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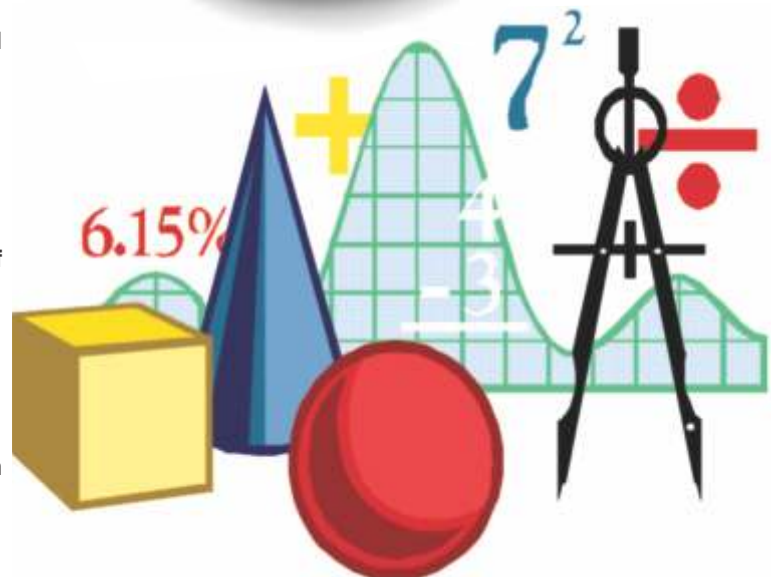
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An entwined relationship between investment flows of Foreign Institutional Investors (FIIs), Mutual Funds (MFs) and Indian Stock Market, over a stretch of 16 years' time period has been explicated by the author in this article.



17 A Comparative Analysis Of Performance Of Select 10 Banks Based On Camel Model

S. Visalakshi, R. Kasilingam

In the present article authors have tried to make an assessment of the financial sector stability especially the banking sector performance on the basis of CAMEL model



26 Customer Based Brand Equity: A Factor Analytical Approach

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The research paper interlinks customer satisfaction depending upon positive perception in the minds of customers of banking services to ascertain brand equity of banks



38 Students' Attitudes towards Developmental Mathematics

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The authors in this study have accounted factors like student's own attitude and influence of the student's peers; the perceived quality of the school; extracurricular involvement; teachers' attitudes; the parents' attitudes and college placement exam to determine his attitude towards developmental mathematics.



45 "An Empirical Evidence on the Factors Affecting Quality of Management Education in Punjab"

Gitika Nagrath, Amarjit S. Sidhu

The study identifies factors like student readiness, teaching quality, advancement opportunities, level of discipline, student orientation and Level of agreement with the faculty members which influence the quality of education in management organizations.

DOCTORAL ABSTRACT

55 A Study on the Impact of Declaration of Dividend in Automobile Industry

Parul Aggarwal

Indian Automotive Industry being second largest manufacturer and fifth largest in commercial vehicles segment has witnessed remarkable growth in last two decades. In his research the author has studied the impact of declaration of dividend in Automobile Industry



From The Editor's Desk

It is our profound delight to present to our readers, the twenty fifth issue of DIAS Technology Review.

Invigorated Indian financial markets are an upshot of Indian Government's approval route for foreign investors swarming around one of the most attractive investment destinations across the globe. Foreign institutional investors are capitalizing on equity markets on the basis of past returns and in turn are also influencing the market movements. The author in research article **"Effect of Mutual Funds (MFs) Investments and Foreign Institutional Investors (FIIs) Investments on the Indian Stock Market: An Empirical Analysis"** has investigated the volatility dynamics by studying the causal relationship between the investor group and Sensex with the help of Johansen's co-integration test and Granger Causality test.

Reserve Bank of India's accommodative stance has helped banking sector to navigate through turbulent global recession, but domestic environment is still challenging and riskier for a smooth sail. In the study **"A Comparative Analysis of Performance of Select 10 Banks Based on Camel Model"** authors have made an assessment of the financial performance of both public and private sector banks in India through CAMEL model. Similarly the cut-throat competition in banking industry is persuading them to focus on building the brand equity. The drivers and determinants of customer's perception towards banks' brand enhance customer satisfaction consequently, which have been duly scrutinized by the authors in their study **"Customer Based Brand Equity: A factor analytical approach"**.

Business eco-system needs to reinvent management strategies to deal with its financial, HR & marketing issues. A logical perspicacity is highly desirable to sharpen the decision making skills of professionals and its seeds are sown in their student life itself. In the study **"Students' Attitudes towards Developmental Mathematics"**, authors have tried to identify important factors that influence students' attitudes defining their performance and accomplishments as academicians or business stalwarts.

Not only attitude but the quality of education also determines one's altitude. The authors in their research paper **"An Empirical Evidence on the Factors Affecting Quality of Management Education in Punjab"** have pondered over the quality of management education by skimming out factors like student readiness, teaching quality, advancement opportunities, infrastructure and level of discipline which ascertain students' vocational success in times to come. These are constructive inputs for management education stakeholders as well as the teaching fraternity.

In our endeavor of pollination and proliferation of knowledge in different areas of business and IT, we are incorporating a Doctoral Abstract of research **"A Study on the Impact of Declaration of Dividend in Automobile Industry"** along with the latest research studies of distinguished scholars. This research examines the investment decision of investors in Indian Automobile Industry which depends upon many other considerations like excellent quality and product differentiation, high brand equity, excellent growth and diversification record of the company apart from its dividend declaration.

As in the past we hope you enjoy reading the present edition of this journal with all its thought provoking features. We would appreciate hearing the comments of our revered readers on this issue as well.



Regards,

Handwritten signature of Dr. Anju Batra in blue ink.

Dr. Anju Batra

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Effect of Mutual Funds (Mfs) Investments and Foreign Institutional Investors (FIIs) Investments on the Indian Stock Market: An Empirical Analysis

**Ms. Balwinder Kaur*

ABSTRACT

Exploring the interwoven relationships between investment flows of Foreign Institutional Investors (FIIs), Mutual Funds (MFs) and Indian Stock Market, based on 16 years' time period analysis, this study is aimed at understanding the effects of these institutional investors on the Sensex and vice versa. These groups of domestic and foreign investors play an important role in the development of any stock market. Investor groups are believed to invest in equity markets based on the past returns and in turn are understood to influence the market movements. Johansen's co-integration test and Granger Causality test are made use of for analyzing the long term relationship and the cause and effect relationship between the investor groups and the Sensex. The investigation of these variables in the present study suggests a unidirectional flow of impact from Sensex to investments by investment groups supporting the literature that institutional investors make positive feedback trading as their main investment strategy in the equity markets. However, the reverse effect from the investments by these investor groups to the stock market movements is found to be missing.

Keywords: Sensex, MF Equity Inflows, MF Net Investments, FII Equity Inflows, FII Net Investments, Correlation, Granger Causality, Johansen's co-integration



INTRODUCTION

An economy like India, offering relatively higher growth than the developed economies is an attractive investment destination for foreign institutional investors (FIIs). Bank of America Merrill Lynch recently conducted a poll in which 50 institutional investors participated and its results show India as the most favourite equity market for the global investors for the year 2015 at 43 per cent, followed by China at 26 per cent. A look at the latest shareholding pattern of Indian listed companies divulges the fact that FIIs command a very strong position in the Indian stock market. BSE 500 Companies are majorly held by the promoter groups only, to the tune of 51 percent but out of the remaining 49 percent free float, FIIs dominate the 40 percent thereby impacting the market movements with their fund flows in and out. Retail investors are left with only around one third of the holding of free float.

With a view to make India a more sought-after foreign investment destination, the Ministry of Finance is planning to introduce the residency permit policy, which will allow key executives of foreign companies who make investments in India worth more than US\$ 2 billion, to avail rewarding facilities such as special package on upscale housing, residency permits to allow long stay in the country, and cheap rates for utilities. The Reserve Bank of India (RBI) has stated that it will take steps to ease doing business and contribute to the growth of start-ups by simplifying processes and creating a supporting framework for receiving foreign venture capital, in line with the Government of India's 'Start-up India' initiative.

Mutual Funds (MFs) and Foreign Institutional Investors (FIIs) are the two most important institutional investors for any growing market like Indian stock market. Inflow of the foreign capital brings foreign currency into the country thereby contributing to the development of the economy but another major portion of capital in stock markets comes from the domestic route, wherein MFs play a significant role. An efficient mutual fund industry can enhance stock market investments. Strong character characterized by less abrupt actions and reactions of these two categories of institutional investors can really back a stable stock market.

Foreign Institutional Investor (FII), as per SEBI's definition, is an entity established or incorporated outside India which proposes to make investment in India. They are registered as FIIs in accordance with Section 2 (f) of the SEBI (FII) Regulations 1995. FIIs are allowed to invest through subscribing to new securities as well as trade in already issued securities. As represented in Figure 1.1, FII is just one form of foreign investments in India.

Nonetheless, as a category, FII does not exist anymore as it was decided to create a new investor class, "Foreign Portfolio Investor" (FPI) by merging the existing three investor classes; FIIs, Sub Accounts and Qualified Foreign Investors. Accordingly, SEBI (Foreign Portfolio Investors) Regulations, 2014 were notified on January 07, 2014 followed by certain other enabling notifications by Ministry of Finance and RBI. With the aim of ensuring seamless transition from FII regime

to FPI regime, it was decided to commence the FPI regime with effect from June 1, 2014 so that the requisite systems and procedures are in place before the new FPI regime comes into effect.

With the new FPI regime, which has commenced from June 1, 2014, it has now been decided to do away with the mandatory requirement of direct registration with SEBI and a risk based verification approach has been adopted to smoothen the entry of foreign investors into the Indian securities market. FPIs have been made equivalent to FIIs from the tax perspective, vide central government notification dated January 22, 2014.

Emerging markets have opened their markets to international investors causing a stupendous increase in inflow of funds to these countries. This brings with itself some big benefits as well as some challenging issues which need to be managed very closely. Debate on desirability and optimum level of the

international investment flow and a financial architecture to ensure efficient allocation of international resources without causing destabilization of markets is running since long and it continues.

In view of the huge funds being funneled into markets by these institutions, it would be worthwhile to calculate and compare the extent of impact of FIIs, MFs and stock markets on each other. It is crucial for policy makers as well as investor groups to know the cause and effect relationship of these categories of investors. Many a number of studies have focused on these inter-relationships across the world. The results present enormous depth in these interwoven variables. The present study is an endeavor to examine the correlation and cause & effect relationships between Indian MFs, FIIs and BSE Sensex.



LITERATURE REVIEW

Studies based on India find that domestic stock returns drive institutional investment flows in the stock markets. They also find that though FII flows to and from India are significantly affected by domestic stock market returns; return is not significantly influenced by variation in these flows.



Figure 1.1: FOREIGN INVESTMENTS IN INDIA
Source: Master Circular on Foreign Investment in India (2014)

Brian Boyer & Lu Zheng (2008) simultaneously analyzed the relation between aggregate stock market returns and cash flows (net purchases of equity) from a broad array of investor groups in the US over a long period of time from 1952 to 2004. They found strong evidence that quarterly flows are auto correlated for each of the different investor groups. Further, they documented a significant and positive contemporaneous relation between stock market returns and flows of Mutual Funds and Foreign Investors.

Sanjay Sehgal & Neeta Tripathi (2009) evaluated if FIIs adopt positive feedback and herding strategies in the Indian environment. They found that FIIs exhibit return chasing behaviour while working on monthly data. However, they do not seem to be working on the positive feedback strategy when they used daily files. This may be on account of the fact that they wait for the market information to crystallize and do not react to it in an instantaneous manner.

Suchismita Bose (2012) explored the dynamic interaction between investment flows of MFs and FIIs, based on post-crisis data from April 2008 to March 2012. Daily data on net investment flows of FIIs and MFs to Indian stock market, BSE Sensex, US index S&P 500, MSCI BRIC and MSCI Emerging Market indices have been used for the study. Using the correlation analysis, it was found that positive or large net inflows by FIIs on a given day tend to go along with positive or large net outflows by mutual funds and vice versa. Also, MF investments in stock markets show a moderately strong positive correlation with contemporaneous stock returns in consistency with the hypothesis that the investor group drives the market prices through non-informed trades or that the investor group has superior information and drives price changes through informed trading or is due to intra-day positive feedback trading, while the correlation with a day's lagged returns for the same were negative suggesting that MFs mostly follow contrarian or negative feedback trading strategies. FII investments in Indian markets showed a strong positive correlation with lagged stock market returns while the contemporaneous correlations for the same were also positive but much weaker. She also found a strong negative relationship between the net investments by these two classes of institutional investors. The study suggested that the effect of stock market returns in determining mutual fund flows can be outshined by the effect of FII investments.

Karan Walia, Dr. Rimpi Walia & Monika Jain (2012) studied the impact of FIIs investment on Indian stock market from 2000 to 2011. The Pearson correlation values indicated positive correlation between the foreign institutional investments and the movement of Sensex from 2000 to 2011. Using correlation analysis, the study revealed that the FIIs are making a huge influence on the movements of the Sensex.

Further, the results revealed that the Sensex rises when there are positive inflows of FIIs and there was a fall in Sensex when there were negative FII inflows.

Anubha Srivastav (2013) attempted to find out the determinants of FIIs in India, whether there is any relationship between FII investments and Indian stock market. The study, making use of Pearson correlation coefficients calculated for the time period from 2001 to 2010, found that FIIs have a positive impact on BSE Sensex and NSE Nifty, markets rise with increase in FII investments and fall because of FII withdrawals from the market.

Tanu Agarwal (2013) studied the relationship between FIIs, BSE Sensex and Mutual Fund investments. Studying the relationship through data of FIIs net investments, Sensex levels and Mutual funds net investment over thirteen years period from 2000 to 2013, the report notes that both Sensex and MFs have high degree of positive correlation with FIIs Investment.

Aswini A. and Mayank Kumar (2014) studied the relationship between FIIs and Indian stock market for the twenty years period from 1993 to 2014. The report concluded that there is a high correlation between FII flows and the rise in the index of Indian stock market in a long run but there is a very less impact in the short term.

Pramod Kumar Naik & Puja Padhi (2015) studied the relationship between institutional investment flow and stock returns using daily data over the period of January 2002 to July 2012. The analysis was conducted using two and three factors vector auto regression (VAR) frameworks, in which they included investment flow of two categories of institutional investors i.e. FIIs and DIIs, proxied by mutual funds, separately as well as jointly. The analysis for the institutional investor groups presented results that DIIs investment flows did have a major impact on market returns but not the FII flows. They also found that the fund flow from both the investor groups was significantly affected by their own lags and lagged stock returns, implying that they followed their own past strategy as well as the latest market behaviour, albeit their trading strategy differed. Considering these two institutional investor groups jointly, they found that the net flow of FIIs and DIIs significantly influenced the Indian stock market despite of controlling for market fundamentals. Also, they found a feedback relationship between the institutional investment flow and stock market returns.



RESEARCH OBJECTIVES AND HYPOTHESES

The objectives of the present study are:

- To investigate the long term relationships between investments by MFs & BSE Sensex and investments by FIIs & BSE Sensex
- To examine the cause and effect relationships between investments by MFs & BSE Sensex and investments by FIIs & BSE Sensex

The following hypotheses have been formulated for the study:

Ho(1): There is no long term relationship between MF investments and BSE Sensex

Ho(2): There is no long term relationship between FII investments and BSE Sensex

Ho(3): There is no significant cause and effect relationship between MF investments and BSE Sensex

Ho(4): There is no significant cause and effect relationship between FII investments and BSE Sensex

DATA

The primary source of data for this study is the monthly figures of equity inflows, equity net investments, and total (debt and equity) net investments by Indian MFs and FIIs for the time period April 1, 2000 to March 31, 2016, compiled on the basis of reports submitted to SEBI by custodians. The Indian stock market index observed for the purpose of the study is the BSE Sensex, comprising of the largest and most actively traded stocks representative of various industrial sectors of the Indian economy. The data of closing values of Sensex is taken from the official website of BSE. Data has been analyzed using E-Views 7 software.



RESEARCH METHODOLOGY

The present study has made use of Johansen Cointegration test to examine the level of cointegration first, between Sensex & MF investments and second, Sensex & FII investments. The first assumption that the time series under inspection are stationary is tested through Augmented Dickey-Fuller test. Before pursuing formal tests, plotting the time series gives an initial clue about the likely nature of the time series (Fig 1.2).

Augmented Dickey- Fuller test:
 It consists of estimating the following regression:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \epsilon_t$$

 Where ϵ_t is a pure white noise error term and
 $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2}), \Delta Y_{t-2} = (Y_{t-2} - Y_{t-3}),$ etc.
FIGURE 1.2: EQUITY MARKET INVESTMENTS BY MFs and FIIs (Rs. Crore)

The number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in equation (1.1) is serially uncorrelated. We test whether $\delta = 0$. After determining the stationarity of the time series, a nonstationary time series is

transformed into stationary series so as to avoid spurious regression resulting from regressing nonstationary time series. The solution here is to take the first differences of the time series because if a time series has a unit root, the first differences of such time series are stationary. The series under investigation have been tested using ADF test and the results are presented in Table 2B.

Johansen test for Co-integration:

Cointegration of two (or more) time series suggests that there is a long run, or equilibrium relationship between them. Johansen test for cointegration can be applied by one of the two types of methods, either with trace or with eigen value. The null hypothesis for the trace test is that the number of cointegration vectors is $r = r^* < k$, vs. the alternative that $r = k$. Testing proceeds sequentially for $r^* = 1, 2,$ etc. and the first non-rejection of the null is taken as an estimate of r . The null hypothesis for the eigen value test is as for the trace test but the alternative is $r = r^* + 1$ and again, testing proceeds sequentially for $r^* = 1, 2,$ etc. with first non-rejection used as the estimate for r . The selected lag length for the test is based on either Akaike Information Criterion or the Schwarz Information Criterion.

Granger Causality test:

A time series is said to Granger Cause another series if the past values of the former improve the forecast of the latter (Enders, 2008). Granger Causality test is used for testing the causal relationship between two stationary series because correlation does not imply causality. Distinguishing between these two is by no means an easy task. If a time series is stationary, the test is implemented using the level values of two or more variables. If the variables are non-stationary, the test is conducted by using first (or higher) differences. The number of lags to be included is usually chosen using an information criterion, such as the AIC or SIC.

To test the null hypothesis that x does not Granger cause y, one first finds the proper lagged values of y to include in a univariate autoregression of y:

$$Y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_m y_{t-m} + \text{error}$$

Next, the autoregression is augmented by including lagged values of x:

$$Y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_m y_{t-m} + b_1 x_{t-p} + \dots + b_q x_{t-q} + \text{error}$$

p is the shortest and q is the longest lag length for which the lagged value of x is significant.

The null hypothesis that x does not Granger cause y is not rejected if and only if no lagged values of x are retained in the regression. Granger causality means only a correlation between the current value of one variable and the past values of other. The implication is not that the movements of one variable cause movements of another.



EMPIRICAL ANALYSIS

Earlier studies have proposed a strong positive correlation between equity investments by MFs & FIIs and stock market returns. This draws us towards examining these variables closely and trying to put forward some possible relation between their behavior in the Indian stock market.

THE FII & MF INVESTMENT FLOWS AND SENSEX DATA

Table 1A presents the magnitude of net investments by MFs and FIIs in Indian stock market from April 2000 to March 2016. The year 2014-2015 observed maximum total investments so far by both MFs and FIIs in India. Mutual fund houses remained bullish on the equity markets in 2015 and purchased shares worth a staggering over Rs. 70,000 crore, largely due to the strong participation from retail investors. "As domestic investors continued to invest in equities through MFs, 2015 turned out to be a stellar year for the industry with impressive inflow in the segment," UTI Mutual Fund EVP and Fund Manager V Srivatsa said. Quantum AMC Managing Director and Chief Information Officer I V Subramaniam said, "Domestic mutual funds have been bullish on the stock market ever since the NarendraModi-led BJP government came to power at the Centre".

Main features of the data series analyzed over the time period of our study are presented in Table 1B. Positive skewness of all the series represents an asymmetry where data points are skewed to the right of the average of the data. By knowing which way the data is skewed, one can better estimate whether a given (or future) data point will be more or less than the mean. Kurtosis values represent a leptokurtic distribution in comparison with normal distribution; the tails are longer and fatter whereas the central peak

is higher and sharper. Researchers have suggested that leptokurtosis arises from a specific form of volatility in the financial markets where periods of high volatility tend to be followed by periods of relative stability. Jarque-Bera is a test statistic for testing whether a particular series is normally distributed. Its small probability value leads to rejection of null hypothesis of a normal distribution. JB statistic values represent that the series differ from the normal distribution.

CORRELATION ANALYSIS

The correlation matrix in Table 1C brings out certain notable trends in the relationship between the variables considered in the study.

