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STATEMENT OF THE PROBLEM
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RESEARCH METHODOLOGY
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PERFORMANCE OF EQUITY ORIENTED MUTUAL FUNDS SCHEMES IN INDIA: AN ANALYSIS

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ABSTRACT

The performance analysis of mutual fund schemes is one of the most important areas of interest not only for the mutual fund investors but also for the researchers of various countries of the world. There are numbers of mutual fund schemes exist in the market and it is very difficult for the researchers to analyse the performance of mutual fund schemes over a long period of time as well it is also very difficult to choose the right schemes for investment purpose. The present study makes an attempt to analyse the performance of ten equity oriented mutual fund schemes with growth options over a period of ten years from April 2005 to March 2015. In order to evaluate the performance of mutual fund schemes, the study examines the return, risk and risk-adjusted returns using Sharpe, Treynor, and Jensen measures. Out of ten schemes selected for the study, eight schemes have performed better than the market during the study period and so far as risk is concerned all the selected schemes are less risky as compared to benchmark. Sharpe, Treynor and Jensen ratio of all the select schemes are positive during the study period which implies good performance of the schemes during the study period.

KEYWORDS

NAV, equity, return, mutual funds.

JEL CODES

G20, G21, G23.

INTRODUCTION

The economic growth of a particular country is, to a certain extent, linked to the growth of the capital market. The growth of the capital market depends on the savings of the nation. In Country like India the capital market has not been able to grow fast because the common person has not acquired the necessary expertise to select appropriate investment avenues. However, due to lack of professional expertise and knowledge about capital market these small investors hesitate to invest their hard earned money in capital markets. At present, mutual funds are one of the most preferred investment alternatives for small as well as medium type investors. As investment vehicle, the mutual fund collects money from the public and invests them in various sector of the capital market. A mutual fund is a trust that pools the savings of a number of investors who share a familiar monetary goal. The money consequently composed is invested by the fund manager in various types of securities keeping in mind the objective of the scheme. This enables investors to obtain satisfactory returns due to professional expertise and knowledge at a relatively low cost. Investors can expect good returns from investment managers because of their stocks selection and diversification of stock. With the growing popularity of mutual funds, performance evaluation of mutual fund schemes has become an important issue for both professionals and academicians. (Khan, 2007 and Tripathy, 2010)

LITERATURE REVIEW

Review of the literature plays an important role in any research. Herewith some of the research studies that have influenced the preparation of this study are discussed in below:

Nimalathasan and Gandhi (2012), found that all the funds has less risky as compared to their benchmark index whereas the more risky fund are ICICI Prudential Emerging S.T.A.R fund (G) as per the standard deviation.The study also found that among the Open ended – Tax Saving schemes, Canara Robeco Equity Diversified was the preferred and ranked top at the same time among the Open ended – Midcap schemes, HDFC Capital Builder is the preferred and ranked top as per all ratio was concern.

Sasikala and Lakshmi (2014), found that in the year 2008, 31 funds were better return in 2010 because of the one year and third year return was increased and also Net Asset Value was increased that funds give more return. And Sharpe ratio of 31 funds in 2010 was decreased and Net Asset Value was increased while compared to the 2008.

Zaheeruddin, et al., (2013), found that ICICI equity fund has register the high returns (R) among the selected funds and Birla sun life mutual fund has more risky as compared to other. The study also found that the ICICI mutual fund has top ranked as per the performance ratios.

Dhanada, et al., (2012), found that in 2009-10 except ING core equity fund and Kotak select focus fund all schemes performed better than BSE- SENSEX. From study it was also found that HDFC top 200 Fund, HDFC capital builder fund and UTI opportunity funds were able to fulfill the expectations of the investors in terms of risk and return.

Yadav and Hemanth (2014), found that most of the selected schemes failed to beat the benchmark return in the long run. Birla Sun Life India Opportunities Fund-Plan B (Growth) scheme has failed to generate positive returns due to low beta. The study also found that UTI - Equity Fund-Growth Option scheme has secured rank one under all the measures.

Veeraiah and Kumar (2014), found that the mean return on equity and debt mutual fund schemes exceeds the return of SBI domestic term deposits whereas the money market mutual fund schemes have consistently provided positive returns.

Kumar (2011), found that out of twenty only five schemes performs better in comparison to benchmark index BSE-100 index and in terms of monthly average return and risk involved in these schemes was less then benchmark. The study also found that 15 out of 20 schemes has recorded better Sharpe index than the BSE National Index. Treynor of the scheme has showed excess return over risk free return per unit of systematic risk i.e. beta which indicated that all the schemes provided adequate returns as against the level of risk involved in the investment. The study found that all the schemes had positive Jenson's Measures which also indicated good market timing ability of fund managers as regard investment in securities.

Garg and Gupta (2014), found that the selected schemes had outperformed the market in terms of absolute returns during the study period. The study found that all the selected schemes were not well diversified. The study also found that all the selected schemes performed well as per the risk adjusted performance measures by Sharpe, Treynor and Jensen Models.

Thus, most of the studies have made an attempt to analyse the mutual fund performance, but very few studies have made an attempt to analyse the performance on equity oriented mutual fund schemes with growth option. The present study makes an attempt to analyse select equity oriented mutual fund schemes with growth option by using various tools and techniques.

OBJECTIVES OF THE STUDY

1. To analyse the performance of select equity oriented mutual fund schemes.
2. To compare the performance of select equity oriented mutual fund schemes with the benchmark index.

RESEARCH QUESTION

The study makes an attempt to address the following research questions:

1. What is the relative performance of select growth option equity oriented mutual fund schemes during the study period?
2. To what extent the performance of select growth option equity oriented mutual schemes differ from benchmark index?

RESEARCH METHODOLOGY

The present study is based on secondary data for the period of ten years i.e. from April, 2005 to March, 2015. For evaluating the performance of sample schemes the daily closing NAV value has been used for the study period. The required secondary data has been collected from various secondary sources. For the purpose of performance evaluation of sample schemes, Net Asset Value (NAV) data during the period under study were collected from websites of respective Asset Management Companies (AMCs) websites. The collected data was analysed with the help of various statistical tools and other measures. In order to have a significant evaluation of the investment performance of the sample schemes the BSE 100 has been used as benchmark Index. BSE 100 index is used as a benchmark as it is a broad based index, consisting of 100 actively traded equity shares representing more than 70 percent of the total market capitalization in Bombay Stock Exchange. For the present study, bank rate has been selected as risk free rate of return, as it has been constant for many years and is related with the most commonly preferred investment avenue namely bank deposits. For the present study the average of ten years bank rate has been taken as 7%.

As on 31st March 2015 there are 43 Asset Management Companies (AMCs) which are actively involved in mutual fund industry in India. Out of 43 number of (AMCs) there were 20 AMC that are operating throughout the ten years period from April 2005 to March 2015, which is considered as the study period of that particular study. In order to select the schemes for conducting the study, at the first stage 50% of AMCs which are in operation during the period of study has been selected through simple random sampling. At the second stage, only growth option equity oriented mutual fund schemes which were in operation during the entire study period has been considered from each of the AMCs so selected. From each selected AMC's one (01) numbers of equity oriented schemes with growth option has considered under the study through convenient random sampling. Return, risk, beta, Sharpe, Jensen and Treynor ratio have been used to analyse the data and to arrive at the findings of the study. The present study included ten numbers of equity mutual fund schemes for a period of ten years from 1st April 2005 to 31st March 2015.

RESULTS AND DISCUSSION

Table1 presents the return earned by the selected schemes against market return during the period of study (2005-06 to 2014-15). Scheme return and market return have been calculated, taking the daily adjusted net asset value (NAV) and the index value (BSE-100)

TABLE 1: TEN YEARS AVERAGE RETURN OF THE SELECTED SCHEMES

Mutual Fund Schemes	Scheme Return	Market Return	O / U	Rank
Kotak Opportunities – Growth	1.451	1.219	O	1
Templeton India Growth Fund, Growth	1.433	1.219	O	2
HDFC Capital Builder Fund, Growth	1.42	1.219	O	3
ICICI Prudential Multicap Fund – Growth	1.413	1.219	O	4
Birla Sun Life Equity Fund – Growth	1.38	1.219	O	5
DSP BlackRock Opportunities Fund - Regular – Growth	1.344	1.219	O	6
HSBC India Opportunities Fund – Growth	1.27	1.219	O	7
Tata Equity Opportunities Fund – Growth	1.236	1.219	O	8
Reliance Vision Fund – Growth	1.164	1.219	U	9
LIC MF GROWTH FUND Growth	0.904	1.219	U	10

Source: Compiled by the Researchers

O = Out-performed, U = Under-performed

Table 1 reveals that all the selected schemes have positive return during the study period whereas out of the 10 selected schemes 8 schemes performed better than the market and remaining 2 schemes are not able to perform well as compared to market return. It is also found that out of the 10 schemes in the study the top performer is Kotak Opportunities – G (1.451) and worst performance is seen in case of LIC MF Growth Fund -G (0.904).

Table 2 presents the ten years average standard deviation of the selected schemes and the average standard deviation of the market during the period of study (2005-06 to 2014-15).

TABLE 2: TEN YEARS AVERAGE STANDARD DEVIATION (SD) OF THE SELECTED SCHEMES

Mutual Fund Schemes	Scheme SD	Market SD	HR/LR	Rank
Kotak Opportunities – Growth	6.607	6.89	LR	6
Templeton India Growth Fund – Growth	6.923	6.89	HR	9
HDFC Capital Builder Fund - Growth	6.226	6.89	LR	3
ICICI Prudential Multi cap Fund – Growth	6.596	6.89	LR	5
Birla Sun Life Equity Fund – Growth	6.189	6.89	LR	2
DSP Black Rock Opportunities Fund - Regular - Growth	6.184	6.89	LR	1
HSBC India Opportunities Fund – Growth	6.283	6.89	LR	4
Tata Equity Opportunities Fund – Growth	6.649	6.89	LR	7
Reliance Vision Fund – Growth	7.12	6.89	HR	10
LIC MF GROWTH FUND - Growth	6.804	6.89	LR	8

Source: Compiled by the Researchers

HR = Higher Risk, LR = Lower Risk.

From the table above it is found that standard deviation of the selected schemes ranges from 6.184 (DSP Black Rock Opportunities Fund - Regular - Growth) to 7.12 (Reliance Vision Fund – Growth). It is clear from the Table above that out of 10 schemes selected 2 schemes were more risky as compared to the market which indicating that the scheme returns are highly volatile and as such the schemes are highly risky whereas, remaining 8 were less risky as compared to the market. From the Table it is also found that the most risky scheme is Reliance Vision Fund – Growth and the least risky scheme is DSP Black Rock Opportunities Fund - Regular – Growth during the period of study.

Table, 3 presents the ten years average value of beta of the selected Schemes for the period from 2005-06 to 2014-15. It is found from the below Table that the value of beta ranges from 0.853 (HDFC Capital Builder Fund-G) to 0.989(Reliance Vision Fund –G). However, all the selected schemes have defensive beta value which indicating that the schemes are less risky than the market. From the Table it is also found that the highest beta value is gained by Reliance Vision Fund – Growth scheme and the least beta value is for the scheme HDFC Capital Builder Fund-Growth scheme during the period of study.

