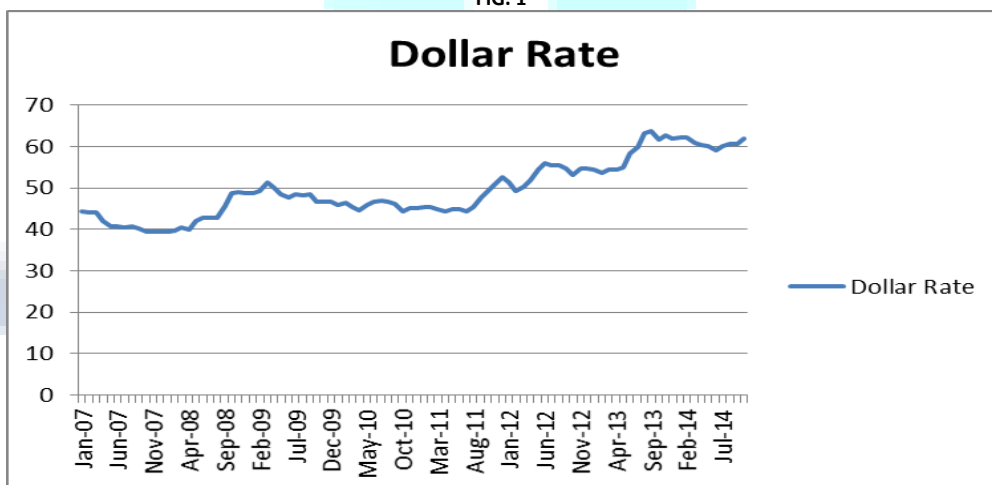
DETERMINANTS OF EXCHANGE RATES

Exchange rates are a significant indicator of the whole economy. Exchange rates, for instance, give information about the differences in economic activities among regions and are measured as significant economic barometers. Many factors determine exchange rates, and all are linked to the trading association between two or more countries. Remember, exchange rates are relative, and are expressed as an evaluation of the currencies of two countries. Some principal determinants of the exchange rate between two countries are following, these factors are not in a fixed order; like many aspects of economics, the comparative importance of these factors is much debate. Differentials in Interest Rates Interest rates and exchange rates are all highly correlated. By changing interest rates, central banks exert control over exchange rates, and changing interest rates directly impact currency values.

Higher interest rates pull foreign capital and result the exchange rate to rise. The reverse connection exists for decreasing interest rates - that is, lower interest rates cause decrease in exchange rates. During the last two decades, the countries with low inflation integrated Germany, Japan, and Switzerland, while Canada

and U.S.A achieved low inflation recently. The countries with the highest inflation normally sees depreciation in their currency in comparison to the currencies of other trading partner. This is also typically accompanied by upper interest rates. Public Debt Countries will engage in large-scale deficit financing to pay for public sector projects and governmental funding. While such activity stimulates the domestic economy, nations with large public deficits and debts are less attractive to foreign investors. A large debt encourages inflation, and if inflation is high, the debt will be serviced and ultimately paid off with cheaper real dollars in the future. In the worst case scenario, a government may print money to pay part of a large debt, but increasing the money supply inevitably causes inflation. Moreover, if a government is not able to service its deficit through domestic means (selling domestic bonds, increasing the money supply), then it must increase the supply of securities for sale to foreigners, thereby lowering their prices. Finally, a large debt may prove worrisome to foreigners if they believe the country risks defaulting on its obligations. Foreigners will be less willing to own securities denominated in that currency if the risk of default is great. For this reason, the country's debt rating (as determined by Moody's or Standard & Poor's, for example) is a crucial determinant of its exchange rate. Terms of Trade A ratio comparing export prices to import prices, the terms of trade are related to current accounts and the balance of payments. If the price of a country's export rises by a greater rate than that of its imports, its terms of trade have positively improved. Increasing trade shows greater claim for the country's exports. This results in raising revenues from exports, which provides enlarged demand for the country's currency which leads to increase in the currency's value. If the exports rises by a smaller rate than that of its imports, the currency's value will reduce in relation to its trading partners. Political Stability and Economic Performance Foreign investors inevitably seek out stable countries with strong economic performance in which to invest. A country with positive attributes will attract investment funds away from other countries supposed to have more economic and political risk. Political instability, for example, can reduce confidence and a movement of capital to the currencies of more stable countries. Speculators, Traders and Financial Instruments Past and expected values of the currency exchange rate itself may impact on current values of it. The foreign exchange traders, investors and speculator may turn out to be very relevant to the determination of the exchange rate in market. Financial instruments like F&O (future, Forward And option)may also play an vital role on the determination of exchange rates. A currency speculator, who expects the rate of a foreign currency to be higher in two months, may purchase the currency in the spot market at today's spot rate, hold it for two months, and then resell it in the spot market after two months. If he is right, he will earn a profit; otherwise, he will break even or get a loss. On the other hand, a speculator who expects the rate of a foreign currency to be lower in two months can borrow the foreign currency and exchange it for the domestic currency at today's spot rate. After two months, if the spot rate on the foreign currency is adequately lower, he can earn a profit by repurchasing the foreign currency (to repay the foreign exchange loan) at the lesser spot rate.