Sensex appears to be strongly positively correlated with Mutual Funds equity inflows into the market. FII equity inflows into the market show a much stronger positive correlation with the Sensex. These results are consistent with the hypothesis that the investor group moves market prices through non-informed trades, or that the investor group has superior information and drives price changes through informed trading decisions or it is due to intra-day positive feedback trading by the investor group. Similar positive correlation is hence evidenced in the correlation between Sensex and MF total net investments into the market.

ADF TEST RESULTS

While testing for the stationarity of series using ADF test, the hypothesis tested is:

H0: Series is non-stationary i.e. it has a unit root

H1: Series is stationary i.e. it has no unit root

H1: Series is stationary i.e. it has no unit root

Table 1A: INVESTMENTS BY MFs AND FIIs (2000-2016)

YEAR	MFs(Rs.Crore)			FIIs(Rs.Crore)		
	EQUITY	DEBT	TOTAL	EQUITY	DEBT	TOTAL
2000-2001	-2650.45	0.00	-2650.45	10207.60	-391.00	9816.60
2001-2002	-3807.96	5388.64	1580.68	8273.88	659.99	8933.87
2002-2003	-2016.83	12585.77	10568.94	2533.95	366.17	2900.12
2003-2004	1304.21	22718.20	24022.41	42644.80	5690.64	48335.44
2004-2005	3536.53	17040.24	20576.77	39336.00	1878.90	41214.90
2005-2006	14162.28	36360.41	50522.69	48087.90	-6765.60	41322.30
2006-2007	8127.78	49041.39	57169.17	21518.93	5702.71	27221.64
2007-2008	13669.70	71101.40	84771.10	51595.30	11771.00	63366.30
2008-2009	6601.90	79926.00	86527.90	-46700.70	1860.80	-44839.90
2009-2010	-10234.50	186149.30	175914.80	117648.10	34389.20	152037.30
2010-2011 -	20574.40	251132.20	230557.80	110529.70	42145.10	152674.80
2011-2012	-1117.40	342167.70	341050.30	46493.10	50997.30	97490.40
2012-2013	-22865.00	477871.70	455006.70	138586.10	39951.70	178537.80
2013-2014	-21274.30	542969.70	521695.40	81728.90	-27892.20	53836.70
2014-2015	40714.00	594457.30	635171.30	108672.79	162821.87	271494.66
2015-2016	63888.70	383463.70	447352.40	-17739.06	12828.79	-4910.27

Source: SEBI

TABLE 1B: DESCRIPTIVE STATISTICS (April 2000 to March 2016)

SENSEX	MF_EQ_INF	MF_EQ_NI	MF_TOT_NI		FII_EQ_INF	FII_EQ_NI	FII_TOT_NI
Mean	13398.49	9992.219	351.3764	16353.32	44558.05	3976.132	5726.212
Median	14519.15	9743.575	-98.865	6475.095	47481.94	2448.5	3111.7
Maximum	29361.5	29865.2	10532.9	99023.5	127877.6	29195.8	40757.29
Minimum	2811.6	466.58	-10198.5	-26736.2	2629.2	-17326.3	-40902.5
Std. Dev.	7776.619	6991.445	2786.91	23099.42	31762.37	8094.742	11489.08
Skewness	0.186679	0.458305	0.71021	1.416141	0.345752	0.577829	0.444119
Kurtosis	1.908056	2.450621	5.896848	4.644086	2.277212	3.777842	4.689031
Jarque-Bera	10.6539	9.135943	83.27455	85.79875	8.004796	15.52468	29.13434
JB Prob.	0.004859	0.010379	0	0	0.018272	0.000425	0

TABLE 1C: CORRELATION OF SENSEX WITH MF AND FII INVESTMENTS

SENSEX	MF_EQ_INF	MF_EQ_NI	MF_TOT_NI		FII_EQ_INF	FII_EQ_NI	FII_TOT_NI
SENSEX			1				
MF_EQ_INF		0.852726		1			
MF_EQ_NI		0.237534	0.456242719		1		
MF_TOT_NI	0.663669	0.434306985		0.09757084		1	
FII_EQ_INF	0.927661	0.898053304	0.196406391	0.57410797		1	
FII_EQ_NI	0.253877	0.065416952	-0.529859269	0.280348065	0.329473761	1	
FII_TOT_NI	0.357851	0.194629394	-0.325245545	0.334109676	0.410209148	0.859845977	1

The results of the t- statistic computed for all the series are represented in Table 2B.

Since the calculated ADF test statistic values are less than the critical value, we reject the null hypotheses that the series are non-stationary. This implies that the series become stationary at level or at first difference. Now these stationary series are fit to be used for further analysis.

JOHANSEN'S CO-INTEGRATION TEST RESULTS

The test works on maximization of trace test and eigen value which determines the number of co-integrating equations.

TABLE 2A: CRITICAL VALUES			
	1%	5%	10%
Critical Values	-3.464827	-2.8766	-2.57487

The hypotheses tested are:

TABLE 2B: RESULTS OF STATIONARITY		
Series	t-statistic value	
Sensex	At first difference	-13.56040
MF_EQ_INF	At first difference	-19.34080
MF_EQ_NI	At level	-4.62973
MF_TO_NI	At first difference	-9.90467
FII_EQ_INF	At first difference	-19.01580
FII_EQ_NI	At level	-9.06569
FII_TOT_NI	At level	-5.68203

H0: There is no long term relationship between the series

H1: There is a long term relationship between the series

The results of the test are as represented in Table 2C. The

critical values at 0.05 level were 15.49471 and 3.841466 for none and at most one co-integrating equation respectively. In case of Mutual funds, the results suggest long-run relationship between the Sensex and total net investments by MFs. FIIs seem to have a long-run relationship with Sensex as can be seen by presence of co-integrating equations between the Sensex and FII equity inflows, FII equity net investments and FII total net investments.



DIRECTION OF CAUSALITY RESULTS

Granger causality test is performed to investigate the short-run dynamic causal relationship between the series at hand. The results of the test are represented in Table 2D. Our results show that MF investments as well as FII investments do not seem to play a part in determining the movements in the Sensex. The causality test confirms that the direction of causation runs from Sensex to MF inflows, MF net investments and FII inflows but not vice versa.

Consistent with our correlation analysis, we find movements in the Sensex to be distinctively significant in determining MF inflows and net investments, and FII inflows into the Indian stock market. Hence our hypothesis "Ho(3): There is no significant cause and effect relationship between MF investments and BSE Sensex" gets rejected.



CONCLUSIONS AND COLLATING EVIDENCE

Several studies have examined the dynamic relationship between Sensex and institutional investor groups, such as MFs and FIIs. Here we compare our evidence on correlation, cointegration and causality with some of the earlier studies.

TABLE 2C: CO-INTEGRATION TEST RESULTS

Series 1	Series 2	NUMBER OF HYPOTHESISED EQUATIONS	MAXIMUM EIGEN VALUE	TRACE STATISTIC	P- VALUE
Sensex	MF_EQ_INF	NONE	0.036272	7.501144	0.5202
Sensex	MF_EQ_NI	NONE	0.059302	12.04032	0.155
Sensex	MF_TOT_NI	NONE	0.103715	20.82547	0.0071
Sensex	MF_TOT_NI	AT MOST 1	0.001868	0.349585	0.5543
Sensex	FII_EQ_INF	NONE	0.144798	29.58574	0.0002
Sensex	FII_EQ_INF	AT MOST 1	0.001793	0.33555	0.5624
Sensex	FII_EQ_NI	NONE	0.140777	29.21478	0.0002
Sensex	FII_EQ_NI	AT MOST 1	0.004491	0.841781	0.3589
Sensex	FII_TOT_NI	NONE	0.173169	36.42551	0
Sensex	FII_TOT_NI	AT MOST 1	0.004623	0.86659	0.3519

TABLE 2D: GRANGER CAUSALITY TEST RESULTS

Null Hypothesis	F-Statistic	Prob.	Acceptance/ Rejection
SENSEX does not Granger Cause MF_EQ_INF	24.1689	5.00E-10	Rejected
MF_EQ_INF does not Granger Cause SENSEX	0.14834	0.8622	Accepted
SENSEX does not Granger Cause MF_EQ_NI	3.20701	0.0427	Rejected
MF_EQ_NI does not Granger Cause SENSEX	1.22269	0.2968	Accepted
SENSEX does not Granger Cause MF_TOT_NI	17.3224	1.00E-07	Rejected
MF_TOT_NI does not Granger Cause SENSEX	0.68074	0.5075	Accepted
SENSEX does not Granger Cause FII_EQ_INF	20.9684	6.00E-09	Rejected
FII_EQ_INF does not Granger Cause SENSEX	0.11333	0.8929	Accepted
SENSEX does not Granger Cause FII_EQ_NI	0.63863	0.5292	Accepted
FII_EQ_NI does not Granger Cause SENSEX	0.81424	0.4446	Accepted
SENSEX does not Granger Cause FII_TOT_NI	1.48064	0.2302	Accepted
FII_TOT_NI does not Granger Cause SENSEX	1.09538	0.3366	Accepted

Studies by some of the Indian researchers tend to show the predominance of Indian stock market as the major driver of FII inflows into India. Although FII flows into and out of India have been found to be significantly affected by movements in the domestic stock market but stock market movements are not seen to be influenced by variations in these flows. A study also found that the net investments by FIIs were positively related to the volatility of returns in the foreign market. A study between 2000 and 2003 found that lagged FII investment is not a predictor of index returns whereas between 2004 and 2009, lagged FII investment is found to be positively related to index return and there is evidence of net FII investments causing BSE returns in this period. In contrary, some recent studies, as well as the present study have mostly found only unidirectional causality flow from stock market movements to mutual fund investments. It is quite evident that both FIIs and MFs follow feedback trading as an investment strategy. Indian research studies present different findings than US institutional investors (Edelen & Warner, 2001), but somewhat similar to Japanese institutions (Kim & Nofsinger, 2005) and Korean markets (Kim & Wei, 2002).

This study has examined the dynamic interaction between institutional investment flows of two important categories of institutional investors in the Indian stock market, viz., MFs

and FIIs and the Sensex. The study investigated the possible relationships between BSE Sensex and these investor groups for the 16 years' time period between 2000 and 2016.

Very interestingly, the study proposes that the stock market index, Sensex is not affected by the inflows and net investments made by domestic institutional investor group i.e. MFs and foreign institutional investor group i.e. FIIs. However, Sensex is found to be consistently significant as the causal variable for

changes in MF flows as well as FII flows. The Granger Causality test results present a significant effect of Sensex on MF equity investments as well as on the total investments (debt and equity) by MFs. Also, Sensex is found to impact the equity inflows of FIIs. The findings justify the need to study FII and MF flows in determining their effect on the stock market. Mutual fund investments provide crucial liquidity to the Indian money market but equity mutual funds collectively do not seem to play a noteworthy role in providing depth to the Indian stock market. Retail investors account for a large share in equity mutual fund investments in India and their individual risk perceptions determine the investment strategies they adopt while trading in the market. Superior returns performance by equity funds may attract more of fresh inflows or it could lead to profit booking and net withdrawals

from these funds. A more diversified and large retail investor base attracted by policies promoting equity investments through mutual funds can go a long way in stabilizing the Indian equity mutual fund market. Policies should encourage long term holding of large equity mutual fund investments thereby enabling the fund managers to invest consistently in the stock market. An efficient and competent mutual fund industry in India can play the much needed dual role of enhancing the stock market investments and mitigating the adverse effects of sudden withdrawals by foreign investors in times of crisis etc. Indian mutual funds have been

contributing significantly to the deepening and broadening of different segments of the money market and also government securities market (RBI, 2011). However, their role in the strengthening of Indian stock market is still limited by the volatile investment flows into equity mutual funds. The findings of the present study should attract interest of domestic financial institutions, portfolio managers, wealth managers and other investors as well as market regulators who wish to have better understanding of the relationship between Index and institutional investors in the Indian equity market.

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A comparative analysis of performance of select ten banks based on CAMEL Model

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ABSTRACT

The financial sector plays a very important role in the development of the economy of a country. Banks are vital components of any financial system and thus the stability of the banking sector has gained a lot of importance especially after the global financial crisis in 2008. Assessment of the financial performance of the banking sector is an effective and necessary measure to judge the strength of the financial system of an economy. The volatility of the financial markets, the intense competition amongst the banks in the aftermath of the economic liberalization, and diversification of banking services into other areas like insurance and investments has increased the risk and challenges faced by banks. CAMEL model is one of the more popular models used for the assessment of bank performance. In this study, a sample of 10 banks chosen from both public and private sector banks in India have been ranked on the basis of this model.

Keywords: *Bank performance measurement, Bank assessment, CAMEL model*

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INTRODUCTION

The financial sector plays a very important role in the development of the economy of a country. Banks are vital components of any financial system and thus the stability of the banking sector has gained a lot of importance especially after the global financial crisis in 2008. As opined by Rabi N. Mishra, S. Majumdar and Dimple Bhandia, stability in the banking sector is a necessary condition for maintaining financial stability. Assessment of the financial performance of the banking sector is an effective and necessary measure to judge the strength of the financial system of an economy. The volatility of the financial markets, the intense competition amongst the banks in the aftermath of the economic liberalization, and diversification of banking services into areas like insurance and investments has increased the risk and challenges faced by banks. In the light of this, it is important to have an effective supervisory system which ensures safety and soundness of banks.

In India, RBI is responsible for monitoring the financial condition of the commercial banks and for enforcing regulatory norms on these banks. Much of the information required for monitoring is gathered from the reports submitted by the banks at regular intervals. However, this information has to be corroborated with on-site examinations which verify the accuracy of the reports and also help to gather further information required by RBI. RBI's approach to supervision after the economic liberalization has shifted towards prudential regulation and supervision keeping in tune with best international practices.

In addition, RBI has initiated a Prompt Corrective Action (PCA) framework for commercial banks. Under this framework, certain trigger points have been specified in three areas i.e. capital to risk weighted assets ratio (CRAR), net non-performing assets (NPA) and Return on Assets (RoA). RBI initiates certain structured and discretionary actions when banks hit these trigger points.



CAMEL RATING SYSTEM

The CAMEL rating system was adopted first by the United States in the 1980s to conduct onsite examination of their banks' performance. In India, RBI set up the Padmanabhan Working Group (1995) who recommended the adoption of two models for bank supervision viz., the CAMEL method for Indian banks and the CACS method for Foreign based banks in India. The CAMEL rating framework judges the banks on five different parameters viz. Capital Adequacy, Asset Quality, Management, Earnings and Liquidity. The CAMEL model was subsequently revised to CAMELS in 1996 to accommodate another parameter "S" which is "Sensitivity to Market Risk". The CAMELS ratings help to determine a bank's overall financial condition and to identify its strengths and weaknesses. RBI has been following the CAMEL model for evaluating bank performance since 1997.

The CAMEL ratings are based on a scale of 1 to 5 where 1 represents the highest rating and 5 represents the lowest

rating. A rating of 1 or 2 indicates strong performance and sound management with no cause for supervisory concern. A rating of 3, 4 and 5 presents weakness in one or more parameters, indicating weakness in performance and causing supervisory concerns. The banks are normally examined once a year. In case of banks with low ratings, the assessment may be more frequent. Each CAMEL parameter has several sub-parameters under it. Each sub-parameter is given a rating of 1 to 5. A composite rating, which is an abridgement of the individual component ratings, is assigned again on a scale of 1 to 5 to obtain the composite rating. The CAMEL composite rating given by the regulator involves a certain amount of subjectivity based on the regulator's assessment of the individual components and the overall assessment of the organization.

In addition to CAMEL rating, RBI has initiated a Prompt Corrective Action (PCA) framework in place for commercial banks. Under this, there are regulatory trigger points set up under three parameters – capital to risk weighted assets ratio (CRAR), net non-performing assets (NPA) and Return on Assets (RoA). When banks hit these trigger points, RBI initiates certain structured and discretionary actions to set in corrective measures.



REVIEW OF LITERATURE

Barker and Holdsworth (Barker, D., and Holdsworth, D., 1993) in their findings opine that CAMEL ratings are useful, even after controlling a wide range of publicly available information about the condition and performance of banks. Hirtle and Lopez (1999) were of the opinion that the CAMEL ratings were highly confidential, and only exposed to the bank's senior management for the purpose of projecting the business strategies.

A study conducted by Lace and Stephen (2001) showed that there is definitely a relationship between bank efficiency scores and financial ratios used to proxy a bank's CAMEL rating. Said and Saucier (2003) used CAMEL rating methodology to evaluate the liquidity, solvency and efficiency of Japanese Banks.

Al-Tamimi (2010) investigated factors influencing the performance of Islamic banks and conventional banks in (UAE) during 1996 to 2008. Barr et al. (2002) opined that "CAMEL rating criteria has become a concise and indispensable tool for examiners and regulators". Md. AnwarulKabir in his paper on CAMEL analysis opines that "In evaluating the function of the banks, many of the developed countries are now following uniform financial rating system i.e. CAMEL rating along with other existing procedures and techniques".

Yamamura, N., & Mitamura, S. (2005) are of the opinion that in Germany, not only big banks but also retail financial institutions, like savings banks and credit cooperatives, have developed internal ratings-based approaches to promote efficient and reasonable decisions on lending terms and conditions for specific borrowers. Gupta and Kaur (2008) rated

Indian private sector banks using the CAMEL model. Reddy and Prasad (2011) evaluated the financial performance of select regional rural banks using the same model.

Siva and Natarajan (2011) applied the CAMEL model on the performance of the SBI group. Bhayani (2006), Gupta and Kaur (2008), Prasuna (2003) are other researchers who have used the CAMEL model for assessing bank performance and their studies have helped the banks to understand their areas of strengths and weaknesses. Thirunavukkarasu. T et al. have used CAMEL model to study performance of private and public sector banks in India.

Karri, H. K et al (2015) have chosen the CAMEL model and t-test to measure the performance of two banks in India from each of the important parameter like capital adequacy, asset quality, management efficiency, earning quality, liquidity and Sensitivity. Rozina Akter (2016) has discussed the performance of commercial banks in Bangladesh and concluded that these banks did not maintain the required capital and provisions against NPAs. Also, there was an increasing trend in the percentage of liquid assets.



RESEARCH METHODOLOGY

The present study is a descriptive study. The sample consists of 10 banks, 6 from the public sector and 4 from the private sector in India. The study is purely based on secondary data.

The financial data of the selected banks has been collected from the annual reports of the various banks and also from the websites of RBI, SEBI and Money Control.com for the years 2009 to 2015. The years have been so chosen because the data for capital adequacy according to BASEL II norms are available only after 2008.

For the present study, a CAMEL ranking technique is being

Table 1: Description of the parameters and sub-parameters in the CAMEL model

CAMEL Parameter	Sub-Parameters
Capital Adequacy	Capital Adequacy 1. Capital Adequacy ratio 2. Debt-Equity Ratio 3. Total Advances to Total Assets ratio 4. Government Securities to Total Investments ratio
Asset Quality	1. Net NPAs to Net Advances Ratio 2. Total Investments to Total Assets Ratio 3. Net NPA to Total Assets Ratio 4. Percentage change in Net NPAs
Management Efficiency	1. Business per employee 2. Profit per employee 3. Credit Deposit Ratio 4. Return on Net Worth
Earnings Quality	1. Net Profit to Total Assets Ratio 2. Net Interest Income to Total Assets Ratio 3. Operating Profit to Total Assets Ratio 4. Interest Income to Total Income Ratio

followed to rank the selected banks based on their performance. A ranking system has been used because it makes judging and analyzing the financial data of banks much simpler to comprehend. This method studies the performance of each bank relative to the performance of other banks. All the selected banks are ranked based on their performance in each of the sub-parameters. The rankings in the sub-parameters are consolidated based on simple averages to arrive at the ranking in the CAMEL parameter. These rankings are again consolidated to arrive at the final CAMEL ranking. Twenty financial ratios have been identified as sub-parameters for assessing the financial performance.

The following table indicates the various sub-parameters (ratios) adopted for the purpose of assessment on the basis of the CAMEL model. Each of these ratios is discussed individually.



OBJECTIVES OF THE STUDY

The objectives of our study are:

1. To analyze the financial position and performance of 10 banks using CAMEL model.
2. To make a comparison among the selected banks based on the various parameters chosen for the analysis.
3. To suggest measures, on the basis of the study results, to improve further the financial performance of the banks under study.

Capital Adequacy

Capital Adequacy is one of the prominent indicators of the financial health of the banking system. A financial institution has to maintain capital commensurate with the nature and extent of risks and the bank must have the ability to identify, measure, monitor, and control these risks. Capital Adequacy Ratio (CAR) is a measure of a bank's ability to absorb reasonable level of losses arising from the risks in its business. According to Fatima, N. (2014), it is important for a bank to conserve and protect the stakeholders' confidence and prevent the bank from becoming bankrupt. In India, the impact of financial crises was low due to strong capital structure and a good regulatory environment. RBI has prescribed a minimum of 9% CAR as per BASEL II for banks in India.