TABLE 3: TEN YEARS AVERAGE BETA VALUE OF THE SELECTED SCHEMES

Mutual Fund Schemes	Beta (ß)	HR/LR	Rank
Kotak Opportunities – Growth	0.899	LR	4
Templeton India Growth Fund, Growth	0.973	LR	9
HDFC Capital Builder Fund, Growth	0.853	LR	1
ICICI Prudential Multicap Fund – Growth	0.948	LR	7
Birla Sun Life Equity Fund – Growth	0.967	LR	8
DSP Black Rock Opportunities Fund - Regular – Growth	0.883	LR	2
HSBC India Opportunities Fund – Growth	0.9	LR	5
Tata Equity Opportunities Fund – Growth	0.897	LR	3
LIC MF GROWTH FUND Growth	0.921	LR	6
Reliance Vision Fund – Growth	0.989	LR	10

Source: Compiled by the Researchers

HR = Higher Risk, LR = Lower Risk.

Table, 4 presents the ten years average Sharpe ratio of the selected schemes for the period from 2005-06 to 2014-15. Sharpe Model was developed by William F. Sharpe (1966) to measure the risk premium of portfolio relative to the total amount of risk in the portfolio. Sharpe index summarizes the risk and return of a portfolio in a single measure that categories the performance of funds on the risk-adjusted basis. The larger the Sharpe's Index, the portfolio is over performing the market and vice versa. (Sharpe, 1966)

It is found from the Table 4 that all the selected scheme has positive Sharpe ratio. However, out of the 10 schemes 8 schemes have outperformed the market. It is also found from the table 4 that ICICI Prudential Multicap Fund –G (0.268) has registered the highest performance and Reliance Vision Fund —G (0.187) shows the worst performance as against the market Sharpe ratio (0.213).

TABLE 4: TEN YEARS AVERAGE SHARPE RATIO OF THE SELECTED SCHEMES

Mutual Fund Schemes	Scheme Sharpe	Market Sharpe	O / U	Rank
Kotak Opportunities – Growth	0.253	0.213	O	7
Templeton India Growth Fund, Growth	0.225	0.213	O	13
HDFC Capital Builder Fund,Growth	0.267	0.213	O	4
ICICI Prudential Multicap Fund – Growth	0.268	0.213	O	3
Birla Sun Life Equity Fund – Growth	0.237	0.213	O	10
DSP Black Rock Opportunities Fund - Regular – Growth	0.253	0.213	O	6
HSBC India Opportunities Fund – Growth	0.228	0.213	O	11
Tata Equity Opportunities Fund – Growth	0.230	0.213	O	14
Reliance Vision Fund – Growth	0.187	0.213	U	18
LIC MF GROWTH FUND Growth	0.190	0.213	U	19

Source: Compiled by the Researchers

O = Out-performed, U = Under-performed

Table, 5 presents the ten years average Treynor ratio of the selected schemes for the period from 2005-06 to 2014-15. Treynor Model was developed by Jack Treynor in the year 1965, which is based on systematic risk and known as reward to volatility ratio. It measures portfolio risk in terms of beta, which is the weighted average of individual security beats. The ratio is relevant to investors, for whom the fund represents only a fraction of their total assets. The higher the ratio better is the Performance and vice versa.

It is found from the Table 4 that all the selected scheme has positive Treynor ratio. However, out of the 10 schemes 8 schemes have outperformed the market. It indicates that the schemes are able to earn higher return than the market per unit of systematic risk undertaken. It is also found from the Table that Kotak Opportunities – G (1.724) registers the highest performance and Reliance Vision Fund – G (1.055) shows the worst performance as against the market Treynor ratio (1.212).

TABLE 5: TEN YEARS AVERAGE TREYNOR RATIO OF THE SELECTED SCHEME

Mutual Fund Schemes	Scheme Treynor Ratio	Market Treynor Ratio	O / U	Rank
Kotak Opportunities – Growth	1.724	1.212	O	1
Templeton India Growth Fund, Growth	1.451	1.212	O	4
HDFC Capital Builder Fund,Growth	1.678	1.212	O	2
ICICI Prudential Multicap Fund – Growth	1.575	1.212	O	3
Birla Sun Life Equity Fund – Growth	1.43	1.212	O	6
DSP BlackRock Opportunities Fund - Regular – Growth	1.449	1.212	O	5
HSBC India Opportunities Fund – Growth	1.319	1.212	O	8
Tata Equity Opportunities Fund – Growth	1.341	1.212	O	7
Reliance Vision Fund – Growth	1.055	1.212	U	10
LIC MF GROWTH FUND Growth	1.078	1.212	U	9

Source: Compiled by the Researchers

O = Out-performed, U = Under-perform

Table 6 presents the ten years Jensen Alpha ratio of the selected schemes for the period from 2005-06 to 2014-15. Jensen Alpha Model was developed by Michael Jensen in the year 1968. The more positive Alpha ratio indicates the better performer by the fund.

It is found from the table that all the selected schemes have positive value which indicated that the schemes performed better than the market. This is an indication of superior management ability of the fund managers of these schemes. From the table it is also found that the Birla Sun Life Equity Fund – G (1.464) registers the highest performance and LIC MF Growth Fund -G (0.775) shows the worst performance during the study period.

TABLE 6: TEN YEARS AVERAGE JENSEN RATIO OF THE SELECTED SCHEMES

Mutual Fund Schemes	Jensen Alpha	O / U	Rank
Kotak Opportunities – Growth	1.291	O	3
Templeton India Growth Fund, Growth	1.419	O	2
HDFC Capital Builder Fund,Growth	1.216	O	8
ICICI Prudential Multicap Fund – Growth	1.277	O	4
Birla Sun Life Equity Fund – Growth	1.464	O	1
DSP BlackRock Opportunities Fund - Regular – Growth	1.244	O	6
HSBC India Opportunities Fund – Growth	1.233	O	7
Tata Equity Opportunities Fund – Growth	1.153	O	9
Reliance Vision Fund – Growth	1.275	O	5
LIC MF GROWTH FUND –Growth	0.775	O	10

Source: Compiled by the Researchers

O = Out-performed, U = Under-performed

FINDINGS

1. It is found from the study that all the selected schemes have positive return and out of 10 selected schemes 8 schemes performed better than the market during the study period.
2. It is found that the standard deviation of the selected schemes ranges from 6.184 to 7.12 and out of 10 schemes selected 2 schemes were more risky as compared to the market during the period of study.
3. From the value of beta it is found that it ranges from 0.853 to 0.989 and all the selected schemes have defensive beta indicating that the schemes are less risky than the market.
4. It is also found that both Sharpe as well as Treynor ratio of the selected schemes have positive value whereas ICICI Prudential Dynamic–G scheme is the highest value and LIC MF Equity Fund -G scheme is the lowest as per both the performance measures.
5. The study also found that the Jensen Alpha ratio of all the selected schemes have positive value whereas out of 10 selected schemes the Franklin India Flexi Cap Fund –G is registers the highest value performance and LIC MF Equity Fund -G (0.775) is registers the lowest value.

CONCLUSION

The present study investigates the performance of ten open-ended equity oriented growth option mutual fund schemes of ten different AMC's for the period from April'05 to March15. Daily NAV of different schemes have used to calculate the returns, standard deviation, beta, Sharpe, Treynor, and Jensen measure. BSE 100 is taken as a Benchmark Index and RBI Bank rate is used as free rate. The study found that all the schemes have a positive return and from the value of Standard Deviation it is found that two out of ten schemes two schemes is more risky as compared to Market. From the value of beta it is found that all the selected schemes have defensive beta value during the study period. It is also found from the value of three performance measures i.e. Sharpe, Treynor and Jensen that all the schemes have positive value during the study period.

LIMITATIONS OF THE STUDY

1) The study deals with only selected equity schemes of sampled fund houses operating in India and the generalization of the findings is require sufficient caution as the findings are by and large reflect the performance of the select type of schemes only.
2) The present performance of the selected schemes may not be guaranteed in future and investors have to consider other aspects before making investment.
3) The performance of selected schemes is limited only for a period of ten years and findings of the study for other period is by and large reflect the time period specific to the study.

SCOPE FOR FURTHER RESEARCH

There is a sufficient scope for further research work in the area of mutual fund Industry. The present study is confined with twenty large and mixed cap growth option equity oriented mutual fund schemes. Such study can also be conducted by increasing the sample size to gain more insight. Further research work can also be undertaken in relation to hybrid fund, income fund, gilt fund, fund of funds, liquid fund, sector oriented mutual funds.

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EFFECT OF CREDIT RISK ON FINANCIAL PERFORMANCE OF SELECTED PUBLIC SECTOR BANKS IN INDIA

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ABSTRACT

In this liberalization period, credit Risk Management has got much importance in the Indian Economy. The main challenges faced by the banking sector today are the challenge of identifying the risk and managing it. The risk is imbibed nature of the banking business. the most role of bank is of intermediate for those having resources and requiring resources. For risk management numerous risks like credit risk, market risk or operational risk got to be reborn into one composite live. Therefore, it's necessary that measure of credit risk ought to be in tandem bicycle with different measurements of operation and market risk in order that the requisite composite estimate is puzzled out. So, in banking sector credit risk management is being most vital task of all. The importance of the credit risk management and its impact on profitability has motivated us to pursue this study.

KEYWORDS
financial performance, credit risk management, public sector banks.

JEL CODES
G32, G33, G39.

INTRODUCTION

The banking system in India is dominant as it contains more than half of assets of the financial system. Banks in India are undergoing through an attractive phase through quick change because of the financial system reforms. They are in high rivalry with one another so the improvement of methodologies has gotten especially fundamental. Banks now days have become benefit arranged. The incredible obstruction in the creation benefit is the augmentation of non-performing advances or resources of the banks. To defeat the issue, banks must control their credit hazard. With the goal that NPA issue can be evaded up somewhat. Credit risk being the most basic and unavoidable danger for the business banks, that should be dealt with and overseen appropriately. Banks to be fruitful and beneficial, they need to create procedures in an approach to oversee credit risk. As giving advance to the client is one the most significant activity, banks need to oversee credit risk r to make the money accessible with them. Hence the study focuses on how credit risk management impacts the profitability and liquidity in the selected public sector banks of India.