FIG. 2
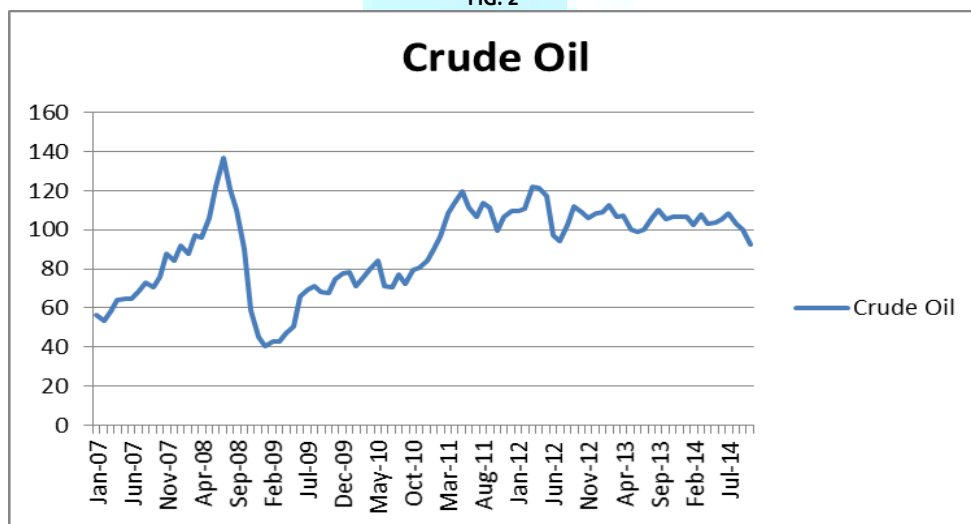
CRUDE OIL

Crude oil price is denominated by dollars in the world crude oil market. Most of the crude oil transactions are settled in dollars.

India is the fourth largest oil importer in the world. It imports in excess of 3 million barrels of petroleum per day. From the fiscal year 2005-2006 to 2010-2011, on average, the import of crude oil has been equivalent to about 40% of the country's total export. In the fiscal year, 2011-2012, it increased to over 53% of the total export, a staggering $160 billion in monetary value.

By providing crude oil, oil-exporting countries, especially the OPEC, hold a huge amount of petrodollars. But these countries spend much more in Euro area than U.S. for their imports. Euro area constitutes 27.95% of the OPEC's total import, compared with 9.73% of U.S. The OPEC's average import shares from these two partners during 1980 to 2007 are 36.22% and 13.33%. Each year huge amount of dollars is converted to Euros for the settlement of OPEC's imports. So the trade between Euro area and OPEC makes Euro an important currency when studying oil price.

The U.S. is the largest oil consumption country in the world. In 2008, the U.S. oil consumption was 22.5% of world total oil consumption. European Union (E.U.) also consumed 17.9%

Since both the U.S. and the E.U. are large oil consumers and both of their currencies are closely related to oil transactions in the world market, the Dollar/Euro exchange rate is a proper variable to study the relationship between dollar exchange rate and crude oil price.