The Capital Adequacy ratios table is constructed based on the rankings obtained from the sub-parameters of Capital Adequacy. Under the Capital Adequacy ratio, ICICI bank has the highest value of 18.07. The performance of South Indian Bank is the best under the Debt-Equity ratio. Syndicate bank tops the list under the Assets to Advances ratio and also in the investment in Government securities to total securities ratio. The above ratios indicate the financial strength and financial stability of the banks. The average of the rankings in the individual components has been taken. A lower rank is indicative of better financial health. The final ranking based on

Table 2: Capital Adequacy ratios of sample banks

Name of Bank	CAR		Debt-Equity		Advances/Assets		Government Securities/ Total Investments		Group Rank	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
State Bank of India	13.16	6	1.53	7	62.97	5	78.81	7	6.3	8
Bank of Baroda	13.87	4	0.85	4	62.04	7	81.32	5	5.0	5
Syndicate Bank	11.98	10	1.55	8	67.12	1	87.69	1	5.0	5
State Bank of Mysore	12.49	9	1.19	5	65.95	2	84.40	4	5.0	5
Indian Overseas Bank	12.51	8	1.66	9	62.98	4	84.48	3	6.0	7
ICICI Bank	18.07	1	1.99	10	55.04	10	54.92	10	7.8	10
Axis Bank	14.85	3	1.34	6	58.54	8	61.53	9	6.5	9
HDFC Bank	16.50	2	0.67	2	58.49	9	79.46	6	4.8	3
South Indian Bank	13.80	5	0.40	1	63.47	3	77.49	8	4.3	1
Canara Bank	12.89	7	0.84	3	62.22	6	86.50	2	4.5	2

Table 3: Asset Quality ratios of sample banks

Name of Bank	Net NPAs to Net Advances		Total Investment to Total Assets		Net NPA to Total Assets		% change in Net NPAs		Group Bank	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
State Bank of India	1.96	9	24.59	8	1.24	9	21.93	2	7	8
Bank of Baroda	0.89	4	20.07	10	0.54	4	57.24	8	6.5	7
Syndicate Bank	1.14	5	22.67	9	0.77	6	36.29	5	6.3	5.5
State Bank of Mysore	1.85	8	25.80	7	1.23	8	51.16	7	7.5	9
Indian Overseas Bank	2.54	10	26.74	6	1.59	10	72.86	9	8.8	10
ICICI Bank	1.34	6	31.12	1	0.74	5	16.12	1	3.3	3
Axis Bank	0.37	2	30.90	2	0.22	2	27.99	4	2.5	2
HDFC Bank	0.29	1	27.65	3	0.17	1	26.35	3	2	1
South Indian Bank	0.66	3	26.90	4	0.41	3	75.99	10	5	4
Canara Bank	1.65	7	26.85	5	1.02	7	39.61	6	6.3	5.5

all the parameters indicates that South Indian Bank is the best performer followed by Canara Bank and ICICI bank has been ranked the last. Though ICICI topped the list of banks in the Capital Adequacy ratio, it has performed poorly in the other dimensions of capital adequacy and hence finds itself in the bottom of the list.

Asset Quality

The health of commercial banks can be assessed by the quality of the assets held by them. The biggest risk facing the bank is the risk of loan losses. The quality of the asset (loan) depends on the ability of the borrower to repay the same. NPAs are those assets where the recovery of the loan is doubtful. Asset Quality can be examined by arriving at the Non-Performing Assets (NPA) values. Such assets cause a stress on the bank's performance and its profitability. According to Baral (2005), the extent of the credit risk depends on the quality of assets held by an individual bank. A low NPA ratio is preferred as it indicates good quality of assets held by the bank. A high NPA ratio will eventually lead to losses for the bank as the non-recoverable assets have to be written off from the profits and will lead to degeneration of the profits. As opined by R De Bock, (2012) "Economic activity slows down when non-performing loans increase or credit contracts while the exchange rate tends to depreciate."

The Asset Quality ratios table is constructed based on the individual components of Asset Quality. The average of the rankings in the individual components has been taken. It can be observed that HDFC is in the first position with an average rank of 2 followed by Axis Bank with a ratio of 2.5. IOB has the last position with an average rank of 8.8.

Management Efficiency

A sound management is the key to the performance of any organization. The capability of the management plays an important role in the success of an organization. Management efficiency refers to the capability of the management to plan and respond quickly to a dynamic and changing environment. This component is measured using various measures which indicate the efficiency of the workforce, management of resources, ratio of credit to deposit which indicates the proportion of funds which have been lent, and the efficiency ratio which delivers value to the shareholder i.e. Return on Net Worth.

The composite Management Efficiency table is constructed based on the individual components of Management Efficiency discussed above. The average of the rankings in the individual components has been taken. Bank of Baroda secures the first position with an average ranking of 1.8. Indian Overseas Bank occupies the last position. Bank of Baroda has

Table 4: Management Efficiency ratios of sample banks

Name of Bank	Business Per Employee		Profit Per Employee		Credit Deposit Ratio		Return on Net Worth		Group Rank	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
	State Bank of India	8.47	9	5.10	8	81.35	3	13.42	8	7.0
Bank of Baroda	14.26	1	9.07	3	84.72	2	17.00	1	1.8	1
Syndicate Bank	11.54	4	5.49	7	77.10	5	15.09	6	5.5	5
State Bank of Mysore	8.74	7	3.84	9	78.41	4	13.70	7	6.8	7.5
Indian Overseas Bank	10.80	5	2.63	10	75.65	8	6.56	10	8.3	10
ICICI Bank	8.59	8	12.57	2	96.33	1	10.74	9	5.0	3
Axis Bank	12.33	2.5	13.86	1	76.28	7	16.89	2	3.1	2
HDFC Bank	7.13	10	8.22	4	76.69	6	16.61	3	5.8	6
South Indian Bank	9.95	6	5.71	6	70.97	10	15.76	5	6.8	7.5
Canara Bank	12.33	2.5	6.90	5	71.22	9	16.56	4	5.1	4

Table 5: Earnings Quality ratios of sample banks

Name of Bank	Net Profit to Total Assets		Net Interest Income to Total Assets		Operating Profit to Total Assets		Interest Income to Total Income		Group Bank	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
	State Bank of India	0.79	7	2.99	6	2.03	4	85.99	7	6.0
Bank of Baroda	0.91	4	2.58	9	1.95	5	88.50	6	6.0	7
Syndicate Bank	0.69	8.5	2.61	8	1.75	10	92.14	2	7.1	9
State Bank of Mysore	0.69	8.5	3.12	4	1.84	6.5	89.97	4	5.8	5
Indian Overseas Bank	0.43	10	3.22	3	1.83	8	90.15	3	6.0	7
ICICI Bank	1.38	3	3.08	5	2.69	3	80.33	9	5.0	4
Axis Bank	1.46	2	3.75	2	3.17	2	78.92	10	4.0	2
HDFC Bank	1.52	1	4.81	1	3.19	1	83.04	8	2.8	1
South Indian Bank	0.89	1	2.83	7	1.84	6.5	92.15	1	4.9	3
Canara Bank	0.84	6	2.40	10	1.79	9	89.61	5	7.5	10

the highest business per employee score amongst all the banks and also the highest Return on Net Worth.

Earnings Quality

The quality of earnings is a very important criterion in judging the performance of a bank. The quality of earnings is a reflection of the bank's ability to sustain the income generated. It strengthens the ability of the bank to sustain shocks arising from the risks it faces in its operations. Earnings are vital for supporting present and future operations. Good earnings help in increasing the capital base, paying dividends to the shareholders, increasing the capacity to absorb losses and also financing future expansion plans.

It can be observed that HDFC bank has been awarded the first position. HDFC Bank has maintained a lead position in three of the four parameters of Earnings Quality. Axis Bank follows with a ratio of 4.0 and has also maintained the second position in three of the four parameters. Both these banks have a low score when it comes to Interest Income to Total Income which indicates that the banks earn more out of other services than core lending activities. The third position has been occupied by South Indian Bank with a rank average of 4.9. Canara Bank is at the 10th position with an average rank of 7.5.

Liquidity

Liquidity is of prime importance for a bank. Liquidity measures the bank's ability to meet its financial obligations which are mainly demands from the depositors. Banks can meet their financial obligations by either mobilizing short term deposits from customers or by quickly converting their assets into cash. Dang (2001) observed that in banks in the US, adequate level of liquidity was synchronous with profitability. The inability of banks to match their short term liquidity requirements can cause an impact on the performance of banks by increasing their cost of funds as banks may now have to rely on borrowings at higher rates of interest.

The table 6 reveals that Bank of Baroda has the most comfortable liquidity position with an average ranking of 3.3 followed by Canara Bank with a ranking of 3.5. Bank of Baroda has a good ratio in three of the four parameters maintaining the first position which indicates it has a high liquidity level. The banks with the least liquidity are State Bank of Mysore and Axis Bank with an average ranking of 9.5.

Final CAMEL rankings

The average rankings from the individual parameters are consolidated to get the final CAMEL rankings.

Table 6: Liquidity ratios of sample banks

Name of Bank	Liquid Assets to Total Assets		Liquid Assets to Total Deposits		Liquid Assets to Demand Deposits		Government Securities to Total Assets		Group Rank	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
State Bank of India	8.65	3	11.23	4	103.49	7	19.40	7	5.3	4
Bank of Baroda	15.40	1	17.90	1	224.78	1	16.31	10	3.3	1
Syndicate Bank	8.17	5	9.47	7	102.07	8	19.75	6	6.5	8
State Bank of Mysore	5.41	10	6.44	10	103.56	6	21.78	4	7.5	9.5
Indian Overseas Bank	7.54	8	9.02	8	127.41	4	22.55	2	5.5	5.5
ICICI Bank	7.98	6	14.37	2	108.45	5	17.03	9	5.5	5.5
Axis Bank	7.64	7	10.08	5	52.21	10	19.03	8	7.5	9.5
HDFC Bank	8.70	2	11.56	3	59.69	9	22.02	3	4.3	3
South Indian Bank	7.51	9	8.42	9	213.24	2	20.73	5	6.3	7
Canara Bank	8.37	4	9.58	6	181.32	3	23.22	1	3.5	2

Table 7: Composite Ranking of CAMEL parameters of sample banks

Name of Bank	C	A	M	E	L	Average	Rank
HDFC Bank	4.8	2.0	5.8	2.8	4.3	3.94	1
Bank of Baroda	5.0	6.5	1.8	6.0	3.3	4.52	2
Axis Bank	6.5	2.5	3.1	4.0	7.5	4.72	3
ICICI Bank	7.8	3.3	5.0	5.0	5.5	5.32	4
Canara Bank	4.5	6.3	5.1	7.5	3.5	5.38	5
South Indian Bank	4.3	5.0	6.8	4.9	6.3	5.46	6
Syndicate Bank	5.0	6.3	5.5	7.1	6.5	6.08	7
State Bank of India	6.3	7.0	7.0	6.0	5.3	6.32	8
State Bank of Mysore	5.0	7.5	6.8	5.8	7.5	6.52	9
Indian Overseas Bank	6.0	8.8	8.3	6.0	5.5	6.92	10

The above table 7 depicts the overall CAMEL rankings of the 10 chosen banks. Under the Capital Adequacy parameter, South Indian Bank was at the top position and ICICI bank was at the last position. HDFC bank occupies the top position under the Asset Quality parameter and Indian Overseas Bank occupies the last position. It can be observed that Indian Overseas Bank has very high NPAs and its profit margins have dwindled over the last few years. In the Management Efficiency parameter, Bank of Baroda ranks first and again Indian Overseas Bank is at the last position. In the Earnings Quality parameter, HDFC bank is rated the best and Canara Bank occupies the last position. Finally, under the Liquidity parameter, Bank of Baroda occupies the prime position and both State Bank of Mysore and Axis Bank occupy the last position. Taking a consolidated view, it can be observed that HDFC bank is rated as the first bank among all the banks and Indian Overseas Bank is at the last position.



CONCLUSION

CAMEL approach is an important tool to assess the financial strengths of commercial banks. The analysis helps to identify financial weaknesses of banks and find remedial measures to strengthen the banks financially. RBI has initiated a Risk-Based supervision (RBS) system since 2012 where 30 large private and public sector banks have initially been identified for evaluation. The RBS helps to develop a risk profile of commercial banks. This method of supervision

addresses several concerns that exist today in the banks' ability to identify and manage key risks in its operations. With banks moving into this methodology of supervision, India will now be at par with best practices around the world.

The following are some of the findings from the analysis.

1. The Capital Adequacy ratio of all banks is much above the benchmark of 9% as mandated by RBI. The CAR of ICICI bank is the highest at 18.07%. The minimum capital adequacy requirement under BASEL III is 10.5% including Capital Conservation buffer of 2.5%. All the banks are having ratios above this benchmark.
2. The debt-equity ratios for the selected banks have been found to be less than 2:1. ICICI has the maximum ratio of 1.99:1. The ideal benchmark ratio is 2:1 for industries. However, for banks, this benchmark does not apply as the major source of funds for banks is from deposits which are debt for the bank. The debt used in this study considers only outside borrowings other than deposits.
3. NPAs of Indian Overseas bank is much higher than other banks. In fact, RBI has initiated the Prompt Corrective Action (PCA) process with IOB as it has run into losses in the recent years due to high NPAs.
4. Though ICICI bank's business per employee is low at the 8th position, the profit per employee is the highest. It can be inferred that the efficiency at ICICI is much higher as

compared with other banks.

- Profitability ratios are generally high in case of new private sector banks. Interest income ratio to total income is high in public sector banks. This indicates that public sector banks are more into the traditional business of lending whereas new private sector banks earn their income from non-fund based activities and investments. It can be seen that the total investment to total assets ratio is high in ICICI bank indicating that ICICI bank's investments earn

good returns for the bank. However, the ratio of government investments to total investments is low meaning that ICICI bank invests in high income generating securities rather than in government securities.

- The liquidity position of Bank of Baroda is high as compared to the other banks. Though liquidity is necessary, excessive liquidity may affect profitability.

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Table of CAMEL parameters, ratios used and interpretation of the same

Parameter	Ratio	Description	Interpretation
Capital Adequacy	Capital Adequacy ratio (CAR)	CAR is a ratio of Capital to Risk Weighted Assets. Risk weighting adjusts the value of an asset (loan) for risk by multiplying it with a factor that reflects its risk. $\frac{(\text{Tier I capital} + \text{Tier II capital})}{\text{Risk weighted assets}}$	As per BASEL II norms, RBI has stipulated a minimum of 9% CAR.
	Debt-Equity ratio	This is calculated as a ratio of total outside borrowings to net worth. Deposits have not been considered as borrowings. $\frac{\text{Total Outside borrowings}}{\text{Shareholder's net worth}}$	A ratio of 2:1 is considered ideal for industries. There is no stipulation for banks. A high ratio indicates high leverage and high risk.
	Total Advances to Total Assets	Indicates proportion of advances to total assets. $\frac{\text{Total Advances}}{\text{Total Assets}} \times 100$	A high ratio indicates banks' aggressiveness in lending, leading to better profitability for the bank.

A COMPARATIVE ANALYSIS OF PERFORMANCE OF SELECT TEN BANKS BASED ON CAMEL MODEL

Parameter	Ratio	Description	Interpretation
	Government Securities to Total Investments	Indicates the level of investment in government securities as compared to the total investments in other securities. $\frac{\text{Investment in Govt. Securities}}{\text{Total Investments}} \times 100$	A higher ratio is preferable as it indicates lower risk.
Asset Quality	Net NPA to Net Advances Ratio	This is a measure of the overall quality of the bank's loan book. Non-performing assets cease to generate income for the bank. $\frac{\text{Net NPA}}{\text{Net Advances}} \times 100$	A lower ratio means that the NPAs of the bank is low and is preferred as it indicates good quality of the loans.
	Total Investments to Total Assets Ratio	Banks deploy their funds into investments to reduce the risk of their loans becoming non-performing assets. These funds are locked up and cannot be lent by the bank. $\frac{\text{Total Investments}}{\text{Total Assets}} \times 100$	A higher ratio shows the conservative policy of a bank to safeguard their funds.
	Net NPA to Total Assets Ratio	Indicates efficiency of banks in assessing credit risk and recovering debts $\frac{\text{Net NPA}}{\text{Total Assets}} \times 100$	A lower ratio is a preferred one.
	Percentage change in Net NPAs	Helps to study the trend in the NPA over the years $\frac{\text{Change in NPA}}{\text{NPA of previous year}} \times 100$	A low increase is preferred
Management Efficiency	Business per employee	This ratio expresses the efficiency and productivity of the human resources in garnering business for the bank $\frac{\text{Total Business}}{\text{No. of Employees}}$	The higher the ratio the better will be the performance of the bank.
	Profit per employee	Indicates the productivity and efficiency of the employees in improving business and maximizing profitability $\frac{\text{Net Profit}}{\text{No. of Employees}}$	A high value is preferred; indicates higher efficiency and profitability
	Credit Deposit Ratio	Ratio indicates the ability of a bank to make optimal use of deposits which are low cost funds to maximize profits. $\frac{\text{Total Advances}}{\text{Total Deposits}} \times 100$	A ratio of 70% is considered moderate. Higher ratio indicates a bank is borrowing funds to create loans. A very high level of leverage is risky.
	Return on Net Worth (RONW)	This ratio is a measure of profitability. $\frac{\text{Net Profit}}{\text{Net Worth}} \times 100$	A high ratio is a favorable one. RONW can be expected to be upwards of 10%.
Earning Quality	Net Profit to Total Assets Ratio	This ratio is one of the profitability indicator ratios. It indicates the efficiency of utilization of assets to produce profits during a period. $\frac{\text{Net Profit}}{\text{Total Assets}} \times 100$	A high ratio is indicative of good performance. A ratio up to 2% to 3% is normal.
	Net Interest Income to Total Assets Ratio	Indicates the earning capacity of the bank and its ability to lend its resources to earn interest income $\frac{(\text{Net interest Income})}{\text{Total Assets}} \times 100$	A high ratio indicates good performance

A COMPARATIVE ANALYSIS OF PERFORMANCE OF SELECT TEN BANKS BASED ON CAMEL MODEL

Parameter	Ratio	Description	Interpretation
	Operating Profit to Total Assets Ratio	This ratio is a measure of operating efficiency. It measures the revenue left after paying away the operating costs. $\frac{\text{Operating Profit}}{\text{Total Assets}} \times 100$	A high ratio is a preferred as it indicates a high level of profitability and efficient management of operations.
	Interest Income to Total Income Ratio	This ratio measures the interest income generated from the banks' core activity of lending as a proportion to the banks' total income earned by the bank. $\frac{\text{Interest Income}}{\text{Total Income}} \times 100$	A high ratio indicates efficiency of the bank in conducting its core operations.
Liquidity	Liquid Assets to Total Assets Ratio	This ratio measures the liquidity position of the bank. It reveals the readiness of the bank to meet its financial obligations. $\frac{\text{Liquid Assets}}{\text{Total Assets}} \times 100$	A higher ratio is a preferred one as it indicates higher liquidity. Too high a level of liquidity is not good as funds remain idle.
	Liquid Assets to Total Deposits Ratio	This ratio indicates how efficient a bank is in meeting the unexpected deposit withdrawals by its customers with its own liquid assets. $\frac{\text{Liquid Assets}}{\text{Total Deposits}} \times 100$	Too high a ratio is not good as funds will remain idle.
	Liquid Assets to Demand Deposits Ratio	It reflects the ability of a bank to meet the demand of depositors for which the banks have to place their funds in a liquid form. Demand deposits are withdrawn on demand and hence a bank has to be always prepared to meet these obligations. $\frac{\text{Liquid Assets}}{\text{Demand Deposits}} \times 100$	
	Government Securities to Total Assets Ratio	Banks invest in government securities to meet their statutory requirements. Government securities are the most liquid and safest among different forms of investments. $\frac{\text{Govt. Securities}}{\text{Total Assets}} \times 100$	A higher ratio indicates safety and liquidity for the depositors.