LITERATURE REVIEW

Lalon (2015), it's imperative to say that default shoppers are a serious drawback for the banking money establishments for long and also the money establishments are attempting to attenuate the default drawback right along. The Asian Nation Bank has been endeavour to help the money establishments to induce out of the default risk drawback and formulating policies for that purpose. As a continuance to the present, Asian nation Bank has been providing directives once and wherever it looks to be necessary. Bhaskar (2014) it all over that the business grows primarily by taking risk. Larger the danger, higher the profit and thence the business unit should strike an exchange between them. The essential functions of risk management area unit} to spot measure and additional significantly monitor the profile of the bank. Whereas Non-Performing Assets square measure the bequest of the past within the gift, Risk Management system is that the pro-active action within the gift for the longer term. Managing risk is nothing however managing the modification before the danger manages. Whereas new avenues for the bank has displayed they need brought with them new risks yet, that the banks ought to handle and overcome. Attarwala and Balasubramaniam (2014), this analysis paper explained the necessity for risk management within the banks on account of assorted sorts of risks. The second half bestowed case studies of 2 leading Public Sector banks in Republic of India with their risk management structure and up to date expertise of non-performing assets (NPA) throughout 2011-14. Third half mentioned RBI's efforts on risk management at the macro level and key economic factors restrictive and trade problems. The study tried to develop early warning system (EWS) with a novel rating of stress and risky outcomes for a bank. Rising horizons for the banks within the economy would kind the Conclusion.

RESEARCH PURPOSE

The purpose of the research is to study and understand role of credit risk management in public sector banks and its overall impact on the financial performance of the bank. And to identify the loop holes in the banks operating structure, in managing the loans given to the primary sector. We try to study and analyze the recent trends in NPAs in public sector banks in relation with the profitability and liquidity of the bank. Under this research we have conducted regression analysis on bank NPA and the profitability of the bank. Along with that see impact on policy bank made to overcome it and see the trend of the bank NPA with Profitability of bank taking other things constant.

RESEARCH QUESTION

RQ.1 Does the credit risk management have the impact on financial performance of banks?
RQ.2 What is the relationship between the credit risk management and profitability of Public Sector banks in India from 2010 to 2019?
RQ.3 What are the trends in nonperforming assets in banks?

RESEARCH OBJECTIVES

1) To assess the impact of credit risk management on financial performance of selected Public Sector banks in India;
2) To analysis the relation between Non Performing Assets and Financial Performance of Selected Public Sector Banks;
3) To analysis the trends in Non-Performing Assets of selected Public Sector banks in India;

RESEARCH HYPOTHESIS

Impact of Credit Risk Management on Financial Performance of Selected Public Sector Banks

A. Credit Risk Management and Profitability:

H_{01}: There is no significant impact of CAR, NPLR, BS on ROE of the Selected Public Sector banks.

H_{02}: There is no significant impact of CAR, NPLR, BS on ROA of the Selected Public Sector banks.

H_{03}: There is no significant impact of CAR, NPLR, BS on NIM of the Selected Public Sector banks.

B. Credit Risk Management and Liquidity:

H_{04}: There is no significant impact of CAR, NPLR, BS on LAR of the Selected Public Sector banks.

H_{05}: There is no significant impact of CAR, NPLR, BS on LADR of the Selected Public Sector banks.

RESEARCH METHODOLOGY

Credit risk management is expected to have a direct and significant relationship to banks performance. A non-performing loan is a facility that is in default or close to being in default. When credit is considered to be non-performing, such would adversely affect the return on equity, return on asset and the net interest margin of the banks. Loan to deposits determines the liquidity of funds in banks. If such tends to be high, it is expected that the banks would not have enough to meet other banks obligation and in turn would either affect performance in terms to return on equity, return on asset and net interest margin.

In this study, the audited annual financial statement of listed banks, financial publications and reports from the Reserve Bank of India covering the period 2010-2020 are analyzed

Type of Study: Analytical and Descriptive

Selection of the Banks: According to their total assets

Number of Banks: Top Ten

Reason for Choosing Public Sector Bank: own nearly 80 per cent market share

TABLE 1: DESCRIPTION OF VARIABLES FOR IMPACT OF CREDIT RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF SELECTED PUBLIC SECTOR BANKS

Types of Variables	Nature	Indicators	Proxy Measures	Sign
Dependent Variables	Profitability	Return on Assets	Net Income/Total assets	ROA
		Return on Equity	Net income/Total equity	ROE
		Net Interest Margin	(Investment Income – Interest Expenses) / Average Earning Assets	NIM
	Liquidity	Liquid Asset Ratio	Liquid Asset/Total asset	LAR
		Liquid Asset To Total Deposit Ratio	Liquid Asset/Total Deposit	LATD
Independent Variables	Credit Risk Management	Capital Adequacy Ratio	(Tier 1 Capital + Tier 2 Capital) / Risk-Weighted Assets	CAR
		Non-Performing Loan Ratio	NPLs/Total Loans	NPLR
Control Variable		Bank Size	Natural log of total assets	BS

TABLE 2: DESCRIPTION OF VARIABLES FOR RELATION BETWEEN NON PERFORMING ASSETS & FINANCIAL PERFORMANCE OF SELECTED PUBLIC SECTOR BANKS

Types of Variables	Nature	Indicators	Proxy Measures	Sign
Dependent Variables	Financial Performance	Return on Assets	Net Income/Total assets	ROA
		Total Assets	Current Assets + Fixed Assets	TA
		Net Profit	Net Profit	NP
Independent Variables	Non-Performing Asset	Gross Non-Performing Asset	sum of all loan assets that are classified as NPA as per RBI guidelines	GNPA
		Net Non-Performing Asset	Gross NPAs – Provisions	NNPA

STATISTICAL TOOLS

1) Percentages and averages
2) Tables
3) Ratio analysis
4) F- Test
5) Regression and Correlation
6) Average annual growth rate (AAGR)
7) Compound annual growth rate (CAGR)
8) Trend Analysis:

Forecasting of Gross NPA and Net NPA for Selected Public Sector bank by the help of Least Square Method for the year 20-21

Trend Equation:

$$\boxed{\boldsymbol{Y = a + bX}}$$

Where,

$$a = \frac{\sum Y}{N}$$

$$b = \frac{\sum XY}{\sum X^2}$$

RESULT OF HYPOTHESIS TESTING

A. CREDIT RISK MANAGEMENT AND PROFITABILITY

H01: There is no significant impact of CAR, NPLR, BS on ROE of the Public Sector banks.

TABLE 3

S.No.	Banks	Accepted/Rejected		
		CAR on ROE	NPLR on ROE	BS on ROE
1	SBI	Rejected	Accepted	Rejected
2	BOB	Rejected	Accepted	Rejected
3	PNB	Rejected	Rejected	Rejected
4	Canara Bank	Rejected	Rejected	Rejected
5	BOI	Rejected	Accepted	Rejected
6	UBI	Rejected	Rejected	Rejected
7	CBI	Rejected	Rejected	Rejected
8	BOM	Rejected	Rejected	Rejected
9	IOA	Rejected	Rejected	Rejected
10	Indian Bank	Rejected	Rejected	Rejected

H02: There is no significant impact of CAR, NPLR, BS on ROA of the Public Sector banks.

TABLE 4

S.No.	Variables	Accepted/Rejected		
		CAR on ROA	NPLR on ROA	BS on ROA
1	SBI	Rejected	Rejected	Rejected
2	BOB	Rejected	Rejected	Rejected
3	PNB	Rejected	Rejected	Rejected
4	Canara Bank	Rejected	Rejected	Rejected
5	BOI	Rejected	Accepted	Rejected
6	UBI	Rejected	Rejected	Rejected
7	CBI	Rejected	Rejected	Rejected
8	BOM	Rejected	Rejected	Rejected
9	IOA	Rejected	Rejected	Accepted
10	Indian Bank	Rejected	Rejected	Rejected

H03: There is no significant impact of CAR, NPLR, BS on NIM of the Public Sector banks.

TABLE 5

S.No.	Variables	Accepted/Rejected		
		CAR on NIM	NPLR on NIM	BS on NIM
1	SBI	Rejected	Rejected	Rejected
2	BOB	Rejected	Rejected	Rejected
3	PNB	Rejected	Rejected	Rejected
4	Canara Bank	Rejected	Rejected	Accepted
5	BOI	Rejected	Rejected	Rejected
6	UBI	Rejected	Rejected	Rejected
7	CBI	Rejected	Rejected	Accepted
8	BOM	Rejected	Rejected	Rejected
9	IOA	Rejected	Rejected	Accepted
10	Indian Bank	Rejected	Rejected	Rejected

B. CREDIT RISK MANAGEMENT AND LIQUIDITY

H04: There is no significant impact of CAR, NPLR, BS on LAR of the Public Sector banks.

TABLE 6

S.No.	Variables	Accepted/Rejected		
		CAR on LAR	NPLR on LAR	BS on LAR
1	SBI	Rejected	Rejected	Rejected
2	BOB	Rejected	Rejected	Rejected
3	PNB	Rejected	Rejected	Rejected
4	Canara Bank	Rejected	Rejected	Accepted
5	BOI	Rejected	Rejected	Rejected
6	UBI	Rejected	Rejected	Rejected
7	CBI	Rejected	Rejected	Accepted
8	BOM	Rejected	Rejected	Rejected
9	IOA	Rejected	Rejected	Rejected
10	Indian Bank	Rejected	Rejected	Rejected

H_{05}: There is no significant impact of CAR, NPLR, BS on LADR of the Public Sector banks.

TABLE 7

S.No.	Variables	Accepted/Rejected		
		CAR on LADR	NPLR on LADR	BS on LADR
1	SBI	Rejected	Rejected	Rejected
2	BOB	Rejected	Rejected	Rejected
3	PNB	Rejected	Rejected	Rejected
4	Canara Bank	Rejected	Rejected	Accepted
5	BOI	Rejected	Rejected	Rejected
6	UBI	Rejected	Rejected	Rejected
7	CBI	Rejected	Rejected	Accepted
8	BOM	Rejected	Rejected	Rejected
9	IOA	Rejected	Rejected	Rejected
10	Indian Bank	Rejected	Rejected	Rejected

MAJOR FINDINGS FROM SECONDARY DATA

- In terms of average CAR, it can be said that Bank of Baroda (BOB) stood at 1st position among all the banks for credit risk management followed by Indian bank. Central Bank of India was found to have least average CAR for credit risk management.
- Ranking based on AAGR showed that SBI occupied 1st position with growth of 151.98 percentages. Indian bank occupied 2nd position followed by IOA. In terms of ROE, banks with rank 1 was said have had highest growth rate among the selected banks and bank with rank 10 can be marked as lowest growth rate. Among all the banks, only SBI and Indian bank showed positive growth rate and rest all are showing negative growth. SBI and Indian bank was generating maximum profits from shareholder's equity.
- On the basis of AAGR SBI showed highest profitability and IOA showed the lowest profitability. Overall SBI and IOA have used its assets more efficiently to increase their revenues and profit. PNB and Canara bank are ranked bottom two on the efficient use of their asset and its effects their profitability in negative direction. Banks with rank 1 is said to have had highest growth rate of profitability and rank 10 can be said as the bank with lowest growth rate of profitability.
- BOB showed highest profitability and PNB was found with lowest profitability. SBI and BOI are on second and third position on the basis of their CAGR on NIM and showing their strong financial performance. PNB, Indian Bank, Canara Bank and UBI have shown highest negative value on CAGR and it means these banks are inconsistence in their profit making. Overall BOB NIM is good because it is in increasing rate for the last five years.
- Credit Deposit ratio of SBI is above the standard ratio of 60 percent. The Credit Deposit ratio is above 80 percent from 2011-12 to 2003-04. From the year 2015-16 onwards, it has registered a steady decrease from 84.57 percent to 71.49 percent as on 2017-18. In the year 2018-19 registered a steady increase but again decrease in 2019-20.
- Ranking based on CAGR showed that Indian bank occupied 1st position with growth of 24.63 percentages. PNB occupied 2nd position followed by CBI. In terms of gross NPA to gross advance ratio, banks with rank 1 was said have had highest growth rate among the selected banks and bank with rank 10 can be marked as lowest growth rate. Among all the banks, SBI and IOA in bottom two.
- Net Non-Performing Assets and Net NPA to Net Advances Ratio between the periods of 2009 to 2019 with respect to selected public sector banks in India. Ranking based on CAGR showed that SBI occupied 1st position with growth of 15.47 percentages. BOB occupied 2nd position followed by Indian bank. In terms of net advances, banks with rank 1 was said have had highest growth rate among the selected banks and bank with rank 10 can be marked as lowest growth rate.
- All the banks will have increasing trend in their Gross NPA apart from BOB, UBI and PNB. It means in near future the problem of NPA will be increased and will affect the financial performance of the banking sectors.
- All the banks will have increasing trend in their Net NPA apart from CBI. It means in near future the problem of NPA will be increased and will affect the financial performance of the banking sectors.