FIG. 3

GOLD PRICES

Studies on Gold Price, Many studies on gold price focus on two issues: the role of gold as a hedge against risk and the role of gold as a safe haven. In practice, gold price is often considered a hedge against inflation, currency risk, political unrest and military tension. In economic studies, the first two, inflation risk and currency risk have drawn the most research attention. The literature on the relationship between gold price and inflation is quite rich and the results are generally consistent. Numerous studies show that gold is a useful hedge against inflation (e.g. Sherman, 1982; Worthingtona and Pahlavani, 2007; Bruno and Chincarini, 2010).

Gold is a weak safe haven for some emerging markets but a strong safe haven for most developed markets during the peak of the recent financial crisis. Investors react to short-lived and extreme shocks by seeking out the safe haven of gold. But gradual trends in stock markets, like weekly or monthly losses, do not appear to elicit the same impulsive response from investors. In addition, they find that gold is a safe haven for increased levels of global uncertainty not confined to specific crisis periods.

APPROACH / METHODOLOGY

Exchange rate is driven by a variety of variables, such as the relative economic performance, interest rate differentials and productivity differentials. The crude oil price is also influenced by issues like micro-market structure and world economic growth. Moreover, both prices are closely related to the gold price, the safe haven of capital. Therefore, it is highly likely that there are factors qualified as common drivers of U.S. dollar exchange rate and crude oil price. Another advantage of a triangular system is that the relationships of the common driver with the two prices respectively may provide an explanation to both the negative and positive correlation relationships observed between the two prices. So this study tries to fill the "blank" of the literature and present a new perspective on the relationship between U.S. dollar exchange rate and crude oil price.

If a triangular system is the case, it is possible that the two prices are causally related with a third factor respectively but not so themselves. Their correlation relationships, then, are merely correlation relationships. Besides, although US dollar exchange rate and crude oil price show both positive and negative correlation relationships, most of the theoretical analyses focus on explanation of the negative ones. The periods when the two prices move together have not received enough academic attention.

SCOPE

There are 3 possibilities:

1) The U.S. dollar exchange rate and gold price have a statistical causality relationship running from gold price to dollar exchange rate. This is one of the three pillars of the triangular system proposition. The term "statistical causality relationship" here refers to the causality in the sense of Granger (1969), which is identified typically by Granger Non-causality Test. There are up to four outcomes that may come from the test.
2) The crude oil price and gold price have a statistical causality relationship running from gold price to crude oil price.
3) The dollar exchange rate and crude oil price have a statistical causality relationship.