CUSTOMER BASED BRAND EQUITY: A factor analytical approach

Dr. Sangeeta Arora¹ & Neha Naagar²



ABSTRACT

Banking is a customer oriented service industry and Indian banks have started realizing that business depends on client service and the satisfaction of the customer. This is compelling them to focus on building brand equity that leads to enhancing the customer satisfaction. Some authors suggest a positive connection between Customer Satisfaction and Brand equity (Aaker, 1992; Anderson and Sullivan, 1993; Blackston, 2000; Keller, 1993). For building successful brand equity in the banking sector, customers must be convinced that there are meaningful differences among the banks brands. Customer's perceptions play an important role in enhancing the brand value. Building a powerful brand is all about creating the strongest positive perception in the minds of customers (James Hammond, 2013). Branding helps to make a perception in the minds of customers. Once that perception is made, it is very difficult to change the perception because it blocks all the senses of customers. Banks need to find out what are the main determinants

of customer's perception towards bank brand so that they can focus on those particular dynamics. The current paper aims to serve the aforesaid purpose i.e. to identify those factors which determine the strong customer based brand equity in the banking industry. For this purpose, a structured questionnaire was developed and a sample of 120 respondents was taken from selected Public Sector banks and Private Sector banks. The results produced six factors i.e. Brand investments, Brand performance, Brand salience, Brand verdict, Brand feelings and Brand unfamiliarity accounted for 73 percent variance. The findings revealed that out of the six factors extracted from the study, Brand verdict emerged as the most significant factor that leads to the determination of customer based brand equity.

Keywords : Brand equity, banking sector, determinants, brand verdict, brand value.

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INTRODUCTION

The concept of brand equity has been a field of interest to both firms and researchers for several years. Brand equity has a long history. However, the rapidly changing business environment, intense global competition, and more demanding and sophisticated customers have given brand equity new significance as a platform through which an organization can quickly claim and sustain a niche in the market (Takenaka, 2007). Brand equity depicts the financial and non financial value of the brand. There are two principal and distinct perspectives to study brand equity – financial and customer based. The first perspective of brand equity is from a financial market's point of view where the asset value of a brand is appraised (Farquhar et al. 1991, Simon and Sullivan 1990). Customer-based brand equity is evaluating the consumer's response to a brand name (Keller 1993, Shocker et al. 1994).

The power of a commercial brand is reflected by its brand equity. A brand is something which generates money. Earlier the brands are product centric but now days, service branding has become more apparent. A powerful service brand gives the consumer more confidence in his choice. But their quality and other features are more difficult to assess. Because of their intangibility and complexity, it is harder for the customer to choose a compelling service brand. Therefore, strong brand equity is to be developed to enable the customers in their choice of a service brand.

Several studies have been conducted to explain how to build brand equity. Similarly, various models also have been developed to determine the brand equity of firms, companies and organizations. One of the main models concerning customer based brand equity is the Brand resonance model developed by Keller (2001). Keller explained six building blocks to determine brand equity. The six building blocks which can be regarded as the determinants of brand equity are Brand salience, Brand performance, Brand imagery, Brand judgments, Brand feelings and Brand resonance. In building a strong brand, the first step is to ensure identification of the brand with customers. This is called brand salience, which relates to aspects of customer awareness of the brand. The second step is to establish the brand meaning in the minds of customers, which involves establishing a brand image. Brand meaning is made up of two major categories of brand associations that exist in the customers' mind, that is, performance and imagery. The third step is to elicit the proper customer responses in terms of their judgments and feelings concerning regard the brand. The fourth and final step is to convert brand response to create an intense, active loyal relationship between the customers and the brand. This is termed as brand resonance, which focuses upon the ultimate relationship and level of identification that customers have with the brand (Keller 2001).

Another model called BRANDZ model was developed by Millward Brown Optimor(2006). It is the most robust brand valuation model. It quantifies the financial returns created by brand and shows how to build brand value over time. Optimor's model focused on the return earned as a result of

owning the brand—the brand's contribution to the business now and in the future. The valuation is based on a discounted cash flow or economic use analysis of forecast financial performance, segmented into relevant components of value, from a brand and market perspective. Optimor's approach is differentiated, first by requirement for quantitative data input on the marketing as well as the financial side, and secondly, by our emphasis on leveraging the brand as a financial asset, to drive revenue and profit growth.

These models are endowed with the two perspectives of determining the brand equity. The former deals with the customer based brand equity and the latter deals with the financial based brand equity. Since banking is a customer centered sector and the customer needs and requirements are of utmost importance. Therefore the present study focuses on the customer based brand equity so that the customer's perceptions regarding bank brands can be determined and analyzed.



LITERATURE REVIEW

Kevin lane Keller (1993) has focused on building the customer based brand equity through brand knowledge by stressing on the dimensions of brand knowledge i.e. brand awareness and brand image. Keller also presented the two approaches of measuring customer based brand equity i.e. direct and indirect approach. Direct approach directly measures the effects of brand knowledge on customer response to marketing for the brand Indirect approach is based on measuring brand knowledge through various projective techniques

Debling F. (2000) attempted to examine the factors that affect the decision of direct marketing brand experts and practitioners regarding branding and brand development through direct marketing. Fifteen in-depth interviews were undertaken aided by a semi-structured interview guide to ensure consistency of questioning between two interviewers. The interviewers were selected on the basis of their being both experts in DM brand building and experienced practitioners in financial services direct marketing. The results showed that emotional warmth in the financial services is necessary for effective branding and out of four success criteria i.e. Relevance, Differentiation, Consistency and Credibility, first three proved to be relevant for brand building.

Kevin lane Keller (2001) stressed on the notion that brand equity is influenced knowledge structures about the brand (Brand knowledge) in the customers' memory. Keller described the model by focusing on four steps of building the brand equity i.e. Establishing brand identity, Creating brand meaning in the minds of customer, Taking brand responses, Establishing brand relationships. For achieving these steps, Keller formed the six building blocks i.e. brand salience, brand performance, brand imagery, brand judgments and brand resonance and also presented sub dimensions of brand building blocks. It was analyzed that out of these six building blocks, Brand resonance is most valuable. Keller also compared his CBBE model with the other models.

Solayappan A et al. (2003) attempted to examine the relationships of brands with their customers, investigated from the experienced patients of a branded hospital. The sample consisted of 365 patients who were receiving treatment in the hospital. The data was analyzed with appropriate statistical tools like descriptive statistics, correlation and stepwise multiple regression. The results found out that Brand trust and Brand image are the most predictor variables on patient satisfaction.

Norzalita&Norjaya (2010) focused on examining the various factors that determine the brand equity and to analyze the customer perceptions regarding the brand equity of services. Private sector banks were taken into account particularly the commercial bank of Malaysia. The sample was drawn from 480 respondents by using self administered questionnaires. The statistical tests used for the analysis were exploratory factor analysis, correlation as well as regression analysis. Five factors were extracted i.e. brand Salience, brand performance, brand judgment, as well as brand feelings and strong correlation was shown between brand resonance and brand judgment.

Farhana& Islam (2012) attempted to verify the most popular model of customer based brand equity i.e. brand resonance model proposed by Kevin lane Keller (2001). This study was intended to investigate the brand resonance model in the context of financial services provided by the commercial banks currently operating in Bangladesh. The sample was drawn from 300 respondents by using self administered questionnaires. Data were collected by using the instruments developed by Aziz and Yasin (2010). The statistical techniques used included descriptive analysis, Pearson Correlation Analysis, ANOVA, Bivariate and Multiple Regression Analysis. The findings suggested that when customers get emotionally attached to a brand (brand feeling), they go on to create strong association with the brand. Therefore, brand resonance is considered to be the most valuable.

Kerri K et al.(2008) attempted to empirically test the customer based brand equity model proposed by Keller and tried to analyze its applicability in the market of electronic tracking systems for waste management. A sample of five South East Queensland local government authorities (where sales activity has been specifically concentrated) was selected for this study. The respondents were Trade Waste Officers who are responsible for the pick-up and collection of trade waste in their respective shires. Semi-structured telephone interviews were conducted. It was evident in this study that feelings do not play an important role in purchasing an electronic tracking system for waste management. Brand resonance, as described by Keller, was also not evident amongst the organizational buyers surveyed.

Need of the study

A number of theoretical frameworks have been proposed in an effort to understand how consumers think about and respond to brands. However, these frameworks have a tendency to conceptualize the brand in terms of physical goods, with

minimal stress on the branding of services. Although some models are valid for both goods and services (de chernatony and dall'olmo riley,1998; keller,1998) but the practical application of these models are questionable. Moreover, the majority of studies reviewed are product centered. Service sector also needs to venture into this because many service organizations such as banking, telecommunication, airlines, and hotels are facing competition and it is important for the service providers to establish a strong brand (Kim and Kim, 2005). Moreover, there is a need to build strong brand equity so as to increase customer retention by building lifelong loyalty. For building strong brand equity, the various determinants must be extracted which provide a base in the minds of customers. The current study aims at extracting those factors which help to build strong brand equity from the point of view of banking services. In India, very less work is done on brand equity of banking sector. Banking industry is an interesting sector to study because banks are considered as indispensable part of our economy and banking sector is the only sector which affects the other sectors of the economy considerably. Banks need to provide a consistent brand experience to prevent customers from switching to rival banks.

Objectives of the study

- To analyze the various factors that determine customer based brand equity in the banking industry.
- To draw out the most significant factor of customer based brand equity in the banking sector.
- To validate the model of Customer Based Brand Equity in the banking industry.

Limitations of the study

1. The findings are based on subjective opinion of respondents, they could not be verified.
2. The present study covers the area of Jalandhar only so the findings may not be generalized.
3. The study covers the perceptions of 120 respondents only; the results may vary by increasing the sample size of respondents.
4. The questionnaires used for the survey were prepared in English. Language used in the questionnaire posed a problem in collecting data from customers who did not understand the language. This may have resulted in a non inclusion of those bank customers who do not have proficiency in the language.



METHODOLOGY

Research Design

For the purpose of extracting the factors of customer based brand equity, a questionnaire was framed. The questionnaire was designed using the variables that can be considered to be "Determinants of brand equity". These variables have been derived from various

literature and empirical studies made within the area of customer based brand equity (Keller,1993; Krishnan,1996; Debling,2000; Chernatony,2001; Aaker,2004; Srinivasan ,2009; Aziz and Yasin ,2010; Loureiro,2011).

Selection of Banks

For the purpose of the study, top 10 banks were selected on the basis of the report prepared by Brand Finance Banking 500, 2013. The top 10 banks included five public sector banks and five private sector banks. Public sector banks comprised of State bank of India, Punjab National Bank, Bank of Baroda, Bank of India and Canara bank. Among private banks, ICICI, HDFC, Axis, Kotak Mahindra and Yes bank were considered for the study.

Sampling Frame

The survey targeted the customers of main branch of the selected banks from Jalandhar following purposive sampling.120 respondents was approached and their response was taken.15 customers from each banks were selected. The respondents were met face to face at branch location.



RESEARCH TECHNIQUE

Exploratory Factor Analysis

Factor Analysis was applied to identify the various factors of customer based brand equity, weighted averages were used to draw out the most significant factor of customer based brand equity.

The Likert scale was used as a rating scale that requires the respondents to indicate the agreement level they attach to various brand attributes. Each response item had five response categories, ranging from “strongly agree” to “strongly disagree”. A score ranging from 5 to 1 was allocated to the response categories respectively. Table I presents the list of variables that have been taken for the study.

Confirmatory Factor Analysis

In order to validate the model of Customer Based Brand Equity, Confirmatory Factor Analysis has been applied. CFA was employed to confirm the factors and their loadings. CFA using AMOS 18.0 was carried out to confirm the factors and their loadings. Measurement model has been shown in figure 1



RESULTS AND DISCUSSIONS

The data was first subject to reliability test. Reliability can be checked by Cronbach's alpha, which is a measure of internal consistency, that is, how closely related a set of items are as a group.

RELIABILITY ANALYSIS - SCALE (ALPHA)

Reliability Coefficients

N of Cases= 120.0 N of Items=32 Alpha = .931

The set of statements with their appropriate scores were subjected to varimax rotated factor analysis. Table II indicates the values of KMO test and Bartlett's Test of Sphericity. The value of KMO is .808 which is greater than 0.5. Therefore, satisfactory factor analysis can be preceded. Bartlett's test of Sphericity indicates strength of the relationship among variables. The observed significance level is .000. This means that the strength of the relationship among variables is strong. Thus, Data is good fit for Factor Analysis.

Factor loadings obtained are presented in Table III and Rotated component matrix is shown in Table IV. The brand attributes constrained to 6 factors accounting for a total of 73.044 percent of the variance. Table V shows the factor loadings, naming of factors and percentage of variance explained by each factor

The six major factors extracted from the rotated component matrix are as follows:

Factor 1 consisted of attributes namely Frequency of advertisements, emotional advertisements used by bank as well as rural marketing initiated by bank, vision and mission and various green initiatives. So it was named “Brand Investments”

Factor 2 consisted of attributes namely provision of better services, global recognition sophisticated technology and adoption of CRM. This factor was named as “Brand Performance”.

Factor 3 deals with the overall opinion and attitude of the customers regarding the bank. Therefore it was named “Brand Verdict”.

Factor 4 was named “Brand Salience” because the attributes involved recognition and recall of symbol and logo of the bank.

Factor 5 was named “Brand unfamiliarity” as it involves the customers' reasons for choosing a particular bank i.e. advice of the parents, switching cost and unknown towards banking industry.

Factor 6 involves customers' feelings towards their bank .Therefore; it was named “Brand Feelings”.

Weighted Average Score Method

Weighted average score method is an average in which each quantity to be averaged is assigned a weight. These weights determine the relative importance of each quantity on the average. Weightings are the equivalent of having that many like items with the same value involved in the average. Weighted average score method is used to give weights to the desired component. The component having higher mean should be given maximum weight which shows that out of the various components, the component which have higher mean, is more significant or more important. In this study, weighted average score method is used to find out the most significant factor that the six factors were extracted through factor analysis i.e. Brand verdict, Brand Salience, Brand Performance, Brand Investments, Brand feelings, Brand

unfamiliarity and their means were calculated through descriptive statistics in SPSS. The results are presented in Table VI. The table shows the weighted average score of all the six factors extracted from the factor analysis. As shown in the above table, the maximum weighted average score is of the 'Positive Brand Verdict' factor. Positive Brand verdict is the customer's judgment about the bank brand. Therefore, it is found out that brand verdict (mean=3.8396) is the most significant factor that affect the customer's perceptions towards various brand attributes of banks as indicated by weighted average scores. Brand salience (mean=3.8042) is the second most significant factor that affects the customers' perceptions. Brand performance (mean=3.6806), Brand feelings (mean=3.6028) and brand investments (mean=3.2865) has acquired the third, fourth and fifth rank in the study whereas Brand unfamiliarity is the least factor that determine the customer based brand equity.



CONFIRMATORY FACTOR ANALYSIS

Model Fit

Model fit is a tool of goodness of a model. It also shows whether data is fit to run CFA or not. AMOS output provided a χ^2 of 2471.676 with 711 df. The CMIN/DF ratio is 3.47, which is within the recommended range of less than 5, which is indicator of good fit of model for sample (Carmines and McIver, 1981). The GFI is 0.932 and AGFI is 0.906. RMSEA is 0.06, which equals to the cutoff value of 0.06 (Hu and Bentler, 1999). TLI is 0.91 while the CFI is 0.921. The Bentler-Bonett NFI is 0.96 and Bollen's IFI is 0.92. The values for fit indices have been shown in Table VII and they exceed the recommended level of 0.90 which shows that the model is a good fit.



CONCLUSION

The study extracted six relevant factors in determining customer based brand equity. Among all the six factors, brand verdict emerged as the most significant factor in determining consumer based brand equity because Brand Verdict is the overall opinion of the customers who see bank as a brand. Brand Verdict is the result of all the efforts done by banks in order to create a strong brand image in the minds of customers. It is the final perception of the customers built over a time in the mental map of the customers. The second most important factor is Brand Salience. Brand Salience is one of the most important factors in determining the consumer based

brand equity according to Keller. It relates to how often the brand is evoked in purchasing and consumption situations (Keller, 2001). The two main components of Brand Salience deal with brand awareness and need satisfaction. For building a successful brand, banks need to focus on creating a good perception in the minds of customers as well as making them aware towards their bank brand. The least important factor in determining the customer based brand equity is the brand unfamiliarity. It is interesting to know that the customers, who do not know enough about the banking industry, enhance the bank brand equity because these customers adopt herd behavior while choosing a bank and the young customers choose their banks due to the advice of their parents. The reason behind this is that, they are unfamiliar with the bank brand. A study confirmed that Intergenerational influence plays a very important role while choosing a bank (Gleerup, 2009). Confirmatory Factor Analysis has been applied in order to validate the model of customer based brand equity. The factors revealed in the study will help in assessing the customer behavior towards the bank brand and provide a road map and guidance to marketers in building strong brands. The study has contributed a branding model for banks in particular and services industries in general. The model has identified the various components of customer based brand equity which can be used for improving bank - customer relationship.

Implications of the study

- Theoretical framework of service branding proposed that banking services require a strong customer base and this can be done by strengthening the brand's relationship with the customers and ensuring customer loyalty. Therefore the present study provides a base of customer's overall evaluation of bank brand.
- This research is relevant to services brand industry, specially banking industry as it provides a methodology for effectively measuring customer based brand equity.
- The study has also revealed that banks have to create service brands which will lead to positive verdict from customers, which can thus improve the marketing initiatives of the bank.
- Building a strong brand in the banking services has been found to be critical in marketing the banking services effectively. Hence banks in India should focus on building successful service brands.

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APPENDIX

Table I: List of variables

The advertising campaigns for my bank are seen frequently.
My bank advertisements cater to the needs of rural society by advertising different schemes.
My bank adds emotional value in advertisements.
My bank considers various green initiatives.
My bank has assumed its responsibility towards society.
My bank has an attractive website.
The ad campaigns of my bank seem very attractive, compared to campaigns for competing brands.
Vision and mission is clearly stated in the advertisements
The services of my bank are effective
I feel proud when I tell others that I use my specific bank.
My bank has a strong image.
Compared to other competing banks, my bank gives better services.
My bank has adopted CRM(customer relationship management) system
My bank is globally recognized.
My bank uses sophisticated technology.
I feel my bank is the only bank that I need
My bank delivers services which it promises
My overall opinion of my bank is good
I trust my bank very much
The quality of my bank is consistent
I really love my bank.

Table I: List of variables

I can quickly recall the symbol/logo of my bank
I know how the symbol of my bank looks like
I know the color that symbolizes my bank
I can recognize my bank among other competing banks
I use my current bank due to advice from my parents
I am a customer of my current bank because my parents opened my youth accounts here.
I am a customer of my current bank because I feel I do not know enough about the banking industry to decide whether the bank change is economical for me or not.
I am a customer of my current bank because the switching process to another bank is too demanding.
Bank gives me a feeling of excitement
Bank gives me a feeling of self-respectBank gives me a feeling of security

Table II: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.808
Bartlett's Test of Sphericity Approx. Chi-Square	3235.327
Df	496
Sig.	.000

Table III: Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings					
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.898	34.058	34.058	10.898	34.058	34.058	6.101	19.065	19.065
2	4.704	14.699	48.756	4.704	14.699	48.756	5.671	17.722	36.787
3	2.731	8.536	57.292	2.731	8.536	57.292	3.348	10.463	47.251
4	2.239	6.998	64.290	2.239	6.998	64.290	3.196	9.988	57.239
5	1.498	4.682	68.972	1.498	4.682	68.972	2.808	8.774	66.013
6	1.303	4.072	73.044	1.303	4.072	73.044	2.250	7.031	73.044
7	.938	2.932	75.976						
8	.756	2.364	78.339						
9	.735	2.298	80.637						
10	.680	2.126	82.763						
11	.520	1.626	84.389						
12	.495	1.547	85.937						
13	.460	1.437	87.373						
14	.449	1.402	88.775						
15	.416	1.300	90.076						
16	.382	1.194	91.270						
17	.335	1.048	92.317						
18	.312	.976	93.294						
19	.281	.879	94.173						
20	.275	.859	95.032						
21	.259	.810	95.842						
22	.234	.731	96.573						
23	.198	.619	97.192						
24	.177	.552	97.744						
25	.154	.480	98.224						
26	.111	.348	98.572						
27	.106	.332	98.904						
28	.096	.301	99.205						
29	.073	.228	99.433						
30	.072	.226	99.659						
31	.062	.194	99.853						
32	.047	.147	100.000						

Extraction Method: Principal Component Analysis.