CONCLUSION & SUGGESTIONS

Public sector Banks must maintain an effective management information system through which the banks can know about the history of borrowers which help them to decreases the no. of defaulters and by which automatically decrease the Non-Performing Assets. The effectiveness of risk management relies upon computerization, effective data framework and systems administration of the branch exercises. The public area banks ought to limit the NPA proportion by usage of legitimate credit hazard the board framework. In the time of rivalry, public area banks must have prepared their representatives according to request of the worldwide retail market. To decrease the NPAs in retail credit the public area banks mandatory follow the rules of the RBI. Banks ought to have Loan Review Policy and it ought to be looked into yearly by the Board. The fundamental goals of Loan Reviews are to give input on adequacy of credit endorse and to distinguish decay in nature of portfolio.

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AN EMPIRICAL ANALYSIS ON THE ROLE OF SCHEDULED COMMERCIAL BANKS IN FINANCING AGRICULTURAL SECTOR IN INDIA

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ABSTRACT

Agriculture finance is as important as other inputs being used in agricultural production. The country depends on millions of small farmers for agriculture goods. The commercial banks form the core of the banking system and it comprises of scheduled and non – scheduled banks. The study has shown that the SCBs' credit flow to the agriculture has been increasing for the past decades. The article is based on the secondary data compiled from various sources and growth of loans and advances has been analyzed by using the compound growth rate technique. The agriculture sector is an important component of the Indian economy as it provides livelihood to a large section of the population. The contribution of agriculture has gone down from 52 percent in 1950 to 30 percent in 1990 and 20 percent in 2010. In 2011-12 to 2018-19 the share of agriculture and allied activities was 14.4 percent. Scheduled Commercial banks play a marginal role in providing agriculture assistance. After nationalization of commercial banks in 1969 the banks began to provide direct as well as indirect agricultural credit for short and medium term period. The major sources of finance for agriculture through SCBs are from direct finance and indirect finance.

KEYWORDS

SCBs, direct finance, indirect finance.

JEL CODE

Q14

INTRODUCTION

In India, the agricultural sector represents 35 percent of India's Gross National Product and as such plays a crucial role in the country's development. Agriculture is defined as the practice of farming and it is the oldest occupation in the country. The vast majority of the population of the country depends on agriculture which is basically concerned with the production of food and is a basic necessity of life. The major concern of this study is to analyze the role of commercial banks in financing agriculture projects to the recipient i.e., farmers and agriculturists. The scheduled commercial banks are rendering financial assistance since their establishment to agriculturists. The performance of commercial banks can be witnessed in terms of branch expansion and advances to agriculture sector through a number of innovative schemes. In most developing nations due to the problem of capital scarcity in agriculture production, generally causes low involvement. Although in India this cannot be agreed as the most serious bottleneck to agriculture development in India is seasonal, short-term and long-term credit, it is nevertheless clear that an adequate agriculture credit services has to be provided. Credit is an important element in agricultural sector without which the agriculturists can hardly do much. It contributes to agriculturists social welfare, enhances productivity, helps in capital formation and generates income. Agriculture finance is the study of financing and liquidity credit services provided to the farmers. It is also considered as the study of those financial intermediaries who provide funds to agriculture and the financial markets in which these intermediaries obtain their loan able funds.

Agriculture finance is as important as other inputs being used in agricultural production. The country depends on millions of small farmers for agriculture goods. The commercial banks form the core of the banking system and it comprises of scheduled and non – scheduled banks. The deposits and borrowings from the RBI is the source of finance for the commercial banks. Initially commercial banks were not interested in financing for agricultural operation. In 1969 the All India Rural Credit Review Committee suggested that the commercial banks have to enhance their role by providing agricultural credit. After nationalization of the banks the commercial banks are actively involved in the disbursement of agricultural credit. On this background it is witnessed that the Scheduled commercial banks have a role and the one that can be justified.

SOURCES OF AGRICULTURAL FINANCE

The agriculture sector is an important component of the Indian economy as it provides livelihood to a large section of the population. The contribution of agriculture has gone down from 52 percent in the 1950 to 30 percent in the 1990 and 20 percent in 2010. In 2011-12 to 2018-19 the share of agriculture and allied activities was 14.4 percent. Scheduled Commercial banks play a marginal role in providing agriculture assistance. After nationalization of commercial banks in 1969 the banks began to provide direct as well as indirect agricultural credit for short and medium term period. The agricultural finance is available to farmers and other people working in the farming sector in India from various sources.

Direct Finance: Scheduled Commercial banks provide short term credit facilities for financing seasonal agricultural operations. The financial assistance is provided for production inputs such as seeds, fertilizers, pesticides and to meet out the labour charges and irrigation charges during cultivation. Medium term credit is granted for irrigation purposes, repairing old wells and improvement of land. Long term credit is provided for development of horticulture, plantations, etc. Further commercial banks have launched several schemes in promoting agro based industries by providing facilities directly to farmers.

Indirect Finance: Scheduled Commercial banks assist agriculture sector indirectly by financing individuals or agencies engaged in the supply of agriculture inputs and other services to agriculturists.

STATEMENT OF PROBLEM

The financial hindrance is considered as one of the major barriers in agricultural sector. Majority of farmers, especially the small farmers are in need of finance for their projects and in most situations farmers need finance to do their agricultural operations. The problem of agricultural production such as the difference in monsoon conditions and pricing policies, unavailability of bank warranty makes it unattractive for the banks to provide finance to the agriculturists. On this background the study focuses on methods used by scheduled commercial banks in financing agricultural products and also focuses its importance.

OBJECTIVES OF THE STUDY

1. To examine the loans issued by and outstanding of scheduled commercial banks in India.
2. To identify the growth of scheduled commercial banks in supplying agricultural credit in India.

RESEARCH METHODOLOGY

STUDY PERIOD

The Scheduled commercial banks play a vital role in financing agricultural sector in India. The data collected for the study is from secondary sources. The period of study is taken for the year 2011-12 to 2017-18. The study is restricted to only scheduled commercial banks and the data is collected accordingly.

TOOLS OF THE STUDY

The study covers the period of 7 years (from 2011-12 to 2017-18). The compound growth rate analysis is used to examine the growth of agricultural credit. Agricultural credit is a vital input for agricultural production and helps the poverty stricken farmers of India in meeting their investment requirement.

ANALYSIS

TABLE 1: SCBs DIRECT SHORT TERM AND LONG TERM CREDIT FOR AGRICULTURE AND ALLIED ACTIVITIES

Year	Short Term Direct Finance		Long Term Direct Finance	
	Loans Issued	Loans Outstanding	Loans Issued	Loans Outstanding
2011-12	217897	269030	94980	174268
2012-13	NA	353425	NA	169053
2013-14	NA	333572	NA	169960
2014-15	NA	464920	NA	219049
2015-16	NA	520395	NA	294446
2016-17	NA	467025	NA	201084
2017-18	NA	657713	NA	266371
CGR	**NA**	**13.62**	**NA**	**6.24**

The above table reveals the direct short term finance for agriculture and allied activities during 2011-12 to 2017-18. The study of the amount of loan issued and loan outstanding over the study period reveals that there is annual growth in loan outstanding and in case of loan issued the result shows that there is a negative impact. The table indicates that there is no increase in loan issued and hence the CGR on loan issued was negative. On the other side the loans outstanding, for short term direct finance, increased from 2,69,030 crores in 2011-12 to 6,57,713 crores in 2017-18. The long term loans issued were also negative and the long term loans outstanding had grown from 1,74,268 crores in 2011-12 to 2,66,371 crores in 2017-2018. The highest loan outstanding were in the short term direct finance with CGR of 13.62 while the lowest was in the case of long term direct finance with CGR of 6.24 percent.

TABLE 2: SCBs DIRECT SHORT TERM AND LONG TERM ADVANCES FOR AGRICULTURE AND ALLIED ACTIVITIES

Year	Total Direct Finance	Indirect Finance					Total Direct and Indirect Finance
		Distribution of fertilizers and other inputs	Loans to Electricity Board	Loans to farmers through PACS/FSS/LAMPS	Other Type of Indirect Finance	Total Indirect Finance	
2011-12	440758	NA	NA	797	63771	142585	583343
2012-13	534331	NA	NA	NA	NA	111102	645433
2013-14	NA	NA	NA	NA	NA	NA	892067
2014-15	NA	NA	NA	NA	NA	NA	970575
2015-16	NA	NA	NA	NA	NA	NA	1173098
2016-17	NA	NA	NA	NA	NA	NA	1265250
2017-18	NA	NA	NA	NA	NA	NA	1369456
CGR	**2.78**	**NA**	**NA**	**NA**	**NA**	**-3.50**	**12.96**

The above table shows the advances of scheduled commercial banks to agricultural outstanding during 2011-12 to 2017-18. During the study period it was witnessed that the total direct finance to farmers increased from 4,40,758 crores in 2011-12 to 5,34,331 crores in 2012-13 with the CGR of 2.78 percent. The total direct and indirect advances to agriculture outstanding shows gradual increase from 5,83,343 crores in 2011-12 to 13,69,456 crores in 2017-18 with CGR of 12.96 percent.

CONCLUSION

Agriculture Finance is the input that enables farmers to develop their agricultural activities. From the study it was identified that there is gap in loan issued by scheduled commercial banks after 2011-12. It is argued that small farmers are unable to borrow at high rate of interest. Further loans to small farmers are rationed continuously than loans to big farmers because of lower returns and higher costs of lending to small farmers. This in turn has increased the loan outstanding during the study period.