FIG. 4
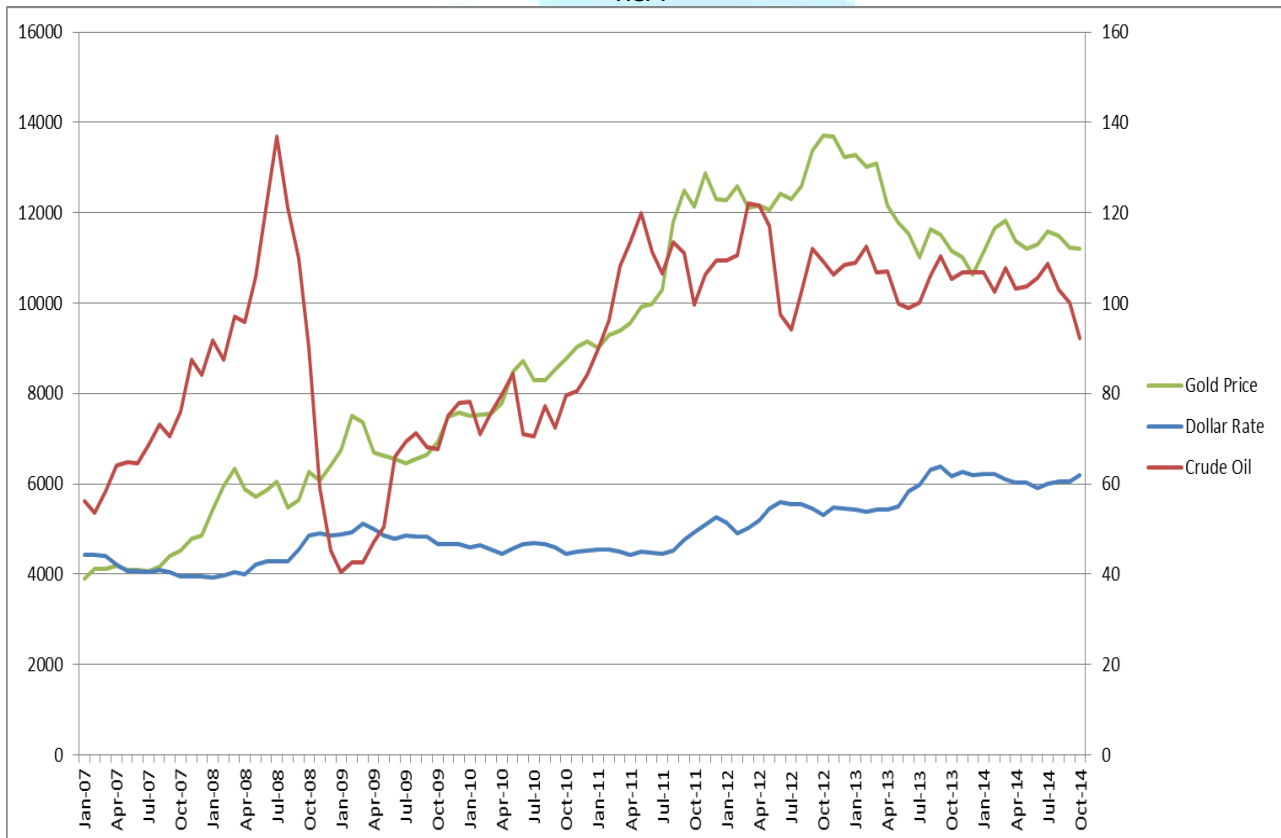
Two kinds of variables immediately meet the first requirement: macroeconomic fundamentals and gold price. Clearly, macroeconomic fundamentals such as interest rate, output and money supply have considerable impact on dollar exchange rate and crude oil price. But a major problem with them is their inherent endogeneity, which may result in causality interpretation difficulty and other problems (see, for example, Chen, Rogoff and Rossi, 2008). Gold price also has the potential to be a qualified candidate. Firstly, gold price is closely related to dollar exchange rate. Gold is mainly priced and traded in dollars in the international market. The demand for dollars may be affected by gold demand changes. In recent decades, gold is more and more frequently used to hedge inflation, political unrest and currency risk. So once there are exogenous shocks to the world economy, the gold price tends to respond quickly. Gold price has deviated from the inner value of gold especially after the year 2001 and is more likely to reflect investors' anxiety about economic prospects and capital safety. Dollar exchange rate to some extent mirrors the health of U.S. economic development and of world economic development. Gold price is likely to go up if dollar exchange rate is expected to depreciate due to factors that may cause economic slowdown and vice versa. Second, gold price is closely related to crude oil price. Both gold and crude oil are increasingly important investment options often added to investor asset portfolios. Their prices tend to move together driven by investment purposes. As a valuable and standard commodity, gold is also used to hedge inflationary risk. The upsurge of gold price may be interpreted as the rise of inflation

expectation. As a result, capital flows will rush to the gold market, crude oil market as well as other commodity markets and push up the prices of these commodities. Since gold price is heavily driven by demand for investment, inflation hedging and capital safety, it may be regarded as exogenous and be used directly in structural models and econometric models.

They explain that the exchange rate is fundamentally a forward-looking variable that likely embodies information about future commodity price movements. In contrast, commodity prices tend to be quite sensitive to current conditions because both demand and supply are typically quite inelastic. In addition, financial markets for commodities tend to be far less developed than for the exchange rate. Therefore, as interpreted by Breitenfellner et al. (2008), foreign exchange markets are possibly more efficient than oil markets and can anticipate developments in the real economy that affect the demand for and supply of oil. Clearly, most of the above reasoning implies that a causality relationship will go from the dollar to oil prices and that dollar exchange rate and oil price are negatively correlated. That is, crude oil price increases when dollar depreciates. These possible channels may be at work at the same time, but it is difficult to tell which one dominates.