Table IV: Rotated Component Matrix

	Component					
	1	2	3	4	5	6
The advertising campaigns for my bank are seen frequently.	.859					
My bank advertisements cater to the needs of rural society by advertising different schemes.	.821					
My bank adds emotional value in advertisements.	.809					
My bank considers various green initiatives.	.794					
My bank has assumed its responsibility towards society.	.785					
My bank has an attractive website.	.782					
The ad campaigns of my bank seem very attractive, compared to campaigns for competing brands.	.718					

Table IV: Rotated Component Matrix

	Component					
	1	2	3	4	5	6
Vision and mission is clearly stated in the advertisements	.617					
The services of my bank are effective		.795				
I feel proud when I tell others that I use my specific bank.		.763				
My bank has a strong image.		.746				
Compared to other competing banks, my bank gives better services.		.742				
My bank has adopted CRM(customer relationship management) system		.713				
My bank is globally recognized.		.691				
My bank uses sophisticated technology.		.643				
I feel my bank is the only bank that I need		.628				
My bank delivers services what it has promised		.568				
My overall opinion of my bank is good			.834			
I trust my bank very much			.785			
The quality of my bank is consistent			.666			
I really love my bank.			.624			
I can quickly recall the symbol/logo of my bank				.868		
I know how the symbol of my bank looks like				.762		
I know the color that symbolizes my bank				.735		
I can recognize my bank among other competing banks				.687		
I use my current bank due to advice from my parents					.841	
I am a customer of my current bank because my parents opened my youth accounts here.					.787	
I am a customer of my current bank because I feel I do not know enough about the banking industry to decide whether the bank change is economical for me or not.					.781	
I am a customer of my current bank because the switching process to another bank is too demanding.					.588	
Bank gives me a feeling of excitement						.757
Bank gives me a feeling of self-respect						.623
Bank gives me a feeling of security						.570

Table V: Factor loadings, Factors labeling and %of variance

Constituent Variable	Label	Factor Loading	FACTOR NAME	Variance Explained by the Factor (%)
The advertising campaigns for my bank are seen frequently.	V1	.859	Brand Investments	19.065
My bank advertisements cater to the needs of rural society by advertising different schemes.	V2	.821		
My bank adds emotional value in advertisements.	V3	.809		
My bank considers various green initiatives.	V4	.794		
My bank has assumed its responsibility towards society.	V5	.785		
My bank has an attractive website.	V6	.782		
The ad campaigns of my bank seem very attractive, compared to campaigns for competing brands.	V7	.718		
Vision and mission is clearly stated in the advertisements	V8	.617		
The services of my bank are effective	V9	.795	Brand performance	17.722
I feel proud when I tell others that I use my specific bank.	V10	.763		
My bank has a strong image.	V11	.746		
Compared to other competing banks, my bank gives better services.	V12	.742		
My bank has adopted CRM(customer relationship management) system	V13	.713		
My bank is globally recognized.	V14	.691		
My bank uses sophisticated technology.	V15	.643		
I feel my bank is the only bank that I need	V16	.628		
My bank delivers services what it has promised	V17	.568		
My overall opinion of my bank is good	V18	.834	Brand verdict	10.463
I trust my bank very much	V19	.785		
The quality of my bank is consistent	V20	.666		
I really love my bank.	V21	.624		
I can quickly recall the symbol/logo of my bank	V22	.868	Brand Salience	9.988
I know how the symbol of my bank looks	V23	.762		
I know the color that symbolizes my bank	V24	.735		
I can recognize my bank among other competing banks	V25	.687		
I use my current bank due to advice from my parents	V26	.841	Brand unfamiliarity	8.774
I am a customer of my current bank because my parents opened my youth accounts here.	V27	.787		
I am a customer of my current bank because I feel I do not know enough about the banking industry to decide whether the bank change is economical for me or not.	V28	.781		

Table V: Factor loadings, Factors labeling and %of variance

Constituent Variable	Label	Factor Loading	FACTOR NAME	Variance Explained by the Factor (%)
I am a customer of my current bank because the switching process to another bank is too demanding.	V29	.588		
Bank gives me a feeling of excitement	V30	.757	Brand feelings	7.031
Bank gives me a feeling of self-respect	V31	.623		
Bank gives me a feeling of security	V32	.570		

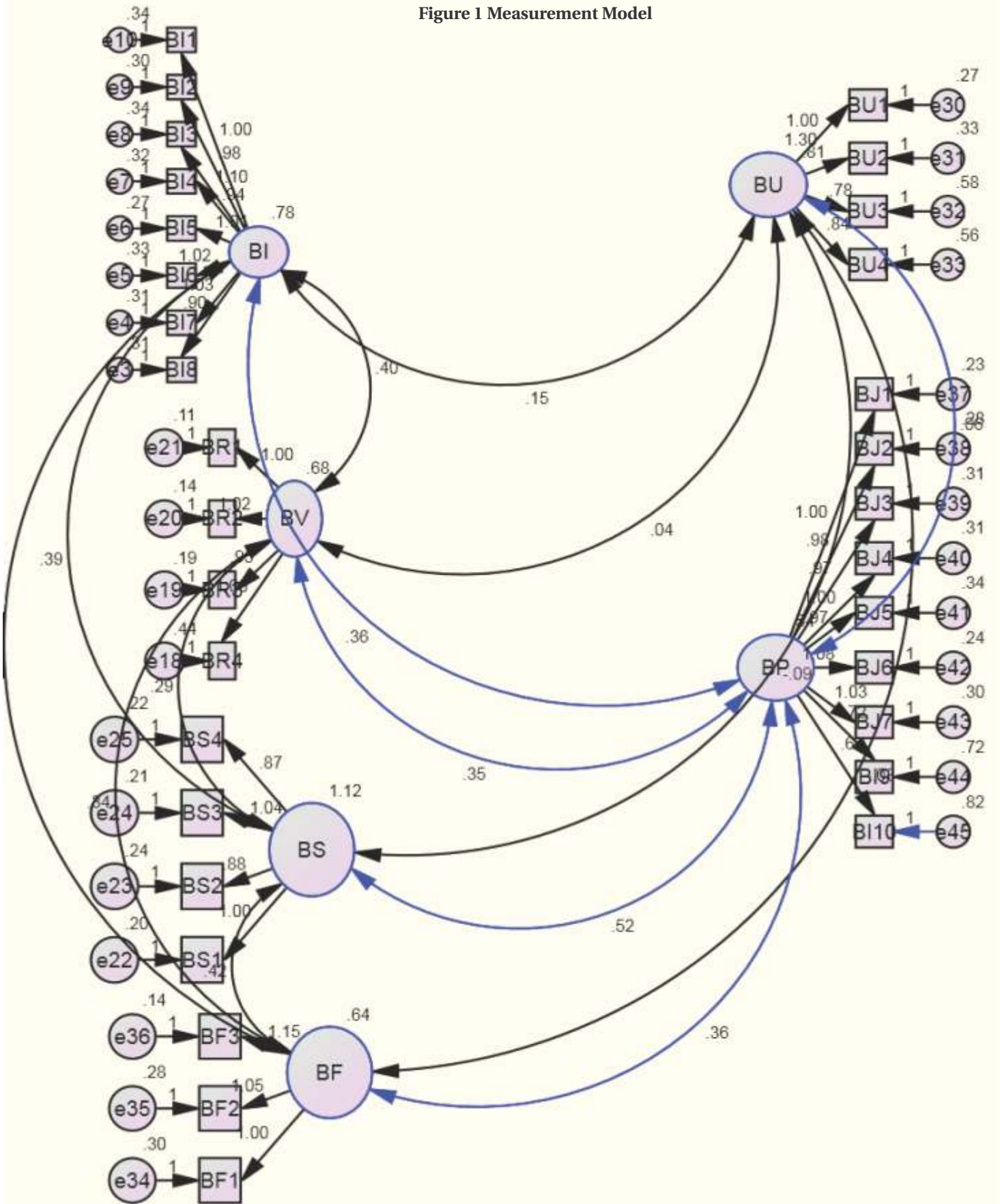
Table VI: Weighted Average Score Table

FACTORS	VARIABLES	MEAN	WEIGHTED AVERAGE	RANK
Brand Investments	V1	3.2417	3.2865	5
	V2	3.2333		
	V3	3.3417		
	V4	3.3250		
	V5	3.4250		
	V6	3.0833		
	V7	3.3000		
	V8	3.3417		
Brand performance	V9	3.7750	3.6806	3
	V10	3.7500		
	V11	3.2250		
	V12	3.6583		
	V13	3.5167		
	V14	3.8583		
	V15	3.9750		
	V16	3.7667		
	V17	3.6000		
Brand verdict	V18	3.9250	3.8396	1
	V19	4.0083		
	V20	3.7500		
	V21	3.6750		
Brand Salience	V22	3.8917	3.8042	2
	V23	3.7167		
	V24	3.7417		
	V25	3.8667		
Brand unfamiliarity	V26	2.8750	2.9958	6
	V27	2.5417		
	V28	3.2833		
	V29	3.2833		
Brand feelings	V30	3.6167	3.6028	4
	V31	3.4333		
	V32	3.7583		

Table VII: Model fit Indices of the Measurement Model

Index of Fit	Chi-Square(df)	CMIN/DF	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
	2471.676 (711)	3.47	0.93	0.90	0.96	0.92	0.91	0.92	0.06

Figure 1 Measurement Model





Students' Attitudes towards Developmental Mathematics

Dr. Ahmed Khago, **Dr. Ashraf Elhoubi, *Dr. Sami Shahin*

ABSTRACT

Many college students' attitudes towards mathematics are influenced by factors such as the individual student's attitude and often the influence of the attitudes of the student's peers; the perceived quality of the school due to collective attitudes, school pride, and extracurricular involvement; teachers' attitudes and individual teaching style; the parents' attitudes; high school preparation; and college placement exams. The objective of this study is to identify important factors that influence students' attitudes and to improve their performance in the area of developmental mathematics. In this study, 316 students from twelve different classes at Lamar University were surveyed. A twenty eight question survey was developed, and for each question the answer ranged along a five point Likert scale: "Disagree," "Slightly Disagree," "Neutral," "Slightly Agree," and "Agree." Factor analysis and logistic regression statistical procedures revealed that students' attitudes are affected by many of these important factors previously listed.

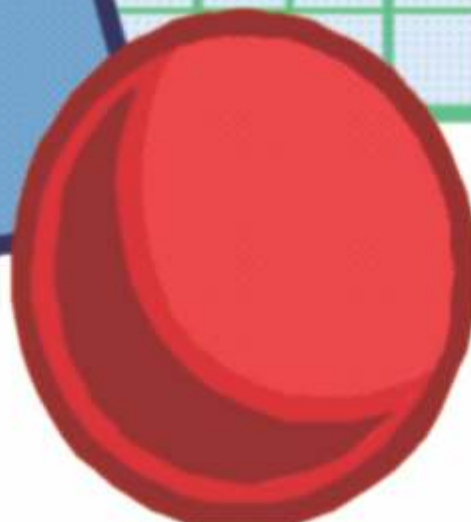
Keywords: Students' attitudes, Developmental Mathematics, Higher education, parents' attitudes



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INTRODUCTION

Anyone who has ever taught an introductory college math course can identify with statements in the beginning of each semester like "I hate math," "Why do I have to take a course that is not related to my study?" "It's not going to help me with my job," and so on. It is because of statements like these that the researchers of this article decided to explore the attitudes of college students towards mathematics. Mathematics is one of the subjects that most college students dislike and therefore often try to avoid academic majors that require more math skills. College students will also try to get out of taking math courses by testing out of the course.

Recent high school graduates typically have certain attitudes and perceptions towards college math courses. Previous studies have indicated that students with negative attitudes towards mathematics are less likely to perform well in mathematics due to anxiety (Ma & Kishor, 1997; Midgley, Feldlaufer, & Eccles, 1989; Higbee & Thomas, 1999; Papanastasiou, 2002; Hannula, 2002; Tapia & Marsh, 2001). College students who have to take remedial (also titled "Developmental" or "Pre-College") math courses have to face the fact that their graduation roadmap from college is going to be longer and at higher cost than those who were considered "prepared" through testing. They also face the reality that they have to start over again on some of the Math and English education they were supposed to complete in high school. The increasing lack of high school preparation for college-bound students is in part due to the disconnect between the minimum requirements for high school graduation, defined by politicians in different states, and college readiness standards defined by higher education institutions. This disconnect will continue to result in the need for developmental mathematics (Cullinane & Treisman, 2010).

According to the recent statistics by the U.S. Department of Education, one-third of all high school graduates will enroll in developmental mathematics in college before they can start college level courses (Snyder & Dillow, 2010). Large universities and community colleges across the country are recognizing the need for successful remedial math programs to enable underprepared college students to quickly develop these skills in order to succeed in college. There is also a need for a major improvement to existing developmental education programs in community colleges and universities.

The consensus among developmental math instructors and researchers also suggests that the traditional class lecture where the instructor lectures for the whole class period does not work for developmental math students and must be replaced by active learning and guided instructions. In fact, effective teaching strategies can produce positive attitudes towards the subject. Middendorf and Kalish (1996), Professors from Indiana University, conducted a research to study college students' attention and retention during a long traditional lecture. They observed students having lapses of attention during the long lecture. They explained the lapses of attention due to the fact that the brain does not record information like a tape recorder, but rather it processes information by reducing

it into small chunks called "categories." Learning occurs when these chunks are then fitted into already existing categories or the brain creates new ones. They argued that students can learn better if a new concept was introduced and the student had the opportunity to practice and master the new concept. Another study conducted by Johnstone and Percival (1976), observed students' attention in 90 different lectures and twelve lecturers. They found that students take five minutes to settle down at the beginning of the class. They also found that students can only have between 10 to 18 minutes of optimal focus and they lose their focus after that.

Research also suggests that students with negative attitudes towards mathematic courses have lower performance levels contributed to obstacles in learning, such as anxiety, lack of interest in the subject, and lack of motivation (Ma, 1995; Waters, Martelli, Zakrajsek, & Popovich, 1988; Tapia, 2004). Parents' and teachers' negative or positive attitudes towards mathematics can also influence students' attitudes towards math courses and math in general (Zaslavsky, 1994; Uusimaki & Nason, 2004; Bestwick, 2006; Bestwick, 2007; Wikins & Brand, 2004; Nason, 2004; Uusimaki & Nason, 2004; Hake, 1998; Kroesbergen & Van Luit, 2002; Sokoloff & Thornton, 1997; Wright, Millar, Kosciuk, Penberthy, Williams, & Wampold, 1998). Wilkins and MA (2003) showed that students with higher level of parents' involvement had a slower decline in their view of the subject of mathematics. Students who believe that their parents have a positive attitude toward mathematics and felt that their parents viewed mathematics as important, are more likely to believe that mathematics is important and have a positive attitude towards the subject (Wilkins and Ma 2003).

Students' attitudes can also be affected by the instructional methods used in the classroom. Effective teaching techniques such as active learning and engaging the students in the learning process can create positive attitudes and enable both the students and the teachers to interact with each other (Vaughan, 2007; Akinsola & Olowojaiye, 2008). Some researches also suggest that the lack of real life application and the difficulty of students to see the applicability and the use of math in their future careers contributed to the attitude they have towards mathematics. For example, teaching the mechanics of a slope equation without explaining the real life application of the slope and how to use it in different disciplines other than mathematics, does not attract the student or engage and them into the subject (Elliott, Oty, McArthur, & Clark, 2001; Malmivuori, 2006).

Benjamin Bloom introduced the theory of mastery learning in the mid-1960's, in which Bloom pointed out that all students can learn equally if the learning environment is properly created in the class room (Guskey, 2007). In his theory, Bloom indicated that classrooms with mastery learning environments are better than traditional classrooms with lectures, and the students (including the slow and the fast learners), will master the material equally. Bloom observed that in a traditional classroom that only a few students learn the materials quickly (about twenty to thirty percent), and the majority of students do not ever fully master the materials. He

also noted that students master materials when they have one-on-one guided instructions similar to one-on-one tutoring. An ideal learning environment occurs when the students receive immediate feedback and individualized corrective and guided instructions on the learning difficulties they face. In the mastery learning environment, all students must master each unit before the instructor can move to a more advanced unit (Bloom, 1984; Bloom, 1968). Bloom recommended breaking down the materials to smaller units and providing students with formative testing after teaching each unit instead of end of unit testing. The formative testing method is a diagnostic test that helps with identifying the weakness and errors that students make on the test. Students who have not mastered the material in the unit must stay and work on corrective assignments outside the classroom until they master the materials. Students who master the materials for the first time must have an opportunity to expand their learning and be rewarded through enrichment activities. Some of these activities are helping the students who are still working on mastering the materials, extending the current concepts that the students are working on, and applying the concepts in different ways.

Some researchers criticized the mastery learning method because of the time constraints and inability to cover the materials in time. Some teachers also argue that adopting the mastery method will get them behind in their class lessons, and there are concerns over the level of commitment and the time they will have to spend in order to adopt the method. The mastery method requires individualized attention, a high degree of preparation, and a student-teacher ratio that is not realistic. Teachers will not be able to cover the whole curriculum since they have to wait until everyone masters the current materials before moving forward.

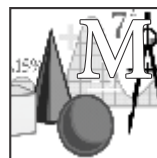
Some studies also suggest that standardized tests such as SAT, ACT, THEA, and COMPASS are not effectively assessing incoming college students, and these assessments do not indicate the proper level at which the students should be placed. There are some arguments that individualized college placement exams may be a better way of assessing students to be in the right level (Foley-Peres & Poirier, 2008). Popham (1999) argued against the use of standardized tests in measuring the quality of education. He compares the use of standardized tests for measuring the students' education quality like measuring temperature with a tablespoon that has no indication of hot or cold. The standardized tests use a multiple choice question format that requires a less sophisticated way of thinking and does not represent real life situations. Standardized tests also make it easier for students who are now fully adapted to the idea of game-guessing-point-scoring (Sacks 2001). Standardized test are not reliable and do not measure students' performance. A study by the Brookings Institution reported that 50%-80% improvements for year after year of tests, is not reflective of the long term effect of learning (Olson 2001).

Lamar University is a four year state college and has nearly open admission policy. Enrollment fluctuates around 14,000 students. Almost half of the students are considered part-time

students. Fifty nine percent of the survey respondents were females while forty one percent were males. Student's ages were between eighteen and twenty one years old. Fifty three percent of the students are Caucasian, twenty seven percent are African American, nine percent are Latino, three percent are Asian, and eight percent are other. Each year approximately more than two thirds of the students admitted to Lamar University have to take developmental math courses. Fifty percent of those who take a developmental math course fail to make it to college algebra. Ninety percent of those who make it to college algebra pass it with D or better. Lamar University offers three developmental math courses; Basic Algebra, Algebra I, and Algebra II. These courses are taught under the Developmental Math Department and not the Math Department. The university has some success in separating the developmental math courses from the math department, but improvement to developmental math courses has stopped due to state budget and reallocation of the funding to different departments. The university also is trying to minimize the reliance on developmental math courses and move these courses to self-paced course such as online or in lab where student use programs such as MyMathLab or Alex.

Three primary research questions are investigated in this study:

1. What is the current attitude of Lamar University students towards mathematics?
2. What are some of the factors that contribute to the negative attitudes towards mathematics in college students?
3. What type of improvements should be implemented in order to improve developmental mathematics at Lamar University?



ETHOD

Sampling and Respondents

The data for this study was collected from Lamar University students who are currently taking or have taken math or developmental math, college algebra, and statistics courses in the spring of 2012. Researchers collected 316 survey responses from participants who took part in the study. Only students who are enrolled in mathematics were included in the sample.

A total of twelve randomly selected classes were surveyed. These classes are: two classes of college algebra, two classes of senior level statistics, four classes of intermediate developmental math classes, and four beginning developmental math classes. The 28-items of the survey were adapted from the modified Fennema-Sherman Mathematics Attitude Scales, previous research, and the authors' own questions (Fennema & Sherman, 1976; Fennema, 1989; Singh, Granville, & Dika, 2002; Hauge, 1991; Ma, 1997).

The survey was a five-point Likert scale containing: "Disagree," "Slightly Disagree," "Neutral," "Slightly Agree," and

"Agree." The individual attitude factor questionnaire contained items on individual demographics, such as age, gender, ethnicity, class standing, marital status, college status, and the number of developmental math courses taken. These questions were then grouped into the following six factors: College placement exam (Question 1-Question 4), student's attitudes (Question 5-Question 11), teacher's attitude (Question 12- Question 16), parents' attitude (Question 17-Question 21), high school preparation (Question 22), and learning style (Questions 23- Questions 28).



PROCEDURES

Faculty members, including the authors of this paper, administered a 28-item questionnaire to the students during class time. Students were told that the questionnaire was an optional survey and were assured the anonymity of their responses.



ATA ANALYSIS

Factor analysis was used with VARIMAX to examine the patterns of relationship among several dependent variables and to see how they were related to the independent variables in order to determine the factor structure of 28 questions included in the questionnaire.

Factor analysis also provided details about the nature of these factors and how many different factors are desirable in order to clarify the pattern of relationships between these variables (Hair, Anderson, Tatham, & Black, 1992). Factor analysis method involves reducing the information contained in a number of the initial variables to a smaller set of dimensions or factors (Johnson & Wincher, 2002). Absolute value of factor loading more than 0.50 was considered to have a strong relationship between the variables and factors and factor loading less than 0.50 was considered insignificant (Comrey & Lee, 1992). Based on the result of factor analysis from Table 1, questions were regrouped into new factors. These factors are: Attitude, Anxiety, Parents' Attitude, Group Work, Learning Style, and Placement.