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EFFECT OF APP-BASED PURCHASING BY THE TEENAGERS ON CUSTOMER SATISFACTION AND CUSTOMER LOYALTY IN COMMODITY SECTOR: A STUDY BASED ON KOLKATA AND 24 PARGANAS (NORTH)

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ABSTRACT

In the era of globalization, app-based economic activities provide a welcome avenue through which purchasing a lot of commodities has now come under the palm of the teenaged group. The present study seeks to investigate the impact of level of satisfaction of the teenaged group on their loyalty while using app-based services for purchasing various commodities. An empirical study is conducted based on the districts of Kolkata and 24-Parganas (North) in West Bengal to seek the answers to the following research questions: What are the demographic factors of the teenagers that are influencing their loyalty while using app-based purchasing? How does the app-based purchasing of various categories of products affect the teenagers' loyalty? What are the major factors those make a teenager satisfied toward using mobile apps? How do such factors affect the customer satisfaction scores (CSATS) obtained by them? How does the customer satisfaction score (CSATS) relate to the customer loyalty score? What are the various problems, associated with using apps-based purchasing services, significantly affecting the loyalty of the teenagers? It is a self-administered survey and the data is collected through pre-designed closed-ended questionnaire. The data are analyzed using statistical package SPSS version 20. The study reveals various factors that influence the level of satisfaction of the teenagers using Principle Component Analysis (PCA) under Exploratory Factor Analysis (EFA). The results of the study also admit that there is a positive relationship between the level of customer satisfaction and customer loyalty in the context of using app-based technology for purchasing commodities by the teenagers. Therefore, the business houses should develop effective and innovative app-based marketing and selling strategies that will influence teenagers' level of satisfaction with the aim of achieving their loyalty much more than before.

KEYWORDS

app-based purchasing, customer loyalty, customer satisfaction, teenagers.

JEL CODE

M31

I. INTRODUCTION

The app-based economy encompasses the economic activities through using apps that are now affecting a shift from desktop to laptop and then laptop to smart phone for making online businesses. A surge in the popularity of using apps from procuring commodities such as foods, retail goods, resale goods etc., for acquiring services online is expanding the satisfaction level of the customers. In society, teenagers play a pivotal role in setting any new trend. According to Belch et al. (1989), teenagers are the main influencers of family-spending whose opinion and preferences are heeded and encouraged by their parents. Therefore, understanding teens' present and future purchase behavior, their existing and desired level of satisfaction, their willingness to engage in repeated buying and their recommendation to others to buy a product in the context of using app-based technology for procuring a commodity is the best way for the industries to hold and expand a large market share in future. Empirically, it shows that satisfaction is a key to achieving loyalty (Kim, Li& Brymer, 2016). Loyalty links customer attitudes (i.e., how much customers are satisfied with firms' product or service) to customer behavior (i.e., customers' actual repurchase behavior for the product or service) (Mohsan, Nawaz, Khan, Shaukat and Aslam 2011) and finally, it affects the financial performance and the value of the firm (Wong, Tong and Wong 2014). Thus, the emergence of developing effective app-based technology in the field of marketing and selling commodities have raised customer expectation and are creating customer loyalty. However, some researchers argue that the impact of product quality on loyalty is greater than any other factors (Poku, Zakari and Soali, 2013). However, some researchers found that a good product alone may be insufficient to influence repurchase behavior of the customers (Donio, 2006). Therefore, this study is conducted in order to determine the impact of teenagers' satisfaction on their loyalty in the context of using app-based technologies to purchase various commodities.

II. LITERATURE REVIEW

Achieving customer satisfaction is one of the crucial tools for any successful business. It is the customers' feelings based on evaluating their consumption experience with the goods or services overtime (Fornell, Johnson, Anderson, cha & Bryant, 1996). Customer satisfaction is primarily influenced by specific product or service features as well as perception of quality. Yang, et al. (2010) found that for online satisfaction, quality of online service is also a valuable component. It reveals that if a product's perceived performance does not meet the expectation of the customer, it makes him unhappy or disappoints (Kotler & Keller, 2006). Hence, customer satisfaction is considered as a barometer that predicts a customer's post-purchase behavior including repeat purchase and good word-of-mouth advertising (Hill, Roche & Allen, 2007). Loyalty is a customer's commitment to purchase a preferred good or service repeatedly or consistently as long as they feel they are receiving better value from the present service provider than that of their rival suppliers (Mellroy & Barnett, 2000). Therefore, achieving sustained customer satisfaction accompanied by their emotional attachment, preference, patronage and premium has a big impact on future customer behavior in the form of customer loyalty (Rai & Medha, 2013). Customer satisfaction is dynamic and relative. The findings of some supporting research conducted by Fernandes, Proenca & Rambocas (2014) revealed that demographic factors of the customer moderate the relationship between customer satisfaction and customer loyalty. The research found that the young and female customers are more likely to be loyal and spread positive word of mouth than other market segments.

III OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE

To study the impact of level of satisfaction of the teenagers on their loyalty while using app-based services to purchase various commodities.

SECONDARY OBJECTIVES

1. To study various demographic factors of the teenagers those are influencing their loyalty while using app-based purchasing.
2. To examine whether customer loyalty is influenced by the ultimate-users of various products categories that the teenagers are actually purchasing online.
3. To determine the major factors those, make a teenager satisfied toward using mobile apps.
4. To assess how such factors, affect the customer satisfaction scores (CSATS) obtained by them.
5. To understand how the customer satisfaction scores (CSS) relate to customer loyalty scores and
6. Finally, to identify various problems associated with app-based purchasing that are significantly affecting the loyalty of the teenagers.

IV RESEARCH METHODOLOGY

This is an empirical research where data has been collected from both primary as well as secondary sources. Primary data is collected through self-administered survey with simple random sampling. Secondary data is collected from the published sources and it is used to develop the theoretical background of the study. The target population is the school-going teenagers with the age group of minimum 13 years and maximum 19 years. In order to qualify as a respondent all of them are required to access smart phone. The research instrument that is used to collect the data is well-structured questionnaire. Questionnaire is filled up by the teenagers in the school premises. A sample of 900 respondents from 30 schools are drawn and asked to fill up a pre-designed closed questionnaire separately in order to avoid their influence on each other while answering. The responses against categorical variables are collected using 7-point Likert Scale. The study is conducted from 17th November, 2019 to 10th March 2020 in the districts of Kolkata and 24-Parganas (North) of West Bengal.

V. DATA ANALYSIS

TABLE 1: DEMOGRAPHIC PROFILE OF THE RESPONDENTS USING APP-BASED PURCHASING

Demographic Characteristics		No. of respondents	Percentage
Age Group	Early-teenaged (13-15)	194	21.56
	Middle-teenaged (16-17)	314	34.89
	Late-teenaged (18-19)	392	43.55
Gender	Male	520	57.78
	Female	380	42.22
Working Parents	Mother	87	9.72
	Father	475	52.78
	Both	263	29.17
	None	75	8.33
Family Status	Joint Family	363	40.28
	Nuclear Family	537	59.72
Highest educational qualification of the parent (any one)	Post-graduate	326	36.22
	Graduate	287	31.89
	Higher Secondary	125	13.89
	Madhyamik (Secondary)	87	9.67
	Uneducated	75	8.33
Family Income per month	More than Rs.100000	25	2.78
	Rs. 50000-Rs.100000	100	11.11
	Rs. 25000-Rs.50000	463	51.44
	Less than Rs.25000	312	34.67

Source: Primary Data

Table1 demonstrates the socio-economic factors of the teenaged participants. The overall sample portrays that out of the parents of 900 teenagers, 31.89% are graduates and 36.22% are post-graduates. It also shows that majority of the parents are job oriented either individually or jointly and the family income of the most of the respondents are ranging from Rs.25000 to around Rs. 50000. It proves that the teenagers are belonging to the educated family background and our data fall in the category from middle income to upper income group.

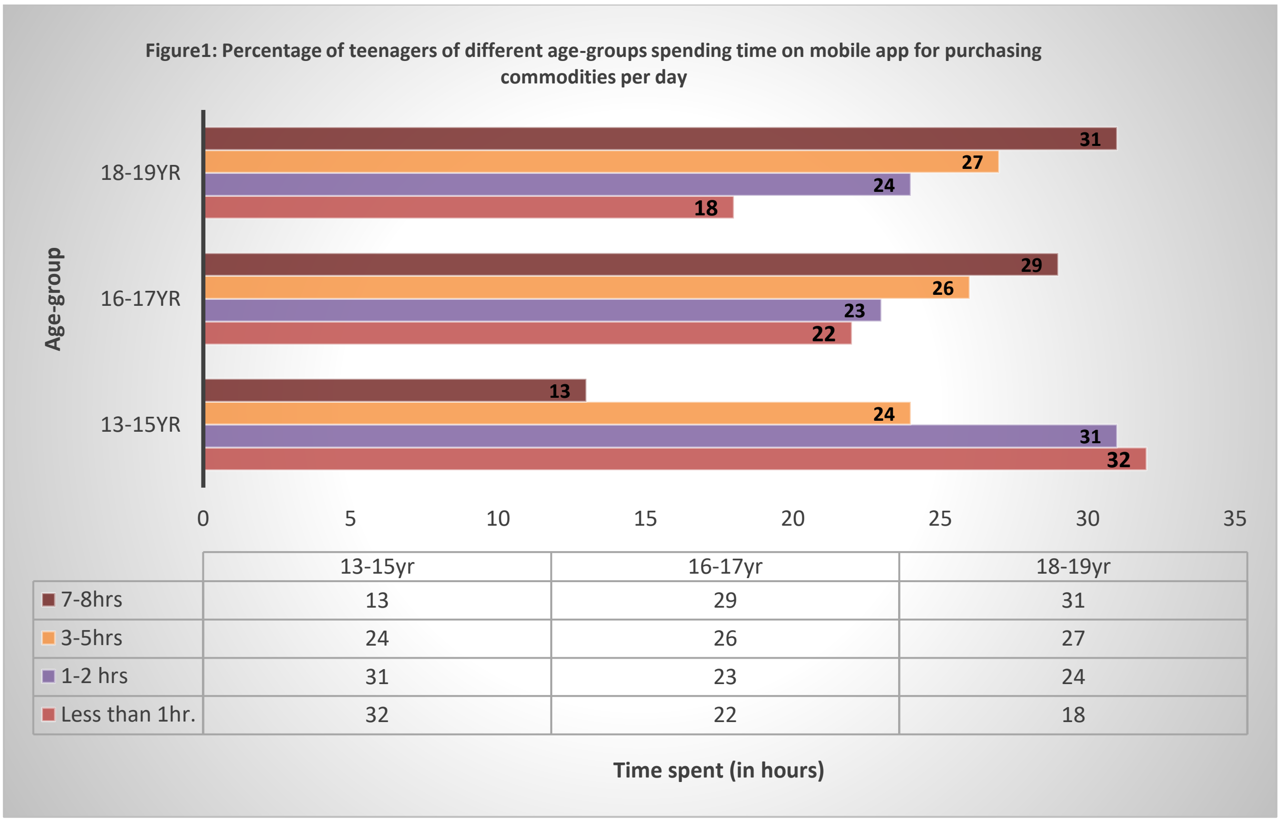
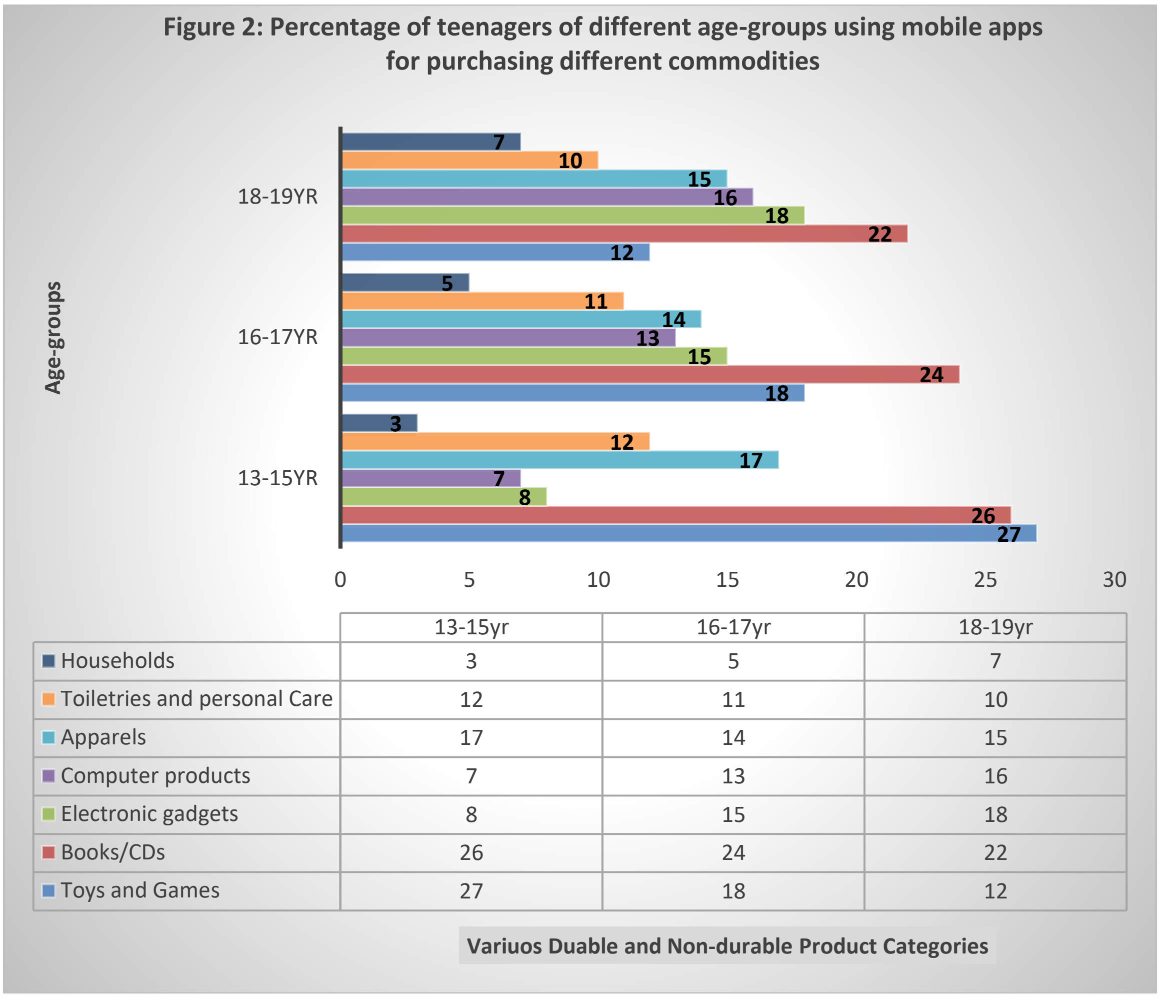