TABLE 1

MEAN	49.579	90.715	8965.572
Median	48.387	97.280	9011.685
Std dev	6.961	21.927	3002.811
Correlation			
	R/$-Crude		
	0.3585		
	R/$-Gold	Crude-Gold	
	0.7433	0.6433	

OBSERVATION

In July 2008, the crude oil price in the international market stopped its more than one year rapid escalation and started to decline. After the daily closing spot WTI price hit the bottom of 30.28 dollars/barrel on December 23, 2008, it gradually rebounded and reached around 78 dollars/barrel in November 2009. During this period, the U.S. dollar exchange rate (against the Euro) first appreciated from 1.59 in July 2008 to 1.25 in November 2008. Then starting from February 2009, the dollar exchange rate slowly depreciated to 1.50 in November 2009. Not surprisingly, there seems to be a negatively correlated relationship between crude oil price and U.S. dollar exchange rate. That is, the weaker the U.S. dollar exchange rate, the stronger the crude oil price. But this is not the only co-movement pattern shown by these two prices. During December 2009 and April 2010, the monthly crude oil price increased from $74 per barrel to $84 per barrel. The U.S. dollar appreciated from around 1.50 to 1.33. The two prices exhibited a positively correlated relationship. U.S. dollar exchange rate and crude oil price show both positive and negative correlation relationships, which switched back and forth in the past decade.

The Impact of the Dollar Exchange Rates on Crude Oil Prices. There are at least five possible channels through which a fall in the value of the dollar can raise crude oil prices. They are supply side purchasing power channel, demand side purchasing power channel, asset channel, monetary policy channel, and market adjustment channel.

The Supply Side Purchasing Power Channel Because almost all of standard commodities, including crude oil, are priced and settled in dollars, a change in dollar exchange rates alters the terms of trade of all the countries. The extent of this change depends on the proportion of "dollar goods" relative to "non-dollar goods" in their trade structure (Schulmeister, 2000). For oil-exporting countries, their export revenues are predominantly dollar denominated assets but their imports, largely from European countries, Japan and other non-U.S. areas, are mainly Euro-denominated.

So once the dollar depreciates, to maintain the purchasing power of their dollar export revenues, countries with pricing power tend to increase oil prices. Moreover, Cheng (2008) mentions that producers outside the dollar area also have price pressures facing declining profits in local currency caused by dollar depreciation.

The Demand Side Purchasing Power Channel Fluctuations in the exchange rate of the U.S. dollar create disequilibria in the market for crude oil. Since crude oil is priced and settled in dollars, dollar depreciation makes it less expensive for consumers in non-dollar regions, thereby increasing their demand, which eventually causes the oil price to go up (Austvik, 1987; Cheng, 2008).

CONCLUSION

Macroeconomic fundamentals have the potential to be common drivers of dollar exchange rate and crude oil price. Macroeconomic variables are usually inherently endogenous and thus fail to meet the requirements of common drivers. Therefore, macroeconomic fundamentals from the set of candidate common drivers. The studies of gold and gold price introduced document the role of gold as a hedge against risk and as safe haven, providing support to the argument that gold price is driven by need for risk hedging and capital safety in addition to consumption. So the gold price is considered an exogenous variable and a candidate common driver of dollar exchange rate and crude oil price. If the foreign exchange market is more efficient than the crude oil market, the former market absorbs new information and adjusts more quickly than the latter one. Then exchange rate may be useful for forecasting crude oil price movements, and exchange rate changes will likely affect crude oil price. This idea receives support from several studies.

Both the movement of dollar exchange rate and the movement of crude oil price are affected by the movement of gold price. Gold price contains important information influential in the price formation of dollar exchange rate and crude oil price crude oil price is much less influential in the movement of dollar exchange rate and not influential in the movement of gold price.

Gold price has stronger impacts on crude oil price than on dollar exchange rate in the long run.