While the factor analysis was used to describe the interrelationships among the independent variables, ordinal logistic regression statistical analysis was also used to determine the probabilistic relationships between the response variables and set of independent variables such as age, gender, ethnicity, class standing, college standing, and marital status.

The logistic regression statistical method is a useful statistical technique for modeling when a categorical response is predicted by several independent variables (Hosmer & Lemeshow, 2000). Unlike the linear regression model where the average response value of the dependent variable is fit to the independent variables, logistic regression model describes the probabilistic relationships between the dichotomous dependent variable and a set of independent

variables. The logistic regression model is described by the following:

$$\ln(\text{odds ratio}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \epsilon_i \quad 1$$

$$\text{Odds ratio} = \frac{\pi(x)}{1 - \pi(x)} \quad 2$$

Equation (1) describes the logistic model where X_i represents the independent or predictor variables, ϵ_i is the error, 0 is a constant, and β_i are the coefficients of the independent variables.

Equation (2) describes the odd ratio where $\pi(x)$ is the probability of success and $1 - \pi(x)$ is the probability of failure. The deviance is used as measure to determine the lack of fit in the logistic regression model. Smaller value of deviance indicates better model assessed by the chi square distribution. Correlation Analysis will be used to determine if there is any significant relationship between the response variable and the set of the independent variables.

Results

Fifty percent of the students that were surveyed are African American, thirty six percent Caucasian, ten percent Latino, and the rest other (Asian, Native American, and Middle Eastern). Females represent the majority with sixty percent and males with forty percent. The results also show that sixty percent were freshmen, twenty percent are sophomore, ten percent juniors, ten percent seniors, and one percent graduate students. Results also show that more African American students enroll in developmental math courses than any other race at this University.

The basic statistics also show that there is a strong correlation between students that say they feel nervous doing math and those who say they are not the type of students that do well in math. Fifty seven percent of the respondents agreed or strongly agreed that entry placement test scores did not reflect their true math skills. Sixty five percent of the students' parents think math is not important and they just have to pass. Sixty percent of the students stated that their parents did not encourage them to study math. Fifty two percent said that their parents avoided helping them in their math homework. An astounding seventy percent of the students admit that high school let them pass the math course regardless of their grade in math.

The factor analysis with the Varimax rotation in table 1 has resulted in a six factor solution after retaining factors with eigenvalues greater than 1.0 (Kaiser, 1970; Nunally 1973; Gorsuch, 1983). The six factors accounted for 46% of the variation. Five questions were removed as a result of the factor analysis. These questions were; question 7, question 12, question 22, question 15, and question 16. The structure of these six factors is a little different than the original six factors we started with as shown in Table 1. The first factor is the most important and accounted for 10% of the variance and consisted of five items which represent students' attitudes. All five items in this factor had loadings greater than 0.5 and dealt with students' attitudes. Questions seven, eight, and ten were

eliminated from the original items under "students' attitudes" and question 4 was added. Question four was originally in the placement factor but interpreted as students' opinion of the placement exam. The second factor, labeled "anxiety," accounted for 9% of the variance and included items that dealt with anxiety, fear, and tension towards mathematics. The question with the highest loading was question number eight, "studying mathematics makes me feel nervous." The third factor accounted for 8% of the variance and consisted of the same five items that dealt with parents' attitudes and therefore was labeled as "parents' attitudes." The fourth factor, labeled "group work," accounted for 7% of the variance and included three items on group work in class. One of the items in the fourth factor originally belonged to the teachers' attitudes factor and the other two items were originally from the learning style factor. The fifth factor accounted for 7% of the variance and had four items that dealt with the students' learning style. The last factor accounted for 6% of the variance and consisted of three items. This factor dealt with the placement of students after they had been admitted to college. Table 1 shows the results of the factor analysis as well as the new structure of the variables.

Table 1: Rotated Factor Loadings of the Student Attitude Scale

Variable	Factors scores	Factors
Q4	0.462	Factor 1: Students' Attitude
Q5	0.761	
Q6	0.668	
Q9	-0.646	
Q11	-0.523	
Q8	-0.814	
Q10	-0.802	Factor 2: Anxiety
Q14	-0.595	
Q17	-0.593	
Q18	-0.789	
Q19	-0.685	
Q20	0.533	Factor 3: Parents' Attitude
Q21	-0.489	
Q13	0.589	
Q25	-0.735	
Q28	0.8	Factor 4: Group Work
Q23	0.523	
Q24	0.635	
Q26	0.613	Factor 5: Learning Style
Q27	0.475	
Q1	0.667	
Q2	-0.518	
Q3	0.528	Factor 6: Placement

Since the factor analysis revealed that the anxiety factor has the highest absolute value of factor loadings, question 8 and question 10 were chosen as the independent variables for the logistic regression model. The logistic regression model revealed some significant results using Q8 and Q10 as the response variables. The full model for Q8, including all variables shows significant relationship between students' attitudes and all explanatory variables ($G = 91.491$, $DF = 25$, $P\text{-Value} = 0.000$). There is no evidence of Multicollinearity

problems with the data since none of the Variance Inflation Factor (VIF) > 5 , and the correlation < 0.70 (Kutner, 2004). The results of the odd ratios corresponding to the coefficients revealed that the relationship between question 8 and students' attitudes, group work, and learning styles are negative. This means that when students' attitudes, learning styles, and group work are lower, the students feel nervous about the math course.



DISCUSSION

Based on the researchers' classroom experience in teaching developmental mathematics and the current research, the major findings of this paper indicate that students' attitudes are influenced by several factors, and if addressed properly by higher education, can result in the success of changing the students' attitudes towards mathematics. Improving students' attitudes towards the subject can only be achieved by improving the classroom experience, and therefore improving the performance of the students in that math course.

The lack of study skills, lack of math learning habits, the time and effort the students are willing to spend, and the confidence to succeed in math classes are among the factors that contribute to students' negative attitude towards the subject of mathematics. Previous research supports the findings that self-efficacy is related to performance in math and statistics courses and has a strong correlation with the student's attitude towards mathematics and the interest in career in a math related field (Finney & Schraw, 2003; Betz & Hackett, 1983; O'Brien, Kopala, & Martinez-Pons, 1999).

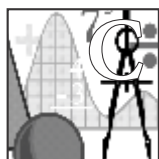
Not surprisingly, students' attitudes are also influenced by parents' attitudes towards the subject of mathematics and by the emotional support and encouragement that the students receive from parents and teachers. Parental figures play an important role in the emotional and social behavior of their children (Zhou et al, 2002). When the children observe their parents' behavior and emotions, they automatically think they should behave and act the same (Zhou et al, 2002). Past research also suggested that emotional problems such as anxiety, self-esteem, fear, and negative attitude can be passed down to one's children (Cytryn & McKnew, 1996; Zhou, Eisenberg, Losoya, Fabes, Reiser, Guthrie, Murphy, Cumberland, & Shepard, 2002; Timko, Cronkite, Berg & Moos, 2002; Uusimiaki & Nason, 2004; Bestwick, 2006; Schoenfeld, 1985; Gerhold, Laucht, Texdorf, & Schmidt, 2002)

College placement is another important factor that contributes to student success in developmental math classes. Proper placement of the students and implementing college placement testing to place the students in the appropriate course is an important factor for success. Most universities rely on placement and college entrance exams such as the COMPASS, ACT, SAT, THEA, TAKS, and ACCUPLACER to cut cost and minimize time they would spend on conducting these exams. However, many students that do well on these exams fail College Algebra. Researchers suggest to create a

strong alignment between college mathematics placement tests and high school mathematics curriculum and assessments (Brown & Niemi, 2007; Hill, 2008).

Instructional methods and teaching techniques used in the classroom play an important role in changing students' attitudes towards mathematics. Traditional lecture methods that are not engaging the students in the learning process are inadequate and ineffective in developmental mathematics and must be replaced by effective teaching strategies such as guided instructions and blended methods (Middendorf and Kalish, 1996). The negative attitude in the classroom must be changed in order to achieve better attitudes towards mathematics. This can be done by providing a better and more positive learning experience and high expectations by the instructor. Related real life applications and engaging the students in the learning process is a crucial part of improving students' attitudes towards mathematics (Wilkins & Ma, 2003; NCTM, 1989; NCTM, 2000). The system for teaching developmental math courses must be changed. Bloom pointed out that all students can learn if the learning environment is provided (Guskey, 2007). Classrooms with mastery learning environments can work better than the traditional class lecture, produce better learning environments, and close the gap between fast and slow learners. In order to achieve this goal, class size must be reduced and instructors must use technology to help manage students' mastery of the materials.

In many universities and community colleges, most of the developmental math courses are taught by graduate students or by instructors with little supervision and almost no training in how to teach developmental math. Some of the instructors do not have degrees in mathematics and some have only the minimum of 18 hours of math courses as requirements to teach. At some universities, graduate students are required to teach these courses as part of their graduate assistantship. This can create classrooms with teachers that are doing a job because they have to work, not because they want to make a difference.



ONCLUSION/RECOMMENDATIONS

This paper points out the importance of dealing with the negative attitude that college students have towards developmental mathematics. Conducting the survey to students in Lamar University showed that some attitude factors such as teachers' attitude, students' peers' attitude, parents' attitude, high school preparation have contributed to how students perceive learning mathematics in higher education. The results in Table 1 clearly point out the important of all these factors with some of them more important than the others. The results in this paper agrees with previous findings in the literature that peer affiliation, parents and teachers' influence have an effect on attitudes towards the subject of mathematics (Harris 1995).

The logistic regression results show that students who feel nervous or anxious about the subject are 32% more likely to

have negative attitudes towards the subject and 27% more likely to lose confidence in their ability to do well in math even if they have support from teachers. The results also show that when the students are nervous or anxious, factors such as teaching methods or group work are negatively affected. Student who are nervous are 64% more likely to believe in guided instruction where the instructor let the students practice what they just learned in class.

The students who had negative attitudes toward math felt that way since they do not expect to use much math when they get out of college, and also, studying mathematics makes them feel nervous. In addition to the anxiety, students' negative attitudes are often also due to the fact that their high school math teachers did not prepare them well for college. The teachers think that the students can do better in math but teachers are not focusing on what they can do to help optimize the learning ability of their students (Schalock, 1998).

The results also revealed a strong correlation between students who say they feel nervous doing math and those who say that they are not the type of students that do well in math. As for the usefulness of developmental math, Eighty four percent of the students stated that developmental math classes do help with preparing them for higher level math courses.

Based on the reality that developmental mathematics is not going away in higher education and that large universities must deal with the growing demand for remedial math, the authors developed these recommendations and strategies to help improve students' success rates and to run a successful program. Some of these recommendations:

1. The University or the Community College must offer their own placement exam for incoming freshmen that fits with the current College Algebra curriculum offered by the math department. Since most of the professors in these Universities have different styles of assessing their classroom performance and usually do not teach college algebra with multiple choice as class assessments, the placement exam should be non-multiple choice questions. Computerized placement exams can be developed to fit the math department requirements and minimize the grading.
2. The developmental math curriculum must be aligned with the college algebra curriculum that provides the students with the necessary tools to succeed in college algebra and their perspective major.
3. The institution must hire developmental math instructors and train them or the University must assign experienced graduate students who have had teaching experience and train them to teach developmental math. The instructors must have appropriate training to work with developmental students and must meet students at their level of cognition.
4. Administration must offer more monetary incentive to teachers or graduate students who will be teaching these courses since most of the professors like to teach upper level

math courses and have no patience for teaching lower level courses.

5. Study skills and learning skills must be part of the curriculum. Developmental math students lack the necessary study skills and, also likely, they lack the reading and writing skills. Developmental math instructors must be trained to incorporate study skills into their class room.

6. Entry level math courses must be taught with a mastery learning approach. Mastery learning methodology was first introduced by Benjamin Bloom in 1960 where students must master the unit before they can proceed to the more advanced unit. This can be done using software such as MyMathLab or developed uniquely.

7. The department must also offer a math lab parallel to chemistry or physics labs where students must go at the end of the week and work on specific problems to enforce what the instructor covered in the lecture for the week. This lab must be part of the course and a lab fee may apply to cover the lab budget. The lab is not a lecture and must be designed carefully to ensure the students do the problems alone, with supervision. Software such as MyMathLab, ALEX, or developing onsite unique software to ensure that students achieve the desired mastery level of the material covered. Student must stay in the lab unit they master the unit lab.

8. The class assessments, such as exams and quizzes, for the developmental courses must have common assessments and uniform structure for all the sections. For example, every

student must take the same tests and be assessed the same way which means more training for instructors and graduate students to comply and collaborate together to ensure uniformity. Students must have the opportunity to improve their grade by retaking computerized and identical versions of the exam.

9. An early alarm system to identify students at risk and put them back on track is necessary. This can be done through attendance or through online tools provided by course management systems.

10. All developmental classes must be taught in a non-traditional class format with mini lectures followed by exercises. Each class, students will have an opportunity to do in-lecture exercises in groups or as individuals at least once or twice during the lecture so that they can immediately apply what they learned. Topics also must be taught the same way. For example, all students must factor trinomial of the form $ax^2 + bx + c$ with a greater than 1 with the same method (i.e. trial and error, factoring by grouping...).

11. Classroom size must be kept to no more than 25 students per class. Since the mastering learning method is impossible with a class of 80 students, classrooms must be kept below 30 students.

For Further study, a larger sample size and more representative sample students can be used and compared to different schools in the United States.

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An Empirical Evidence on the Factors Affecting Quality of Management Education in Punjab

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ABSTRACT

In this paper the viewpoint of faculty members on quality of tertiary education with focus on management professional education has been discussed in the State of Punjab. Impression of 180 management faculty members is considered on quality of management education. Statistics were gathered using structured schedule which contained 25 statements on likert scale. Data recorded is analyzed with the help of factor analysis and weighted mean scores. Six factors have been identified which influence the quality of education, i.e. student readiness, teaching quality, advancement opportunities, infrastructure and level of discipline, student orientation and faculty satisfaction with the system. Level of agreement of the faculty members found to be high on all six factors which further interpret low student readiness and student orientation. Rest of the factors i.e. teaching quality, advancement opportunities, infrastructure & level of discipline and faculty satisfaction with the system resulted high. The research outputs of this study are of constructive use to the stakeholders of management education i.e. government, state university, teaching fraternity, management of the institutes.

Key Terms: Education, management education, faculty members, quality of management education.

INTRODUCTION

In the emerging world of knowledge, quality of technical & professional skills of an individual determines a person's survival and advancement in the competitive world. For this aforesaid purpose, technical education plays a vital role in human resource development of the country through the creation of skilled manpower, enhancement of industrial productivity and improvement in the quality of life of its people (Ministry of Human Resource Development, 2015). To get into the professional career quickly, 21st century generation has begun to aspire for management education. It led to quantitative expansion without adequate preparation, which has resulted into wide divergence in the quality of education provided by B-Schools (Rahim, 2012).

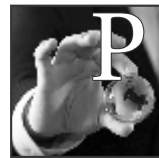
Globalization in the country defeated to give momentum to higher education by creating an evident gap between the results of globalization achieved on economic success and higher education. A weak relationship between globalization and higher education is found out (Selvam, 2010). There is a wide gap between the performance of top 10 B-Schools and rest B-Schools. One important reason for this difference is the poor integration of industry and management education institutions in terms of course design, implementation of changes suggested by industry, joint initiatives, R&D initiatives and faculty & employee exchange programs (Sharma & Saxena, 2010). The prestige of a business school has been reflected through the research carried out by the school. Although, the school's prestige has very little relation with the student's satisfaction (Armstrong & Sperry, 1994). However, set of perceived skills i.e. communication skills, problem solving skills, teamwork skills, ethical skills, terminology skills and global skills received from the educational experience has been found positively related to management student's satisfaction whereas, income and employment status is not found as the predictors of satisfaction (Fine & Clark, 2013).

Further, selection of a particular university by students has been influenced by the faculty competence, learning methods, international exchange opportunities, level of academic research, image, career opportunities, social life of the university and the city, infrastructure, fees structure and accommodation costs as well as information sources about the university. Out of all these parameters, reputation and city location has been identified as the top most considerations (Alonderiene & Klimavičiene, 2013). Another viewpoint stated that in order to develop the Indian Management schools, young faculty should associate themselves in theory building (Mulla, 2007). Restructuring of Master of Business Administration (MBA) education in terms of review of compulsory subjects, personal development, flexibility of education, mixing academics and practitioners, admission criteria's, quality of education and financial viability has been emphasized (Hussain, 2004). Although, assurance and tangibility were considered as the two most important factors by the international students while they assess the service quality of educational institute. Various manifestations of assurance suggested include visibility of promotional material, maintenance of appealing physical facilities, modern equipments, well maintained library and computer facilities and for tangibility included creation of caring

environment, knowledgeable faculty and ability of the faculty to make the students feel comfortable in new environment (Tomkovick & Al-Khatib, 1996).

Institutional environment of professional education institutions has been responsible for making good professionals. The various indicators of good institutional environment include participative decision making, role clarification, enhanced transparency, respect of every discipline and sensitization towards stress causing factors among students along with innovation and development capabilities (Rao & Saxena, 2014). Organization culture has been considered as the contributing factor which affects the management education. The ingredients important for

organization culture included work satisfaction, efficiency and leadership (Mehta, Nagar & Chauhan, 2011).



PURPOSE OF THE STUDY

Higher Education sector has witnessed a tremendous growth in its institutional capacity since independence in India. The number of Universities has increased 34 times from 20 in 1950 to 677 in 2014. The number of registered colleges has increased 74 times from just 500 in 1950 to 37,204, as on 31st March, 2013 (MHRD, 2015). Similarly, there has been tremendous growth of management institutes during last few years in the process of privatization of higher education. Number of management institutes affiliated to All India Council for Technical Education in India was 2915 in 2006-07 which has increased to 3364 in 2013-14 (All India Council for Technical Education [AICTE], 2015).

The State of Punjab is not an exception to this trend. In the State of Punjab there were 146 institutes offering management programmes in the year 2013-14 (List of Approved institutes, AICTE, 2013-14). Out of this, 135 institutes have been affiliated with Punjab Technical University (PTU). So, the increase in the number of institutions should positively be proportional to quality as well. Mere increase in numbers without enough attention towards quality generates undesirable results (Subramanian, 2007).

In light of the above discussion, the present study has been planned to explore the various dimensions affecting the quality of management education in the State of Punjab with special reference to the private institutions affiliated to PTU. The quality of management education can be determined from the perspective of different stakeholders like government, students, faculty, management/ governing bodies, parents etc. The present study is confined to the viewpoints of faculty members. The present study has been carried out with the following objectives:

1. To identify the factors determining quality of management education from the perspective of faculty members.
2. To assess the level of agreement of faculty members with the factors.



LITERATURE REVIEW

The quality of education is based on the best faculty, the excellent physical resources, wide range of disciplines which paved the diverse student body and improves the employability of the graduates. However, placement came out as the important determinant for students of the higher educational institutions in India. There are many educational institutions which concentrated their efforts towards achieving a very high level of on campus placement as the ultimate objective (Senthil & Arulraj, 2009). The efficiency and equity of higher education can be enhanced through the improvement in examination system, monitoring of institutions, academic inputs, physical facilities, sources of revenues, financial support to students and academic outcomes (Niazi & Mace, 2006). Improvement in strategic planning activities, staff participation, infrastructure, financial support and teaching-learning processes determine the assurance of internal quality of institutions (Silman, Gokcekus and Isman, 2012).

Gap between perception and expectation of various dimensions i.e. reliability, responsiveness, assurance, empathy and tangibility of service quality in higher education has been pointed out (Rasli, Shekarchizadeh & Iqbal, 2012). Six issues which secure the quality of education pinpointed includes maintenance of institutional quality, recruitment and retention of experienced staff, fulfillment of quality assurance regulatory norms, securing funds, acquisition of university facilities and facilitating effective leadership (Garwe, 2014).

Further, quality of technical education is based upon organizational effectiveness. Organizational effectiveness and job involvement has direct relationship for faculty members. Factors like job enjoyment, job identification, job importance and job motivation affect job involvement. Employee encouragement, employee growth, employee recognition, employee skills & talent, employee role, organizational policies & procedure, organizational rules are the factors affecting organizational effectiveness (Pathak & Patwardhan, 2011). Faculty members view that quality of professional program is determined on the basis of gaps between academic and industry. The gaps between academics and industry must be bridged to improve the quality of the technical program. This study identifies three important gaps between the viewpoints of faculty and industry executives which include degree of industrial focus, quality related to program & pedagogy and degree of industry readiness of the program (Mandal & Banerjee, 2012). A strong linkage between industry and academia has also been strongly recommended in management education (Sharma & Saxena, 2010).

A study conducted to investigate the factors related to talent management of faculty in business and technology schools identified five factors important for faculty i.e. learning opportunities, work environment, incentives, recognition and salary (Agarwal, 2010). Faculty mobility is also affected by career growth opportunities, bureaucratic administration, research opportunities, faculty freedom, reward and recognition system, implementation of HR practices, pay packages, pressure in course work and quality of students (Khan, Ahmed & Sarker, 2010). Engagement of young

professors of B-Schools in theory building could also help in development of Indian management models (Mulla, 2007).