Figure1: Percentage of teenagers of different age-groups spending time on mobile app for purchasing commodities per day

Source: Primary Data

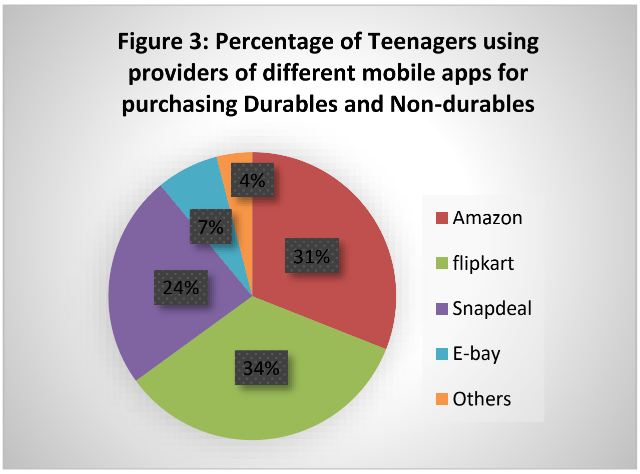
The survey studied that the craze of using mobile app is rapidly increasing with the increase in age, especially when they shift from one age bracket to another. Once they shift from one age group to the next, not only they are increasing in volume but also their duration of using social media is increasing significantly. As it is seen in Figure1, when only 13% of early-teenaged group is spending 7-8 hours for using mobile apps, it is 29% for middle-teenaged group and 31% for late-teenaged group.



	13-15yr	16-17yr	18-19yr
Households	3	5	7
Toiletries and personal Care	12	11	10
Apparels	17	14	15
Computer products	7	13	16
Electronic gadgets	8	15	18
Books/CDs	26	24	22
Toys and Games	27	18	12

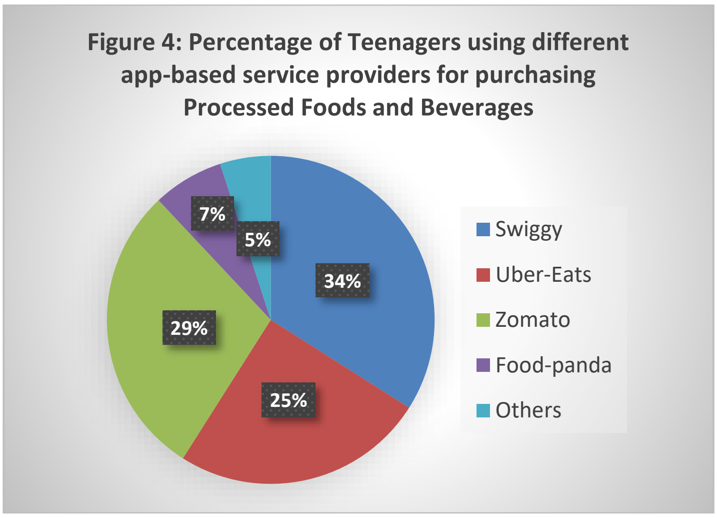
Source: Primary Data

From theFigure2 it is derived that primarily at the early-stage (i.e., 13-15 years), the teenagers are using mobile apps mainly for purchasing self-used products such as Books/CDs and toys and games. As their age is increasing, they are more inclined to app-based purchasing not only for self-used products but also for those products used by others in the membership group. The availability of wide varieties, price comparisons, fashion trends, accessing international brands and such other facilities give a boost to demand for using mobile apps for purchasing such commodities.



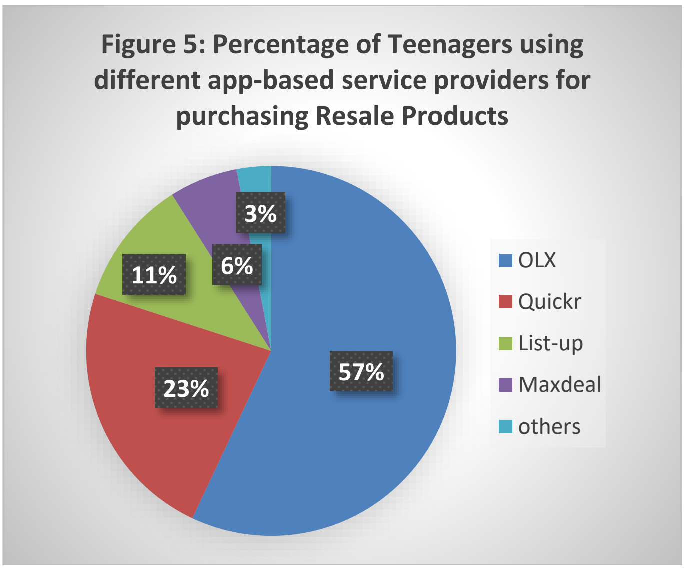
Source: Primary Data

Figure3 shows that the teenagers' most preferred app-based service provider is Flip kart as it was the only service provider in the country for many years. Later when other service providers came into picture its market went down, still it's the most preferred site as it maintains customer loyalty with providing superior brand quality and competitive price range for durable and non-durable products.



Source: Primary Data

So far as cooked/fast foods and beverages (Restaurants / food coat order) are concerned, Figure 4 depicts the most preferred brands are Swiggy, then Uber eats and Zomato, based on their fastest door-to-door delivery service and quality of foods delivered.



Source: Primary Data

In addition to the retail and fast food products, app-based services also offer a wide range of market for Resale products. Such service providers must ensure condition of the product with competitive price range. As per the record, Figure 5 displays that 57% of 900 respondents prefer OLX for dealing with such products.

HYPOTHESES

H1: Customer loyalty is significantly associated with the demographic factors of the teenagers while using mobile app service.

H2: Customer loyalty is significantly associated with the ultimate-users of various products categories that the teenagers are actually purchasing online.

H3: The factors, those make a teenager satisfied toward using mobile apps, significantly affect the customer satisfaction scores (CSATS) obtained by them.

H4: There is a significant relationship between customer satisfaction level and customer loyalty of the teenagers based on app-based purchasing.

H5: There are significant effects of some distracting factors that prevent the teenagers to maintain customer loyalty while using app-based services.

TABLE 2: RELIABILITY STATISTICS

Variables used	N of Items	Cronbach's alpha
Various product categories affecting the use of mobile app	**8**	**.613**
Variables that enhance the level of satisfaction while using app-based service	**14**	**.812**
Variables that reduce the level of satisfaction while using app-based service	**5**	**.747**

The above table shows that the values of all the Cronbach's alpha are greater than.6. It means that there is internal consistency among the factors that are considered to analyse the application of app-based purchasing habit among the teenager. Hence our questionnaire is reliable and we continue the research using this instrument.