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BUSINESS ENVIRONMENT: A NOTE

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ABSTRACT

Business environment is an ever changing process. Organizations need to restructure themselves with the changing business environment. The impact of the business environment on any organization is very deep and intense. Business environment consists of different factors broadly classified as external and internal factors. Literature on the influence of environment on business strategies is conflicting in nature. Some studies give importance to internal factors more than external factors while there are other studies which prefer external factors over internal. Although different studied give importance to different factors, but almost all studies agree that both internal and external factors play a role in the strategy formulation process. Strategies of firms differ from company to company also from industry to industry. The difference in strategies gets reflected by the performance of the organization which can be measured using different methods. The paper is a theoretical review.

KEYWORDS

Business Environment, External, Internal.

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BUSINESS ENVIRONMENT

nvironment literally means the surrounding external objects, influences of circumstances under which someone or something exists" (Shaikh, 2010). Selznick (1948) defined the business environment "as flows of information relevant to goal setting and decision-making through managerial perceptions." Duncan (1972) defined the business environment as "the totality of physical and social factors taken into consideration by a firm for making decisions. The environment of any organization is the aggregate of all conditions, events and influences that surround and affect it." Business environment is an ever changing process. Organizations need to restructure themselves with the changing business environment. The impact of the business environment on any organization is very deep and intense. Business environment consists of different factors broadly classified as external and internal factors. Environmental factors change from country to country; industry to industry even, it differs from one region to another.

Companies today are in the forefront of creating social wealth. The survival and success of a firm depend upon its innate strength-the resources at its command, including physical resources, financial resources, skills and organization-and its adaptability to the environment. Strategies are the most important tools of any organization. Strategies not only link a business organization to its environment, but at the same time it helps to achieve its goals. Organizations try to resource from its internal and external environment. If an organization fails to connect itself to its environment the result is decay and poor performance of the firm. The strategies of firms differ from one another. Firms are influenced by internal and external factors. Internal factors generally describe factors which are within the firm and more specifically factors controlled by the management. External factors on the other hand, are mostly industrial factors upon which an individual firm does not have direct control.

Business environment can be classified into two major categories: the external environment and the internal environment. The internal environment comprises physical and social factors within the boundaries of a firm; the external environment comprises correlating factors existing outside the boundaries of the firm. As such, the external environment refers to phenomena not in control of the firm and is classified into "remote" and "task" environments. The remote environment is comprised of political, socio-cultural, economic, ecological, and technological categories, while the task environment comprises customers, suppliers, competitors, and regulators (Dill, 1958; Bourgeois, 1980; Olsen, et al 1998).

INTERNAL ENVIRONMENT

The resource behavior, managerial philosophy, corporate culture, organizational behavior, ownership structure, strength and weakness, synergy and distinctive competencies constitute the internal environment. All these together determine the organizational capability which gets reflected in terms of strengths and weaknesses in different functional areas of an organization. Five areas which constitute the building blocks of internal environment are operations, personnel, marketing, finance and general management.

Operations Capability: Operations capability of a company is decided by its production capacity. Efficient use of raw material and related aspects which deal with a company's capacity function are the cornerstone of an organization's operations environment.

Personnel capability: Human resource of any company is a very important component of its internal environment. Success and failure of any company highly depend on the skill, quality, quantity and motivation of its human resources. Participation of employee at different stages of decision- making, Employee Stock Option Plan etc. reflects the growing importance of human resource management. The overall organizational culture and also the level of communication in an organization influence the personnel capability of an organization. The involvement and initiatives of the employees of any organization varies from firm to firm and it also defines the strength or weakness of any firm.

Financial capability: Financial capability of a firm depends on the efficient use of its fund. Availability, usage and management of funds are important factors of a firm's financial capability. Some of the important factors which influence the financial capability of any organization are as follows:

1. Factors related to the sources of funds like procurement of capital, working capital availability, financing pattern, capital credit availability, and relationship with lenders, banks and financial institutions.
2. Factors related to uses of funds like capital investment, fixed asset acquisition, relationship with shareholders etc.
3. Factors related to management of funds like financial accounting and budgeting management, state of financial health, cash, control system, inflation etc.