The impact of soft skills training on students who have been regularly exposed to soft skills training and those not exposed with respect to their overall soft skills shows the significant difference in soft skill levels of students exposed to soft skills training and not exposed to soft skills training. Further, major soft skills components that can be significantly improved include oral/spoken skills, honesty, teamwork, risk taking skills, work under pressure, influencing skills, training skills, management skills, self motivation, critical thinking, inter personal skills, research skills and problem solving skills (Shekhawat , 2012). Along with these, innovative approaches like case writing skills, research paper writing skills and consumer dynamics create positive impact in the development of skill and competencies of MBA/PGDM students (Prabhu, 2012). Participation in community based programs on voluntary basis i.e. service learning by students helps in improved understanding of interpersonal skills, academic development and civic responsibility. But it did not show any improvement in practical knowledge of the participant (Hebert & Hauf, 2015).



METHODOLOGY

The present study is based on both secondary and primary data. The universe of the study is all the institutes offering Master's of Business Administration affiliated to Punjab Technical University (PTU). For the purpose of extracting the sample, the state of Punjab has been divided into three regions i.e. Malwa, Majha and Doaba. The total number of institutes running for at least last five continuous years in each region has been identified. The data was collected in the year 2013.

Sample

Sampling procedure adopted for the study is explained in table 1. It was found that there were 66 management institutes which completed at least five years before the collection of data in the year 2013 in Punjab. Further, it was found that these institutes spread in three regions in the following order i.e. 47 in Malwa region, 12 in Doaba region and 7 in Majha region. Then, fifty percent of the institutes have been considered in the sample selecting the oldest institute first. On

the basis of this criterion total 32 institutes are taken for the collection of primary data comprising of 23 institutes from Malwa, 3 institutes from Majha and 6 institutes from Doaba.

The sample unit of the study consists of faculty members of the selected management institutes. In all, 180 faculty members were interviewed for the purpose of study. Faculty members have provided demographic information. 66.7% of faculty members are female with mean age of 29.04 and 33.3% of faculty members are males with mean age of 32.66. 87% of

Table 1: Sample Criterion

Region	No. of Institutes, at least 5 year old	No. of Sampled Institutes
Malwa	47	23
Majha	7	3
Doaba	12	6
Total	66	32

the total faculty members originally belongs to Punjab and rest of 12.2% are from other states outside Punjab. Of the faculty members, 77.8% are post graduates whereas, 12.8% are M.Phil while only 9.4% are Ph.D's. Designation wise composition of faculty members shows that 90% are assistant professors, 6.7% are associate professors and only 3.3% are at professors level.

Procedure

For the purpose of the study, a structured questionnaire is prepared consisting of close ended statements. Statements have been derived mainly from the studies conducted by Niazi & Mace (2006); Senthilkumar & Arulraj (2009); Agarwal (2010); Khan, Ahmed & Sarker (2010); Shrama & Saxena (2010); Pathak and Patwardhan (2011); Silman, Gokcekus & Isman (2012); Rasli, Shekarchizadeh & Iqbal (2012). Respondents were asked to give their opinion on a five point Likert Type Scale ranging from strongly agree to strongly disagree. Questionnaire contained bi-directional questions. A total of 25 statements were taken for the responses. The codes given to statements from S1 to S16 are as 1-Strongly Agree, 2-Agree, 3-Can't Say, 4-Disagree and 5-Strongly Disagree. As rest of the statements from S17 to S25 is negative, so reverse coding is applied for these statements i.e. 1-Strongly Disagree, 2-Disagree, 3-Can't Say, 4-Agree and 5-Strongly Agree. Structured questionnaires were distributed in the sampled institutions with a cover letter explaining the intent of survey by the researcher so that the faculty members get sufficient time to go through the questionnaire. Then, the sampled faculty members were contacted again to get the duly filled

questionnaires.

Measure

The data so collected was computerized with the help of SPSS package. On the basis of the data so collected from the faculty members the factor analysis technique using Principal Component

Analysis is carried out to identify the factors influencing the quality of education. Factor analysis is statistical approach that can be used to analyze interrelationship among a large number of variables and to explain these variables in terms of their common underlying dimensions (Joseph et. all., 1995, p. 368). For the purpose of appropriateness of the factor model in present study, Kaiser-Mayar-Olkin (KMO) measure of sampling adequacy has been considered. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate (Malhotra & Dash, 2012, p. 592). Number of factors has been determined using eigenvalues and percentage of variance. An eigenvalue represents the amount of variance associated with the factor. In this approach, only factors with eigenvalues greater than 1.0 are retained; the other factors are not included in the model. In percentage of variance approach, the number of factors extracted is determined so that the cumulative percentage of variance extracted by the factors reaches a satisfactory level. However, it is recommended that the factors extracted should account for at least 60 percent of the variance (Malhotra & Dash, 2012, p. 595). Further, Internal consistency of the items of factors generated

Table 2: Sampling Adequacy & Communalities of Twenty Five Items

Item No.	Items	KMO Value	
		Initial	0.832 Extraction
S1	The level of course curriculum is relevant	1	0.625
S2	Teaching & learning support is satisfactory	1	0.609
S3	Efforts for the regular attendance of students is satisfactory	1	0.512
S4	Library facilities are sufficient	1	0.756
S5	Sufficient attention is given to check the misuse of cell phones	1	0.511
S6	The teaching faculty is available all the time to solve the students problem	1	0.665
S7	Teaching faculty in the department is well qualified	1	0.680
S8	The institute provide conducive environment for self promotion of faculty	1	0.661
S9	The syllabi are finished as per schedule	1	0.600
S10	The procedure followed for accountability of teaching faculty is quite satisfactory	1	0.478
S11	Sufficient opportunities are available to the faculty for their up gradation of knowledge	1	0.705
S12	The teachers make sufficient efforts to inculcate moral values among the students	1	0.546
S13	Students are encouraged to raise the questions in the class	1	0.548
S14	The computer labs of the institute are well equipped	1	0.725
S15	Teachers take sufficient measures to check ragging	1	0.618
S16	Student involvement in research activities	1	0.612
S17	Commitment for hard work is missing	1	0.616
S18	Students lack confidence	1	0.638
S19	Students lack habit of reading	1	0.690
S20	Students have low awareness level	1	0.623
S21	Students don't go for time management	1	0.585
S22	The interaction among students is missing	1	0.667
S23	Students lack teamwork efforts	1	0.703
S24	Students believe in shortcuts	1	0.519
S25	Students lack communication skills	1	0.500
Extraction Method: Principal Component Analysis			

Table 3: Rotated Factor Score Coefficient Matrix and Communalities

Statement No.	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Communalities
S1	0.036	0.118	0.064	0.151	-0.066	0.820	0.718
S2	-0.024	0.209	0.310	0.178	0.025	0.655	0.602
S3	-0.036	0.160	0.428	0.050	-0.034	0.529	0.493
S4	-0.121	0.092	0.215	0.802	0.038	0.214	0.759
S5	-0.275	0.289	-0.037	0.423	0.314	0.291	0.523
S6	0.012	0.796	0.173	-0.045	0.066	0.099	0.680
S7	-0.060	0.764	0.282	0.111	-0.042	0.028	0.681
S8	-0.021	0.368	0.716	0.146	0.056	0.057	0.677
S9	0.006	0.645	-0.035	0.314	-0.019	0.231	0.569
S11	-0.037	0.122	0.797	0.177	-0.045	0.168	0.713
S12	-0.163	0.483	0.457	-0.006	0.034	0.292	0.555
S13	0.113	0.671	0.114	0.248	-0.072	0.088	0.551
S14	0.135	0.148	0.400	0.717	-0.075	0.061	0.724
S15	0.169	0.401	0.181	0.602	-0.154	0.064	0.613
S16	-0.045	0.083	0.685	0.307	-0.037	0.183	0.607
S17	0.788	0.033	-0.089	0.034	-0.050	0.072	0.639
S18	0.775	-0.039	0.068	-0.085	0.048	0.104	0.628
S19	0.794	0.056	0.017	0.090	0.164	-0.142	0.689
S20	0.710	0.137	-0.113	-0.017	0.276	-0.095	0.622
S21	0.667	-0.114	0.149	-0.026	0.319	0.066	0.586
S22	0.230	-0.153	0.069	-0.010	0.759	0.105	0.668
S23	0.325	0.074	-0.011	-0.003	0.760	-0.087	0.697
S24	0.399	0.038	-0.157	-0.099	0.548	-0.180	0.528
S25	0.635	-0.059	-0.170	0.047	0.230	-0.074	0.496
Eigen Values	5.707	4.238	1.536	1.315	1.16	1.062	
%age of Variance	23.778	17.658	6.401	5.478	4.831	4.425	
Cumulative %age of Variance	23.778	41.436	47.837	53.315	58.146	62.571	
KMO = 0.828							
Extraction Method: Principal Component Analysis							
Rotation Method: Varimax with Kaiser Normalization							

through principal component analysis approach of factor analysis has been calculated through cronbach's alpha value. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. The coefficient varies from 0 to 1, and a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability (Malhotra& Dash, 2012, p. 279).

For the purpose of determining level of agreement, weighted average score (WAS) of respondents for each factor is calculated on the basis of those variables which are having high loading on the factor. Numerical score given for highest degree of agreement was 5 and for highest degree of disagreement was 1 and it is opposite in case of negative variables. Further, it is tested against 3 i.e. the level of agreement is present with respective factor in case WAS of factor is more than 3 and in case WAS of factor is less than 3, then, level of disagreement is there. Interpretation of WAS of factors with reverse coded variables have been made opposite.



RESULTS

Quality of technical education includes several parameters and facilities like infrastructure facilities, discipline, quality of

faculty, accessibility of faculty etc. Twenty five statements were listed related to quality of technical education. Initially factor analysis is conducted on these statements. But for final analysis one of the twenty five items is deleted because the communality value of the item was less than 0.5. KMO value for sampling adequacy and communalities of twenty five statements for model fit is given in table 2. KMO value of 0.832 favors the model fit for factor analysis. But the communality of item "S10" is 0.478, so this variable is deleted for further analysis.

After deleting item S10, factor analysis is again conducted on twenty four statements. The KMO value, rotated factor scores and communalities are given in table3. According to table3, the KMO value for twenty four items is 0.828, which is very large, so the KMO value supports factor analysis. The index for present solution shows that 62.571 percent of the variance is represented by the information contained in the factor matrix. Thus, a model with six factors is considered adequate to represent the data. The percentages of variance explained by factor I to factor VI are 23.778, 17.658, 6.401, 5.478, 4.831 and 4.425, respectively. The communalities have been shown at the far right side of the rotated factor score coefficient matrix in table3 which shows the amount of variance in a variable that

is accounted for by the six factors taken together. The size of the communality is a useful index for assessing how much variance in particular variables is accounted for by the factor solution. For instance, communality figure of 0.493 for variable 'S3' indicates that it has less in common with other variables included in the analysis than does variable 'S1' which has a communality of 0.718.

Naming of factors. The next step in factor analysis is interpreting factor loadings. A factor loading represents the correlation between the factors and the variables. A coefficient with a large absolute value indicates that the factor and variable are closely related (Malhotra & Dash, 2012, p. 596). Factor loadings can vary from +1.0 to -1.0. on each factor, 'like signs' of factor loadings mean that the variables are positively related and 'opposite signs' mean that the variables are negatively related. All factor loadings equal and above 0.423 have been considered as significant for the purpose of this analysis. The process of naming the factors is quite subjective,

though guidelines have been given by various authors. The naming of the factors, loadings and Cronbach's Alpha value of the items are summarized in table 4.

Factor I: Student Readiness

According to table 4 first most significant factor with 23.778 per cent of total variance is "Student Readiness" with item loading ranged from 0.635 to 0.794. Six variables have been loaded on this factor and all the variables are significantly correlated. The cronbach's alpha value of this factor is 0.849 which shows high internal consistency. Results show that faculty members feel that student readiness is explained in terms of commitment for hard work, confidence level, reading habit, awareness level, time management and communication skills.

Table 4: Naming of Factors

Factors	Factor Interpretation (%age of variance)	Cronbach Alpha	Statement No.	Loading	Variables/ Statements
FI	Student Readiness (23.778%)	0.849	S17	0.788	Commitment for hard work is missing
			S18	0.775	Students lack confidence
			S19	0.794	Students lack habit of reading
			S20	0.710	Students have low awareness level
			S21	0.667	Students don't go for time management
			S25	0.635	Students lack communication skills
FII	Teaching Quality (17.658%)	0.790	S6	0.796	The teaching faculty is available all the time to solve the students problem
			S7	0.764	Teaching faculty in the department is well qualified
			S9	0.645	The syllabi are finished as per schedule
			S12	0.483	The teachers make sufficient efforts to inculcate moral values among the students
			S13	0.671	Students are encouraged to raise the questions in the class
FIII	Advancement Opportunities (6.401%)	0.770	S8	0.716	The institute provide conducive environment for self promotion of faculty
			S1	10.797	Sufficient opportunities are available to the faculty for their up gradation of knowledge
			S16	0.685	Student involvement in research activities
FIV	Infrastructure & level of Discipline (5.478%)	0.713	S4	0.802	Library facilities are sufficient
			S5	0.423	Sufficient attention is given to check the misuse of cell phones
			S14	0.717	The computer labs of the institute are well equipped
			S15	0.602	Teachers take sufficient measures to check ragging
FV	Student Orientation (4.831%)	0.711	S22	0.759	The interaction among students is missing
			S23	0.760	Students lack teamwork efforts
			S24	0.548	Students believe in shortcuts
FVI	Faculty satisfaction with the System (4.425%)	0.658	S1	0.820	The level of course curriculum is relevant
			S2	0.655	Teaching & learning support is satisfactory
			S3	0.529	Efforts for the regular attendance of students is satisfactory

Factor II: Teaching Quality

Table 4 reveals that the 'Teaching Quality' is the second most significant factor with 17.658 per cent of the total variance. Item loading is ranged from 0.483 to 0.796. Five out of twenty four statements have been loaded on this factor and all the statements are significantly correlated with the factor. The cronbach's alpha value of this factor is 0.790 which shows high internal consistency. The analysis reveals qualitative teaching in the professional institutes. All the statements show positive loadings on the factor. The variables like faculty accessibility to students most of the time, syllabus completion as per the scheduled time, efforts for inculcating moral values among students and encouragement by faculty to the students to raise the questions during teaching generate a sense of responsibility among faculty to provide good quality of teaching. Another statement loaded on this factor shows well qualified faculty members which becomes necessary in order to fulfill the responsibility of transferring quality of education.

Factor III: Advancement Opportunities

Third factor in the present analysis is named as "Advancement Opportunities" for the faculty members. It has been found that 6.401 per cent of the variance is ascribed to this factor ranging from 0.685 to 0.797. This factor exhibit high internal consistency with cronbach's alpha value 0.770. Three statements have been loaded on this factor which is highly correlated. The statements are related to the growth of faculty as well as students. Two variables are related to faculty growth which include conducive environment provided by institute and opportunities for up gradation of knowledge. One variable is related to student's growth which includes involvement of students in research activities. Thus, this factor exhibits that faculty members believe not only in their own growth but also the growth of students because when students are inclined for research, it becomes an edge for faculty and institution to grow and provide congenial environment for growth, respectively.

Factor IV: Infrastructure & level of Discipline

Four statements are significantly loaded on this factor. The percentage of variance accounted for this factor is 5.478 per cent and it demonstrates 0.713 cronbach's alpha value which reflects high internal consistency. Items are loaded from 0.423 to 0.802. All the statements on this factor are highly correlated. Two statements related to infrastructure include library facilities and computer lab facility and two statements related to discipline include measures to check ragging and misuse of cell phones. The results state that faculty members considers the facilities like well equipped library and sufficient computers as an integral part of management education which benefits for the broader exploration of knowledge. Faculty also supports for ragging free institutions and check on misuse of cell phones.

Factor V: Student Orientation

Fifth factor in the analysis is named "Student Orientation" which is important for quality of management education. It has been found that 4.831 per cent of the variance is ascribed to this factor ranging from 0.548 to 0.760. This factor exhibit high internal consistency with cronbach's alpha value 0.711. Three

statements are loaded on this factor which is positively correlated. These are related to interaction among students, teamwork and student's belief in adopting shortcuts. Quality of management education cannot be determined if student orientation is not aligned with the course.

Factor VI: Faculty Satisfaction with the System

There are three statements which are significantly loaded on this factor which explains 4.425 per cent of the total variance whereas items loadings ranged from 0.529 to 0.820. The value of cronbach's alpha of this factor is 0.658 which manifests sufficient internal consistency. All the statements loaded on it are positively correlated. Faculty members believe the satisfactory system as a pertinent factor for the determination of quality of management education which includes relevant course curriculum, teaching learning support and regular attendance of students. It creates a positive impact when faculty members feel the course worthwhile which may add value among students. Along with it faculty members also supports that there should be appropriate control measures adopted by the institute in order to enhance the learning process.

After the identification of factor, level of agreement of the respondents for the factors have been checked using weighted average scores presented in table 5. Results show that for factor I i.e. "Student Readiness", weighted average score is 2.24. All the statements on this factor are negative and reversely coded, so the WAS of 2.24 is less than 3 which means respondents agree that student readiness is low. Next for factor II i.e. "Teaching Quality" WAS is 4.25, which is more than 3. It means faculty members agree with high teaching quality. Factor III is "Advancement Opportunities" and the WAS for this factor is 3.73 which implies high level agreement. Faculty members feel sufficient advancement opportunities. Next factor is "Infrastructure & level of Discipline" with WAS of 3.97. As the WAS is more than 3 which shows high level of agreement. It means faculty members find high level of infrastructure facilities and level of discipline. For factor V i.e. "Student Orientation" reverse coding is applied. WAS of this factor is 2.54 which means high level of agreement for this factor by the faculty members meaning, thereby, poor student orientation. Factor VI is "Faculty Satisfaction with the system" with WAS of 3.79. The level of agreement of the faculty members is high for this factor because WAS is more than 3 which means faculty members are satisfied with the system.



IMPLICATION OF THE STUDY

The study tried to identify the factors affecting quality of management education from the viewpoint of faculty members. The results of the factors analysis identified six factors which affect the quality of management education namely student readiness, teaching quality, advancement opportunities, infrastructure and level of discipline, student orientation and faculty satisfaction with the system. All these factors jointly explain 62.571 percent of the variance. Results showed the positive loadings of all the variables on factors and high internal consistency of the items within the factors.

Further, the weighted mean values of the factor II, III, IV and VI

Table 5: Weighted Average Score of Factors

Factor	Statement No.	WAS	Factor WAS
Factor – I Student Readiness	Commitment for hard work is missing	2.18	2.24
	Students lack confidence	2.38	
	Students lack habit of reading	2.11	
	Students have low awareness level	2.37	
	Students don't go for time management	2.21	
	Students lack communication skills	2.18	
Factor – II Teaching Quality	The teaching faculty is available all the time to solve the students problem	4.23	4.25
	Teaching faculty in the department is well qualified	4.36	
	The syllabi are finished as per schedule	4.24	
	The teachers make sufficient efforts to inculcate moral values among the students	4.12	
	Students are encouraged to raise the questions in the class	4.32	
Factor – III Advancement Opportunities	The institute provide conducive environment for self promotion of faculty	3.83	3.73
	Sufficient opportunities are available to the faculty for their up gradation of knowledge	3.77	
	Student involvement in research activities	3.59	
Factor – IV Infrastructure & level of Discipline	Library facilities are sufficient	3.84	3.975
	Sufficient attention is given to check the misuse of cell phones	3.74	
	The computer labs of the institute are well equipped	4.01	
	Teachers take sufficient measures to check ragging	4.31	
Factor – V Student Orientation	The interaction among students is missing	2.96	2.54
	Students lack teamwork efforts	2.64	
	Students believe in shortcuts	2.02	
Factor – VI Faculty Satisfac- tion with the System	The level of course curriculum is relevant	3.82	3.79
	Teaching & learning support is satisfactory	3.85	
	Efforts for the regular attendance of students is satisfactory	3.71	

are more than 3 which mean that the level of agreement for these factors is rated high by the faculty members. It reflects high teaching quality, sufficient advancement opportunities, adequate infrastructure & discipline maintenance and sufficient faculty satisfaction with the system. It means for quality of management education, faculty members have to be well qualified and encourage the students to raise questions during teaching. Syllabus should be completed well in time and faculty accessibility also must be taken care of. Adequate advancement opportunities at institute level should be provided by facilitating faculty for knowledge up gradation, involving students in research activities and through administering conducive work environment. Quality of infrastructure should be maintained as per the need and requirement in terms of library facilities and computer facilities. Measures should be taken in order to curb ragging practices and use of cell phones in the institute. Although, weighted average score of factor I and factor V is less than 3 but the level of agreement of faculty members for these factors is high, because these factors consist negative statements. Student readiness has been found low in the form of low level of commitment for hard work, lack of confidence and reading habit, low awareness level, poor time management and communication skills. Similarly, student orientation is also missing in the form of missing interaction among students, weak orientation towards teamwork and believes in shortcuts by students. It implies that there is a need to instill the spirit of hard work and commitment among students. Type of teaching methodology which gives more exposure and awareness to students other than text book knowledge in the form of discussions based on live cases, newspaper reading, success stories of influential personalities in the field, group discussions should be adopted. Student involvement in

different kinds of curricular and co-curricular activities must be enhanced in order to build confidence and improve communication skills among students.