TABLE 3: THE SUMMARISED RESULTS OF THE MODERATED REGRESSION ANALYSIS OF THE DEMOGRAPHIC FACTORS OF THE TEENAGERS IN RELATIONSHIP WITH CUSTOMER SATISFACTION AFFECTING CUSTOMER LOYALTY

Variables	Beta	t	Sig.	R square	Adjusted R square
Customer Satisfaction	.341	3.109	.000	.374	.356
Age	.265	2.663	.002		
Customer Satisfaction X Age	.553	4.902	.008		
Customer Satisfaction	.338	3.658	.000	.476	.469
Gender	-.395	-2.734	.034		
Customer Satisfaction X Gender	.518	4.227	.012		
Customer Satisfaction	.246	2.184	.000	.320	.312
No. of working parent	-.204	-2.044	.017		
Customer Satisfaction X No. of working Parents	.632	3.197	.003		
Customer Satisfaction	.172	3.328	.000	.374	.367
No. of family members	-.247	-2.938	.000		
Customer Satisfaction X No. of family members	0.348	3.394	0.027		
Customer Satisfaction	.322	3.405	.000	.402	.392
Parent's Education	-.335	-4.993	.035		
Customer Satisfaction X Parent's education	.684	5.929	.032		
Customer Satisfaction	.227	4.760	.000	.245	.234
Parent's income	-.314	-2.749	.014		
Customer Satisfaction X Parent's income	.451	5.385	.036		
		Significance level 5%			

The Table3 demonstrates that each of the demographic factors in combination with customer satisfaction had a significant influence on the determination of customer loyalty (as p value<.05 for each of them). The proportion of moderator effect of each of such demographic variables on customer satisfaction and on customer loyalty is explained by the component "adjusted R square". Therefore, 35.6% of the moderator effect on the relationship of customer satisfaction and customer loyalty is explained by the age of the teenagers. In the same way 46.9%, 31.2%, 36.7%, 39.2% and 23.4% of the moderator effect on such relationship is explained by the variables- teenagers' gender, their no. of working parents, no. of family members, parent's education and parent's income level.

TABLE 4: THE EXTRACTED RESULTS OF THE CHI-SQUARE TEST SHOWING ASSOCIATION BETWEEN VARIOUS PRODUCT CATEGORIES PURCHASED BY TEENAGERS USING MOBILE APPS AND THEIR LOYALTY

Categories of products	Pearson Chi-squire values	DF	p-values	Significant/ Non-significant
Durables	17.328	12	.056	Not Significant
Non-durables	*32.655*	*12*	*.024*	*Significant*
Processed foods and beverages	12.655	12	.124	Not Significant
Re-sale Products	*24.483*	*12*	*.035*	*Significant*

Significance level 5%

In order to determine whether ultimate-users of various product categories are affecting teenagers' loyalty or not, while using mobile apps for purchasing such products, Pearson chi-square test is conducted at 5 % level of significance. For this purpose, the various products are categorized as durables (i.e., households, electronic gadgets, computer products, books and CDs, toys and games) non-durables (i.e., toiletries and personal care, apparels) foods& beverages and re-sale products. Each of the above product category consists of three groups according to their ultimate users- Self-used products, used by other family members and Used by Both. Table4 shows the result of the chi-square test for each of the above product categories. For durables and processed foods the value of chi-square test are *$\chi^2(12) = 17.328$ and $\chi2(12)=12.655$ with $p =.056$ and $p=.124$ respectively* which implies that customer loyalty based on app-based services used by the teenagers for purchasing durables and processed foods is independent of the end-users of such products (as p value>.05). However, for non-durables and resale products, the customer loyalty associated with such purchases is associated with the end-users of such products (as p values<.05)

Here Exploratory Factor analysis (EFA) is conducted as a dimension reduction technique to handle the large number of variables that are coded against 7-point Likert scale. In the study 14 variables are used to measure the level of satisfaction of teenagers towards using mobile app service. The result has been obtained using eight iterations using SPSS.

TABLE 5: THE RESULT OF KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.660**
Bartlett's Test of Sphericity	**Approx. Chi-Square**	*143.317
	Df	**91**
	Sig.	**.000**

***5% Significance level**

The Kaiser-Meyer-Olkin (KMO) measure is used to test the sampling adequacy, which varies between 0 and 1. The value closer to 1 is better and the value of.6 is the suggested minimum. In Table5 KMO=.66 which indicates that the sample is adequate and we may proceed to the factor analysis.

The Bartlett's Test of Sphericity follows chi-square distribution with p(p-1)/2 d.f., where p is the number of variables. Bartlett's test of sphericity reveals the zero level of significance i.e., less than the required level of significance of 0.05 percent, which indicates there is a significant correlation among variables. Hence, Bertlett's test is significant and factor analysis is appropriate.

TABLE 6: FACTORS IDENTIFIED AGAINST STATEMENT SHOWING THE ATTITUDE OF THE RESPONDENTS TOWARDS APP-BASED SERVICE

Statements	Factor loadings	Eigen Value	% of variance	Cumulative % of Variance
F1: Prices and charges involved in app-based purchase		***5.183***	***37.021***	***37.021***
I always find the price of any product less than general market price.	.970			
I always find huge transaction cost involved in app-based purchase	.820			
I consider the amount of shipping charges associated with delivery of product	.944			
I usually get the benefit of discount on bulk purchase.	.847			
I enjoy seasonal offer ones or twice during a particular year	.905			
F2: Quality of services offered by mobile-apps.		***4.172***	***29.8***	***66.821***
I give much more importance on after-sales service of any particular app.	.676			
Return Policy of the application is very important to me.	.779			
I experience quick delivery of any product	.692			
I always take care of the quality of the product offered	.649			
I always pay attention to the packing of the product physically received	.676			
I always prefer those application which are technologically easy to access	.772			
F3: Security issues of app-based purchase		***2.620***	***18.714***	***85.535***
I always prefer those applications which guarantee security of payment.	.617			
I always alert about whether the personal details of a consumer are properly kept or not.	.608			
Mode of payment available for purchasing a product is an important issue to me.	.620			

Table 6 shows the factors identified against statement showing level of satisfaction of the teenagers while using app-based service. It also reveals the factor loadings of the variables in each factor, its Eigen value and the percent of variation are explained. Each of the above three factors have the Eigen values exceeding 1.0 and all the three factors together explain 85.535% of the total variance. Varimax rotation is applied for transforming the factors to make them more interpretable. Thus 14 variables are reduced to Three-factor model and each factor is intensified with corresponding variables.

Based on the above factors influencing the satisfaction level of teenagers using mobile app, we can able to perform “one-way Repeated Measure ANOVA” to assess whether or not there is a significant effect of such factors on the customer satisfaction score (CSATS) obtained by them. The dependent variable is the average Customer Satisfaction Score (CSAT) obtained by the teenagers and the independent variable involves three categorical independent groups consisting of Prices and charges, Quality of service and Security issues affecting CSAT score.

TABLE 7: DESCRIPTIVE STATISTICS

	Mean	***Std. Deviation***	N
Prices and Charges	***59.73***	***10.376***	900
Quality of services	***60.30***	***10.543***	900
Security issues	***59.53***	***10.186***	900

Descriptive statistics show the pattern of data used in the analysis. But in order to find out whether the observed differences are significant, we need to consider the inferential statistics.

TABLE 8: MAUCHLY’S TEST OF SPHERICITY (Measure: MEASURE_1)

Within Subjects Effect	Mauchly's W	***Approx. Chi-Square***	***df***	***Sig.***	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	.999	***1.537***	***2***	***.464***	.899	.995	.500

Significance level 5%

In the above Table, it is revealed that the Mauchly’s test is not significant at 5% level (as p value is more than.05), hence the assumption of sphericity has been met, $\chi^2(2) = 1.537, p = .464$

TABLE 9: TESTS OF WITHIN-SUBJECTS EFFECTS (Measure: MEASURE_1)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Factor	***Sphericity Assumed***	***1289.130***	***2***	***644.565***	***6.024***	***.029***	***.182***
	Greenhouse-Geisser	1289.130	1.999	644.887	6.024	.029	.182
	Huynh-Feldt	1289.130	2.000	644.565	6.024	.029	.182
	Lower-bound	1289.130	1.000	1289.130	6.024	.045	.182
Error(factor1)	***Sphericity Assumed***	***192370.204***	***1798***	***106.991***			
	Greenhouse-Geisser	192370.204	1796.914	107.056			
	Huynh-Feldt	192370.204	1798.000	106.991			
	Lower-bound	192370.204	899.000	213.982			

Significance level 5%

As the Mauchly’s Test of sphericity assumption has been met, we should use the data obtained in the row of ‘Sphericity Assumed’. Hence, based on the row of ‘Sphericity Assumed’, the result of the test can be reported as **$F(2, 1798) = 6.024, p = .029, \eta_p^2 = .18$.** Thus, it can be concluded that there is a significant main effect of the above factors on the customer satisfaction score (CSATS) of the teenaged participants using mobile app.

Finally, to establish the relationship between customer satisfaction level (measured by CSATS) and customer loyalty (measured in customer loyalty score) of the teenagers, Multiple Regression Analysis is used. The findings of the study are presented in the following Table.

TABLE 10: MODEL SUMMARY

Model	***R***	***R Square***	***Adjusted R Square***	Std. Error of Estimate
1	***.937***	***.878***	***.834***	.413

a. Predictors:(Constant), CSATS of Prices and charges, CSATS of Quality of services, CSATS of security issues

The Table10 shows the model summary consisting of R, R square, adjusted R square and the Standard error of the estimates. Those components are used to determine how well the model fits the data. The multiple correlation coefficient, R is used to measure the quality of prediction of Customer loyalty score (Dependent variable). Here the value of R is.937 which represents a good level of prediction. The R square, called Coefficient of determination shows the value.878 which indicates 87.8% of the variability of the dependent variable (i.e., Customer loyalty score) is explained by the independent variables (i.e., CSATS of Prices and charges, CSATS of Quality of services and CSATS of security issues). Moreover, the low discrepancy between the values of R square (.878) and adjusted r square (.834) indicates a better fit of the model.

TABLE 11: COEFFICIENTS

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.012	1.589		1.896	
	CSATS of Prices and charges	***.564***	***.162***	***.376***	***3.481***	***.012***
	CSATS of quality of services	***.475***	***.089***	***.411***	***5.337***	***.003***
	CSATS of security issues	***.468***	***.152***	***.339***	***3.079***	***.028***

a. Dependent Variable: Customer loyalty score

The Table11 shows the statistical significance of the independent variables used in the study. The t values and their corresponding p values reflecting in the table indicate that for each of the independent variables p value is less than.05, which means that all the explanatory variables are useful and all of them contribute substantially in explaining the customer loyalty score of the teenagers using mobile app services.

TABLE 12: CHI-SQUARE TEST SHOWING EFFECTS OF THE DISTRACTING FACTORS ON TEENAGERS' LOYALTY WHILE USING APP-BASED PURCHASING

Factors	Pearson Chi-squire values	DF	p-values	Significant/ Non-significant
Delay in delivery	***30.529***	***36***	***.026***	***Significant***
Cheap Quality	***39.384***	***36***	***.004***	***Significant***
Product Damage	34.152	36	.321	Non-Significant
Non-delivery	19.645	36	.058	Non-Significant
Wrong Product sent	***62.545***	***36***	***.007***	***Significant***

Significance Level 5%

In the Table12, the results of the chi-square test are shown that explain the significant association between two variables. Here the two variables are different problems associated with app-based purchasing and loyalty of the teenagers on such purchases. The test is run at ***5% level of significance (α-level)***. It is clear from the above table that out of five independent variables, three variables (Delay-in-delivery, Cheap quality and wrong product sent) significantly affect application of app-based purchasing of teenagers (as p-value<.05). However, other two variables (Product damage and Non-delivery) are not significantly affect their app-based purchasing (as p-value>.05).