The factors described above are the most important factors of an organization's financial capability. Absence or presence of those few factors decides the strength and weakness of any business organization.

Marketing capability: Pricing, promotional and distributional strategies are the fundamental elements of a company's marketing capability. The better the sales figure of a company the better is the company's marketing capability.

General management capability: The responsibility of general management relies mostly on the executive management board of any company. General management deals with the overall development and performance of the company. The attitudes and values of the top management have direct impact on the objectives and functional aspects of the company. General management relates to the integration, coordination and direction of the functional capabilities of the organization. The role of the top management is also to lay down broad strategies of the company. Organizational structures, professional attitude of the top management are important factors which influence business decisions.

The role of the board of directors of any company is of utmost importance. Some studies have established that there is a direct relation between board quality and firm performance. The shareholding pattern could have important managerial implications. There are very large companies where the majority of the share

is held by the promoters and there are large firms where the promoters' position is very vulnerable. Financial institutions have a large share holding in many Indian companies. The stand of nominees of financial institutions and the relation between the members of top management are other important aspects of general management.

EXTERNAL ENVIRONMENT

This includes factors which are beyond the control of the management or the firm. This environment is not firm-specific rather it applies to every firm in the same industry. It considers the overall industry situation. External environment is further classified as micro and macro environment.

MICRO ENVIRONMENT

Customers: Customers are the main component of any company. Without customers running a business becomes an empty gesture. Thus, the most important task of any company is to retain its customers. Another major objective of any business organization is customer satisfaction. Without customer satisfaction, business can't grow and prosper. Targeting and acquiring new customers is the sole motivation behind every business decision of any business organization.

Competitors: A firm's competitors include all other firms those who target for the discretionary income of the consumers. Competitors influence each other's business policies and strategies. For any product launch a company has to take care of other firms. Without any competition a market becomes monopolistic in nature, thus market imperfections become very prominent. Competitors also influence each other's business decision.

Supplier Environment: Suppliers of raw material and components are very important strategic link of any business organization. How efficiently or inefficiently an organization handles the suppliers gets reflected in the balance sheet of any company. For the smooth functioning of a company it is important for any organization to source materials from several suppliers instead of one. Maintaining proper balance and interactions with different suppliers becomes an important aspect of any business organization. There are several factors that influence the supplier environment those are reliable sources of suppliers, energy and finances used for production of final goods from raw materials and transportation facilities. Very often supplier environment helps in implementing different strategic decisions for the company.

Financers: The behavior, role and attitude of the financers become important when we analyze the micro environment of a firm. The strategies, risk taking mentality, non-financial help etc., of financers affect the performance of any company.

MACRO ENVIRONMENT

Political Environment: Political environment is closely related to the economic environment of any country. Several economic decisions are taken based on the political relations between different states and among different countries. How much control government should have on the economic affairs of any country is decided based on the prevailing political environment of that country. Not only the economic environment, but the regulatory environment also depends on the political condition of the country which has a second orderly influence on the business. State politics also play a major role. Inter-state rivalry or co-ordination has an impact on a company which is trying to build a national image.

Social Environment: The social environmental factors consist of culture, values, customs and traditions. Culture has an impact on buying behavior, eating habits and overall consumer behavior. Marketing strategies of any company develop based on consumer behaviors. Social and demographic factors such as gender and age, family, peer relationship, socialization etc. helps to set up the strategic management decisions of any company. Based on these social factors companies target consumers and positions its products. Education, customs, values, tastes and preferences- all of these factors directly or indirectly affect any business process.

Publics: In an age of information the role of media has become very important. Media, civil society, NGOs all can be labeled as publics. These publics directly or indirectly influence the function of companies. Very often NGOs take up the cause of environmental pollution caused by industrial establishments. Media too has the capacity to make or break a company's image.

Economic Environment: The economic environment of a country consists of the prevailing economic structure and economic stage of a country at a given point of time. Economic indices like per capita income, investment, rate of savings etc. signals the economic stage of any country. Based on structure an economy could be socialist, capitalist or mixed. Each structure has certain characteristics which has a bearing on the business operations of a firm. Monetary policy, fiscal and industrial policies, budget plan, 5 year plans are all vital components of the economic environment. Patterns related to the areas of production and distribution of wealth depends on the economic structure of the country and has an impact on the business of an organization.

Regulatory Environment: Government by virtue of its rules and regulations, controls free functioning of markets. The control of government on the functioning of the economy varies from one county to another. Nevertheless the rules, regulations and economic activities of the government constitute the regulatory environment of any country. There is no room to deny that the constitutional framework or the economic policies of the government directly influences the operation of any business organization.

Technological Environment: Technology plays a very important role in the running of a company. Knowledge related to the use of material and machine for production of goods are the main components of the technological environment. Some very important aspects of the technological environment are the man-machine interface and the impact of technology on human beings. The state of technological development varies among different sectors of the industry. Development of information and communication technologies facilitate fast cross border spread of cultures, significantly influencing attitudes, aspirations, tastes and preferences. This has significant implication for business.

Global Environment: With the rise of global market the nature of competition among firms have transformed from local to global. Companies are always in the hunt for customers all around the world. The basis of competition is the service or the quality of their products. Almost every business small or big indirectly or directly is affected by the forces of globalization. Among these are:

1. A globally integrated network between firms in terms of relationship, including customers, suppliers, and competitors.
2. Global interlocking of different systems of information technology and telecommunication have become critical components of the global economic competition.
3. Global financial markets are extremely well- connected.
4. Due to the pressure of global competition the companies experience huge pressure to maintain high standards of their products and services.
5. Worldwide sourcing of manufacturing components, distribution channels and assembling of final products.

Apart from the above mentioned few other global factors such as WTO principles and agreements; other international conventions/ treaties/ agreements/ declaration/ protocols etc; economic and business conditions/ sentiments in other countries etc. affect a business. Similarly, there are certain developments, like a hike in the crude oil price have global impact.

WTO principles and regulations have far-reaching implications for Indian business. Economic condition in other countries may affect the business. Recession has special importance in this context. International political factors can also affect business, like war or political tension or uncertainties, strained political relations between the nation and other countries.

It is worth mentioning here that the different factors of the environment do not work independently but rather affects each other in several ways. It is the combination of different factors which has an impact on the firm. For example, market as an environmental factor does not function in isolation but it is dependent on factors such as buyer motivation or the general state of the economy.

ROLE OF MANAGEMENT

As the business environment changes in response to globalization, information technology, communications and technological innovations; new relations and realities come into existence. These new relationships and realities, lead to the emergence and creation of new roles, as well as, different forms and modes of action and response. Together they give rise to, and define, a new and different competitive paradigm, i.e. new rules of conducting business, and playing in the competitive business games.

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In trying to cope with today's business environment, firms face numerous unprecedented managerial challenges. They are expected to continue and simultaneously, excel at managing cost, quality, innovation, delivery, flexibility, performance and human resources. They are impelled to re-examine critically, their existing structures, functions, processes and control systems, toward redesigning them around customer needs and expectations. They are compulsively led to rethink their entire businesses, and change direction, in order to come to terms with new and emerging competitive realities. They are required to be both efficient and effective, low cost and high quality producer, and creative innovator, at the same time. They need to be able to keep pace with continuous change, on the one hand, and meet effectively its challenges, on the other. The cost of failure is decay, exit or extinction.

Several studies on corporate failure suggest that management (including directors responsible for the overall management of the corporation) is the source of most problems initiating corporate failure. As stated above the business environment consists of suppliers, customers, investors' etc. they are the prime stakeholders of any company. The way the management deal with different stakeholders of the company influence the growth or failure of any company. The role of the management is to strategically deal with the company's stakeholders and position the company accordingly. The skill and motivation of the top management determine how a company is going to adjust against its internal or external environment. Failure to anticipate crisis, rigidity and inflexibility in attitude, failure to coordinate a group, inexperience, misuse of assets, and overestimation of growth can all undermine the effective performance of management. It is the duty of the management to formulate financial, strategic and overall corporate policies. One can easily say management can make or break a company as the success and failure of any company largely depends on the hands of the management.

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