VI. CONCLUSION AND RECOMMENDATION

Empirically, the results demonstrate that the effects of customer satisfaction on customer loyalty based on app-based purchasing by the teenagers need to be acknowledged and understood by the marketers in order to identify the target market and to formulate different marketing offerings productively. However, the level of such influences varies among different age and gender of the teenagers, socio-economic influence of their membership group, different product categories, various factors affecting their levels of satisfaction and various problems associated with using app-based purchasing services. The result of the research should also encourage the businesses to do market research and customer analysis prior to adoption of advanced app-based technology not only for offering and selling various commodities but also retaining a reasonable amount of loyal teenaged customers.

VII. LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

Despite the theoretical and empirical contribution provided by the present study, it is limited to the restricted number of variables and the selected durables and non-durables. Due to time and resource constraints this study is only limited to the districts of Kolkata and 24-Parganas (North) in West Bengal. That means the study concentrates only on urban families ignoring rural purchase-making process. Therefore, there is a further scope of research to include more widely geo-graphical area with other relevant variables that can explore a wider picture relating to such influence of customer satisfaction on customer loyalty in the context of using app-based technologies by the teenagers for purchasing commodities.

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LIQUIDITY AND PROFITABILITY ANALYSIS OF INDIAN POWER SECTOR: A STUDY OF TSNPDCL

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ABSTRACT

The present paper examines the liquidity and profitability of India power sector. They play vital role in every organization just as the role of heart in human body. Northern Power Distribution Company of Telangana Ltd (TSNPDCL) was incorporated under the Companies Act,1956 as a Public Limited Company on 30-03-2000 with headquarters at Warangal to carry out electricity distribution business as part of the unbundling of erstwhile A.P.S.E.B. The Company caters to supply of electricity in districts of Mancherial, Nirmal, Kumram Bheem, Kamareddy, Peddapalli, Jagtial, Rajanna, Warangal Urban, Warangal Rural, Mahabubabad, Prof Jayashankar, Jangaon, Bhadradri, Adilabad, Nizamabad, Karimnagar and Khammam Districts. Therefore, the effort of an organization depends largely in this ability to manage its working capital, which helps to maintain a balanced relation between the liquidity and profitability. This study analysis of liquidity and profitability of TSNPDCL Ltd., relevant data has extracted from the Annual reports between financial years 2013-14 to 2018-19 of the company.

KEYWORDS

TSNPDCL, liquidity, profitability.

JEL CODES

M41, L94.

INTRODUCTION

India has always been a power-deficient country. The demand for power is huge in India and supply of power has not been able to meet its demand. Under the Government's "Power for all by 2020" plan it is estimated that there is a capacity addition of more than1, 00,000 MW would be required. This shows that huge capacity additions are required at good efficiency rates, indicating that the opportunities available in this sector are huge.

The role of the Government in the development of Indian power industry has been very crucial. Government's policies aim at protecting consumer interests and making the sector commercially viable. As far as regulation is concerned, Electricity Act, 2003 is a very important Act as it allowed private sector participation in the generation of power, thus creating competition. It also allowed 100% FDI participation in the power generation, Transmission and Distribution (TD), thus inducing investments in the power sector. Globally, every dollar invested in generation has an equal amount invested in transmission and distribution. However, in India traditionally every dollar invested in generation has a corresponding half a dollar invested in transmission and distribution. Due to this, transmission capacity in India lags behind the generation capacity. Huge investments are required in Transmission and Distribution, if India's power sector is to meet the rising power demand.

PROFILE OF TSNPDCL

Northern Power Distribution Company of Telangana Ltd (TSNPDCL) was incorporated under the Companies Act, 1956 as a public Company on 30-03-2000 with head quarter at Warangal to carry out electricity distribution business as a part of the unbinding of erstwhile Andhra Pradesh Electricity Board (APSEB). The company caters to supply of electricity in district of Mancherial, Nirmal, KumramBheem, kamareddy, Peddapelly, Jagital, Rajanna, Bhadradri, Adilabad, Nizambad, Karimanager, Khammam, Warangal Rural and Warangal Urban Districts. The Company reaches out to a population of about 155.22 lakhs (as per provisional 2011 census) spread across hamlets, villages and towns spanning an area of 66,860 sqkm. The principal role of company is that of service provider to support economic and lifestyle activity in its licensed area.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

1. To evaluate the liquidity through ratio analysis of TSNPDCL.
2. To study relationship between liquidity and profitability of TSNPDCL.

SCOPE OF THE STUDY

The present study is "Liquidity and Profitability Analysis of Indian Power Sector- A Study of TSNPDCL" focused on liquidity and profitability of Telangana Northern Power Distribution Company Ltd. It is one of the leading large size Power Distribution Corporation in Telangana. The scope concerned under the present study is ten years, during 2004-05 to 2014-15. The study units are situated at different places in Telangana.

RESEARCH METHODOLOGY

The present study is a case method of research for which the required data has been collected from the secondary sources comprising of published annual reports of TSNPDCL from 2013-14 to 2018-19. The collected data have been analysed in two ways, analysis of liquidity and profitability ratios and the relationship between liquidity and profitability. The collected data analysed various statistical methods have been applied such as Mean, Standard Deviation, Co-efficient of variance, Spearman rank Co-relation and T-Test in the study.

LIQUIDITY ANALYSIS IN TSNPDCL

Liquidity refers to the ability of an undertaking to meet its current obligations as and when become due. In fact, liquidity is a pre-requisite for the survival of a firm. The short-term creditors of the firm are interested in the short-term solvency or liquidity of a firm. The liquidity ratios measure the ability of a firm to meet it's short term obligations and reflect the short-term financial solvency of a firm. The ratios which indicate the liquidity of a firm are:

i) Current Ratio ii) Acid Test Ratio iii) Absolute Liquid Ratio

Current Ratio: Current ratio expresses the precise relation between current assets and current liabilities. The ratio is also known as working capital ratio. It is calculated by dividing the current assets with current liabilities.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

It indicates the availability of current assets in rupee for every one rupee of current liabilities. A high ratio means that the firms have more investment in current assets. While a low ratio indicates that the firm in question is unable to retire its current liabilities. In fact, a satisfactory current ratio for any given firm is difficult to judge. For most manufacturing undertakings a ratio of 2:1 is considered a benchmark of adequate liquidity.

TABLE 1.1: LIQUIDITY RATIO OF TSNPDCL

Year	Current ratio	Quick ratio	Absolute liquidity ratio
2013-14	0.86	0.64	0.42
2014-15	0.55	0.53	0.28
2015-16	0.51	0.49	0.22
2016-17	0.45	0.43	0.23
2017-18	0.49	0.49	0.26
2018-19	0.53	0.52	0.29
Avarage	0.56	0.52	0.28

Source: *Annual Reports of TSNPDCL*

Table 1.1 reveals that in TSNPDCL Ltd the current ratio varied from the lowest 0.45 times in 2016-17 to the highest 0.86 times in 2013-14 with an average 0.56 times which shows this liquidity position of the company was not satisfactory. As per the ideal current ratio, the liquidity position of the selected company is 'not sound'.

Acid Test (or) Quick Ratio: Recognizing that inventory might not be very liquid, this ratio takes the quickly realizable assets and measures them against current liabilities. It is calculated by dividing quick assets by current liabilities. The quick assets include cash like assets and all current assets other than inventory and prepaid expenses.

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

It signifies the ability of a firm to settle all its current liabilities. Conventionally, a quick ratio of 1:1 considered to be a more satisfactory measure of liquidity of an enterprise.

It clears from Table-1.1 the quick ratio fluctuated between 0.43 times in 2016-17 to 0.64 times in 2013-14. An average of the quick ratio 0.52 times, during the period of study. The company is not maintaining the ideal norms of the quick ratio 1:1.

Absolute Liquidity Ratio: Absolute liquidity ratio is the refinement of the concept of eliminating inventory a liquid asset in the acid-test ratio, because of their uncertain value at the liquidation. Although receivables are generally much more liquid in nature than inventories, some doubt may exist concerning their liquidity as well. So by eliminating receivables and inventories form the current assets, another measure of liquidity is derived by relating the sum of cash and marketable securities to the current liabilities.

Table-1.1 reveals that the absolute liquidity ratio varied from the lowest 0.22 in 2015-16 to the highest 0.42 in 2013-14, an average of the ratio was 0.28.This table shows the cash position of the company was not satisfactory, which was lower in current assets as compared with the norm of 0.5:1 during the period of the study. It may be attempted to conclude that the size of working capital held by TSNPDCL was inadequate not excessive. But this is the real situation. In fact, the liquidity of a concern depends on the current assets as much as on the current liabilities. If the concern is able to secure short-term finance in a large measure, then the amount of current liabilities will be shot up by the same extent. That is why the study of liquidity ratio could not give us the correct position as to the adequacy of working capital.

Liquidity Vs. Profitability

The firm would make just enough investment in current assets if it were possible to estimate working capital needs exactly. Under perfect certainty, current assets holdings would be at the minimum level. A larger investment in current assets under certainly would mean a low rate of return on investment for the firm, as excess investment in current assets will not earn enough return. A smaller investment on the other hand, would mean interrupted production and sales, because of frequent stock-outs and inability to pay to creditors in time due to restrictive policy.

As it is not possible to estimate working capital needs accurately, the firm must decide about levels of current assets to be carried. Given a firm's technology and production policy, sales and demand conditions, operating efficiency etc., its current assets holdings will depend upon its working capital policy. It may follow a conservative or an aggressive policy. These policies involve risk-return and risk-return trade-offs. A conservative policy means lower return and risk, while an aggressive policy produces higher return and risk.

TESTING OF HYPOTHESIS

Null Hypothesis (H_0): There is no significant difference between current ratios and profit before interest of TSNPDCL during the study period.

Alternative Hypothesis (H_1): There is a significant difference between current ratios and profit before interest of TSNPDCL during the study period.

TABLE 1.2: RANK CORRELATION BETWEEN CURRENT RATIOS AND PROFIT BEFORE INTEREST AND TAX OF TSNPDCL DURING 2013-14 TO 2018-19

(Using Spearman Rank Correlation)

Year	Current Ratio	R_1	PBIT	R_2	d	d^2
2013-14	0.86	1	33.77	6	-5	25
2014-15	0.55	2	1348.20	4	-2	4
2015-16	0.51	4	995.44	5	-1	1
2016-17	0.45	6	1505.31	3	3	9
2017-18	0.49	5	1650.51	2	3	9
2018-19	0.53	3	3059.65	1	2	4
Correlation (r) = -0.45 $\sum d^2 = 52$						

It is evident from the table 1.2 shows negative correlation. There is no significant difference between current ratio and profit before interest and Tax of TSNPDCL., during the period of study.

FINDINGS AND CONCLUSION

Findings of the study revealed that the average current ratio was 0.56 times which shows this liquidity position of the company was not satisfactory. As per the ideal current ratio, the liquidity position of the company is not sound. The profitability of TSNPDCL has not improved significantly i.e., (negative impact) during the period of study. Another significant finding was that there is no direct relationship between liquidity and profitability of the company understudy. The analytical results imply that the implementation of the reform measures in the power sector have brought desired results by way of improvement in the profitability position of the company.

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