IMITATIONS

The study is based on questionnaire and deliberate care has been taken to communicate the purpose of study to respondents. It is made clear that data has been gathered for academic purpose only. Still the chances of personal bias could not be prohibited. Moreover, study dealt with the various dimensions related to quality of management education to which the respondents may have felt a bit uncomfortable while filling the questionnaires even after taking the precautions to ensure the confidentiality of their identity. It was challenging to get the data filled from the faculty members because of their busy schedule. However, personal requests and intermittent phone calls have been made frequently. The study is confined within the State of Punjab and with special reference to the institutes affiliated to Punjab Technical University, so the findings cannot be generalized to the other parts of the country.



ONCLUSION & SCOPE FOR FUTURE RESERACH

Our study supported the literature with reference to the factors affecting quality of management education from faculty member's outlook. Course must create value in terms of relevance, teaching learning support and generate accountability of teaching faculty. The findings of the study support the view of previous study that intrinsic motivation of

student has positive impact on the perceived quality of education (Dahl & Smimou, 2011). The reasons for stereotype management include poor academic standards and physical infrastructure, inadequate faculty, absence of innovation and creativity in education system, repeated courses, negligence of assessment, absence of periodical evaluation and research, absence of policy framework (Shanthakumari & Somalingam, 2013). Level of development opportunities for faculty is an important factor which influences the faculty intention to stay at management institutions (Malati & Sharma, 2012). Supporting to this argument, Perruzzellis, D'Uggento & Romanazzi (2006) stated that more efforts are required for the improvement of quality of teaching and non-teaching services.

In the light of above findings study suggests that regulatory bodies, management of institutes and State need to stabilize and strengthen the areas identified under the study for further enhancement of quality of management teaching. Faculty quality in private institutes is not at par with the requirements. Because of the shortage of faculty, the essential qualification for faculty came down, institutions appoint the faculty on part-time & contract basis and thus the appointed faculty is incapable of using application based methodology in teaching and restrict themselves to lecture method only. The other challenges faced by the management education includes

missing research orientation, inadequate faculty development opportunities, shortage of reading material relevant to Indian context, absence of strong, fair and independent accreditation and rating agency for management education, existence of multiple agencies deal with management education, poor corporate governance systems, limited specializations. In addition there is a need to develop the management students with global mindset by inculcating diverse knowledge & skill set and exposing them to cross cultural knowledge (Saha, 2011). Though the general perception towards teaching in private institutes is not satisfactory but the results of the study are contradictory indicating that overall teachers are satisfied as per findings except for quality of students.

The study is focused on the quality of management education in the State of Punjab. Further research can be carried out on other professional institutions affiliated to some other universities within Punjab with similar determinants of quality of management education. It is also possible to use the framework of present study and conduct the study in other States of India. Even, cross comparisons in colleges and cross comparisons region wise can also be made. It is also possible to undertake the study from the perspective of other stakeholders of management education.

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A STUDY ON THE IMPACT OF DECLARATION OF DIVIDEND IN AUTOMOBILE INDUSTRY

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INDIAN AUTOMOBILE INDUSTRY: AN OVERVIEW

The automobile industry in India is expected to be the world's third largest by 2016, with the country currently the world's second largest two-wheeler manufacturer. Two-wheeler production is projected to rise from 16.9 million in FY14 to 28.8 million by FY21. Furthermore, passenger vehicle production is expected to increase to 10 million in FY21 from 3.1 million in FY14.

Strong growth in demand due to rising income, growing middle class, and a young population is likely to propel India among the world's top five auto manufacturers by 2015. Automobile export volumes increased at a compound annual growth rate (CAGR) of 17.5 per cent during FY05-14, out of which two-wheelers accounted for the largest share in exports at 67 per cent in FY14.

Indian automotive Industry plays very vital role in overall growth and development of the economy. The automotive industry mainly consist of two main segment of this area i.e. Automobile Industry and Auto Component Industries. Apart from catering the need for direct demand for passenger car, commercial and personal vehicles, engine parts requirements, this industry also provide support for various industries like Capital Goods, Logistics, Paper, Cement, Steel, Non-Ferrous metals etc.

Indian Automotive Industry witnessed remarkable growth in last two decades. In 2-wheeler segment India is Second largest manufacturer and fifth largest in commercial vehicles segment. Today, India is world's largest market for Automotive Industry. Chennai is known as '*Detroit of Asia*' with 30-35% of total production of Indian Automotive Industry.

Automotive Sector can be classified into four segments. The First Segment as Two wheelers which consists of Mopeds/Scooty, Scooters, Motorcycles and electric two-wheelers etc. Secondly we can group as Passenger Vehicles which includes Passenger Cars, Utility vehicles and other Multi Purpose Vehicles. Thirdly we have Commercial Vehicles which subdivided into Light Commercial/Motor Vehicles and Medium or Heavy Commercial Vehicles and Lastly We have Three Wheelers which includes Passenger carriers and Goods carriers.

The Journey of Development of Indian Automotive sector was started in 1897, when Indian roads witnessed the first car and till 1930 we had only imported cars on Indian roads. In 1940s, Hindustan Ambassador was launched but due to the restriction under License raj, growth was very slow. India was a closed market with few players catering the needs of the

Table 1.1: Domestic Market Share of Automobile Industry for 2014-15

Domestic Market Share for 2014-15	
Passenger Vehicles	13
Commercial Vehicles	3
Three Wheelers	3
Two Wheelers	81
Grand Total	100

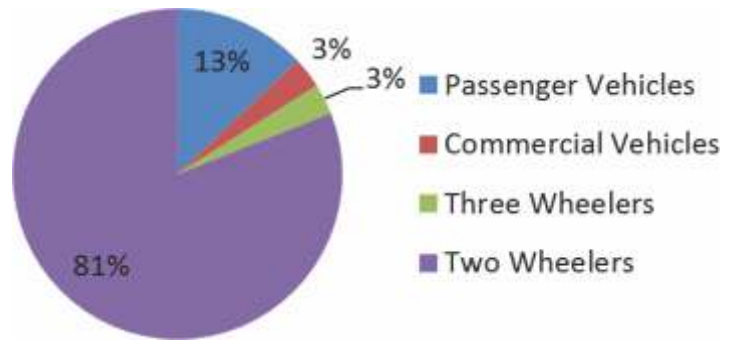


Figure-1.1: Domestic Market Share of Automobile Industry for 2014-15

overall market with their specified products.

In 90's the first breakthrough took place when Suzuki collaborated with Indian government and formed MarutiUdyog which started its production in 1983. Eventually the Liberalization took place in India and opened the doors for New Entry in joint venture. Today, More than 35 market players are catering the needs of Indian Market. Automotive Mission Plan 2006 also facilitates the smooth functioning of Indian Market Players.

Today automotive sector is one of the main growing segments to boost the overall economy. With an annual production of 16.9 million Two-Wheelers this entire industry accounts for 22% of Country's Manufacturing GDP. India stands as third largest producer in automobile sector and India's share in global passenger market is expected to double by 2020. The surging demand in this sector is providing fuel to fire as the sales figures are growing with Compounded Annual Growth Rate of 18% p.a. Production of Passenger vehicles are also expected to surge from 3.1 Million in 2014 to 10 Million which is expected by 2020.

Government of India also takes major efforts through 100% FDI to encourage this sector. The AMP (Automotive Mission Plan 2006-16) also aimed at accelerating growth and ensures sustainable development in this sector. Government of India also proposed to provide credit of 8.5 lakh rupees to farmers in the union budget 2015-16 for automation in agriculture. The industry is also able to attract FDI worth US \$ 12232.06 million during April 2000 to February 2015. India is prominent market for world auto-giants. Low labour cost, Government initiative promotes industry and commerce, skilled labour force and strong consumer base is attracting marketer to invest in country. Due to all such factor India is growing fast and in real terms of Growth of GDP and it is just behind the china now.

In the last decade several policy reforms have also taken place and visionary statement "Make in India". The Automotive Mission Plan 2006-16 was also a milestone in this direction. Beside all such policy initiative many new initiatives take place to ensure the development of this industry. Resulting this, India's share in World Car Production, which was just 1.72% in 2002 was grown and reported 5.2% in 2012. Indian players are also come out from their shell and take part in world automotive market by taking their business globally. The reports of Global insight database also claimed that India is

one of the key players in this growth story.

The recent report by Boston Consultancy Group (BCG) claimed that China is losing its attractiveness of being traditionally a cost advantage country. India's world lowest labour cost country status can avail this opportunity of cost competitiveness. The automotive industry is contributing 3% in GDP on an average to the country's economy. Its share is even higher and nearly 7% in economy of China and India. The Government policy related to FDI also brings new investment in this industry. As the report of HIS expecting India's growth story overpass many of the European country's sales figures before 2020. Meanwhile, the Government also taking serious steps to develop proper infrastructure, clear policy of GST, providing financial and technological support and target sustainability in overall economy.

DIVIDEND: AN OVERVIEW

Dividend is an integral part of area of Finance. The area of financial management usually deals with financing, allocation and proper management of funds and through this activity it aims to generate value for their shareholders. Financial management is mainly concerned with three activities viz, Financing Decision, Investing Decision and Dividend Decision. Among all three dividend decision is most strategic in nature. Dividend in the normal use of words refers to that portion of the net earning which is distributed by the company among its shareholders. The shareholders, as investors, are interested in maximizing their returns at a given level of risk or minimizing their risk at a given level of returns, and together want to maximize returns with minimizing risk and thereby to maximize their wealth. This is the essence of desirability of dividends from the investor's point of view.



LITERATURE REVIEW

Dividend pay-out decision has always been a subject of interest to financial analysts, academicians and researchers for about six decades now. The researchers are interested in studying the extent to which the earnings of a company are distributed as dividend among the shareholders as also the retained earnings.

Researchers have typically used data on variables such as, dividend pay-out ratio and dividend yields to investigate theories of earning pay-out. At least, in some cases, it may be more appropriate to look at earnings retentions, rather than more common dividend variables.

Following the publication of Modigliani and Miller's two seminal papers on dividend policy, there has been a considerable amount of research into what determines dividend policy. These theories may be better investigated by looking at the firm's retention policies rather than dividend policies. This is particularly true, specifically for engineering industries, where there is no dearth of positive NPV projects crying for attention and adequate funding.

Dividend payout is the most debatable issue in the financial literature. It is better known as the primary puzzle in the economics of corporate finance since the work of Black (1976). Signaling and agency costs are the main factors on which dividend literature has primarily relied upon. Jensen and Meckling (1976) suggest reducing free cash flows available to managers by paying high dividends hence reducing agency problem.

The pioneering work of the Bhattacharya (1979) builds the foundation for signaling hypothesis. According to him dividends are signals for future cash flows, assuming that outside investors have imperfect information about the profitability of the firm and the cash dividends are taxed at a higher rate than capital gains.

Economists have proposed a number of explanations of the dividend puzzle. The future profitability of the firms can be signaled by paying dividends (Bhattacharya (1979), John and Williams (1985), Miller and Rock (1985), Ambarish, John, and Williams (1987). Empirically, this theory has considerable initial success, since firms that pay higher dividends experience an increase in share price and the conversely decrease in share price if firms eliminate or cut dividends (Aharney and Swary (1980), Asquith and Mullins (1983).

Recent results give a mixed response, since current dividend changes do not help predict firm's future earnings growth (De Angelo and Skinner (1996) and Benartzi, Michaely and Thaler (1997)). Another idea, which has received only limited attention until recently (e.g., Easterbrook (1984), Jensen (1986), Fluck (1998), Myers (1998), Gomes (1998), Zwiebel (1996). is that dividend policies address agency problems between corporate insiders and outside shareholders. According to these theories, unless profits are paid out to shareholders, they may be diverted by the insider for personal use or committed to unprofitable projects that provide private benefits for the insiders. As a consequence, outside shareholders have a preference for dividends over retained earnings.

According to Fama and French (2001), several attempts have been made to analyze the impact of profitability, size and growth on the dividend payout of firms.

Substantial literature in the field of corporate finance (Linter (1956), Linter (1962), Bhattacharya (1979), Miller and Rock (1985), suggests that the purpose of corporate dividend policy is to reveal earnings prospects of a firm to its investors. There are mixed recent empirical evidence in favour of this model. Fama and Babiak (1968) argue that the firms, on priority, set their target dividend level and ensure they stick to it. In addition to the signaling approach, there may be interrelation between dividend payout policy and agency cost (Jensen and Meckling (1976), Easterbrook (1984).

Fenn and Liang (2001) analyze how managerial stock incentives affect corporate payout policy. They find that managerial stock incentives mitigate the agency costs for firms with excess cash flow problems. They also find a strong

negative relationship between dividends and management stock options.

The so-called dividend puzzle (Black, 1976) has preoccupied the attention of financial economists at least since Modigliani and Miller's (1958, 1961) seminal work. This work established that, in a frictionless world, when the investment policy of a firm is held constant, its dividend payout policy has no consequences for shareholder wealth. Higher dividend payouts lead to lower retained earnings and capital gains, and vice versa, leaving total wealth of the shareholders unchanged. Contrary to this prediction, however, corporations follow extremely deliberate dividend payout strategies Lintner (1956). This evidence raise a puzzle: how do firms choose their dividend policies? Since many shareholders are taxed more heavily on their dividend receipts than on capital gains in the United States and other countries, the puzzle is even deeper. The actual magnitude of this tax burden is debated but taxes generally make it even harder to explain dividend policies of firms.

Baker, Veit and Powell (2001) study the corporate firms traded on the Nasdaq. The study, based on a sample survey response of 188 firms out of a total of 630 firms that paid dividends in each quarter of calendar years 1996 and 1997, finds that the following four factors have a significant impact on the dividend decision: pattern of past dividends, stability of earning, and the level of current and future expected earnings.

Mishra and Narender (1996) found earnings per share (EPS) as a major factor in determining the dividend payout of SOEs. They analyzed the dividend policies of 39 state-owned enterprises (SOE) in India for the period 19984-85 to 1993-94.



UMMARY OF THE LITERATURE REVIEW

Every investment is made on the expectation and assumption that it will yield some returns. Equity investment is not an exception to this. Every equity investor anticipates a good rate of

return in the form of dividend to be declared by the company. So, every company pays higher attention in formulating its own dividend policy. Dividend decision is one of the most important decisions in the field of Financial Management. Dividend policy determines the relationship between a company and the capital market. Payment of dividend enhances the market price of the shares thereby increasing the wealth of the shareholders. Payment of dividend conveys to shareholders the information relating to the profitability of the firm. Dividends act as booster of the shareholder's confidence signaling that the company is being managed well and its future is safe.



RESEARCH METHODOLOGY

OBJECTIVES:

1. To quantify the effect on price of share due to declaration of dividend.
2. To examine the impact of declaration of dividend

policy of a company on total volume, number of trade, turnover etc.

3. To explore the attitude and perception of investing community while making their investment decision.

SAMPLING DESIGN:

The main focus of the study to examine the dividend policies adopted by Indian Companies especially those which are functioning in Automotive Sector. For this purpose researcher need to sort those companies which will considered as the true representative of the population. Considering the limitation of time and money the research is conducted with the help of some widely accepted standard. For the Sampling purpose, Top 500 Companies sorted by the reputed journals, research papers and daily digest are considered for this purpose for basic sorting. Finally, Economic Times top 500 companies are most appropriately found suitable for this purpose. So finally it is taken for the purpose of study. Since it includes companies from all sectors, firms exclusively belonging from automotive industry filtered for the purpose of study and top 10 companies which regularly reported top position year on year are considered for study.

Based on this the firms considered for study are as follows:

Top 10 Automobile Firms

- Hero Moto Corp
- Bajaj Auto Ltd.
- Ashok Leyland Ltd.
- Mahindra & Mahindra Ltd.
- Maruti Suzuki India Ltd.
- Tata Motors Ltd.
- TVS Motor Company Ltd.
- Eicher Motors Ltd.
- Force Motors Ltd.
- Escorts Ltd.

The study is based on secondary data analysis; the following steps are formulated for secondary data analysis.

After sorting this list of companies researcher calculated average dividend 6 years from 2008 to 2013. The collected data was properly classified in form of tables for the purpose of analysis and interpretation. The hypothesis was tested on 1% level of significance with the help of t-test.



DATA ANALYSIS AND INTERPRETATION

Dividend is usually distributed from the earned profit of the company during the financial year under consideration and that is why it is highly dependable upon various

Table-1.1: Dividend Payout (%) of Top 10 Automotive Firms during the Period 2008-13

Name of Company	2008	2009	2010	2011	2012	2013	Average Payout During 2008-13
Hero Honda	42	32.9	118	132	40.25	62.58	71.30
Bajaj Auto	40.95	53.01	36.02	36.72	46.63	46.14	43.25
Ashok Leyland	45.89	79.47	51.1	45.24	50.89	39.26	51.98
Mahindra & Mahindra	26.54	33.42	27.29	27.52	27.63	24.48	27.81
Maruti Udyog	8.47	8.41	7.02	9.62	13.54	10.28	9.56
Tata Motors	29.7	32.22	40.77	78.7	120.9	289.6	98.65
TVS	57.46	58.87	34.08	28.05	25.84	53.03	42.89
Eicher	23.16	38.38	50.98	39.49	34.79	37.86	37.44
Force Motors	0	0	6.61	11.45	1.6	29.02	8.11
Escort	0	0	10.28	12.01	13.48	21.89	9.61

Source: Capitaline Database

factors which affecting the business of a firm. As it having it nature of being unpredictable, in terms of both amount and time it highly affects the investment decision of small investors. A small investors who put their saving with the intention to get fruitful returns and divert his investment from the traditional modes of keeping money in bank in form of Fixed Deposits or NSE etc, is usually being very cautious while making their investment decision in share market. In past decades we witness a rally in the share market which is due to participation of a common man of country and their faith in the market system. Dividend decision on one hand effect negatively on the liquidity position of the company on the other it works as barometer for investor. So many of the time the manager need to trade off between these two extreme ends.

In this section we discuss this most debatable and unsettled issue prevailing in the field of finance. We try to explore the changes in the share price before and after declaration of dividend. The data has been collected from reliable sources before and after one month of declaration of dividend and 't-test' is used for the purpose of data analysis and interpretation. The data has been properly categorized in suitable format and presented the average value in tabulated form for the ease of study. Apart from merely focusing on the

changes in the market price of the share we also take into account the other important factors like share trading volume and share turnover etc. So, this chapter mainly concentrates upon the calculation and the analysis part and its finding. Under the secondary data analysis the researcher mainly focuses upon:

1. Impact of dividend on the average share trading of the selected units.
2. Impact of dividend on the average share volume of the selected units.
3. Impact of dividend on the average share turnover of the selected units

ANALYSIS WITH T-TEST

The researchers has chosen this test because samples are independent in the nature and the same sample has been tested twice as paired sample to test before and after effect. To know the impact of dividend this test is considered suitable.

The data of various variables is properly classified and tabulated to the ease of study so that t- test can be applied.

In this above mentioned table, the researcher attempt to

ANALYSIS BASED ON SHARE TRADING

Table-1.2: Share Trading Before and After Declaration of Dividend

S. No.	Firms	Average Before Dividend	Average After Dividend	Difference (D)	D ²
1	Hero Moto Corp	2628	2068	560	313600
2	Bajaj AutoLtd.	4099	9715	-5616	31539456
3	Ashok Leyland Ltd.	80	311	-231	53361
4	Mahindra & Mahindra Ltd.	1104	776	328	107584
5	Maruti Suzuki India Ltd.	43	35	8	64
6	Tata Motors Ltd.	5536	3909	1627	2647129
7	TVSMotor Company Ltd.	3413	3128	285	81225
8	EicherMotors Ltd.	4480	5877	-1397	1951609
9	Force Motors Ltd.	1382	1312	70	4900
10	Escorts Ltd.	224	635	-411	168921
	∑ D			-4777	36867849
	∑ D / n			-477.7	(∑ D ²)

Table-1.3: Calculation of t (Average Share Trading)

D	N	S.D.	t calculated	t tabulated
-477.7	10	1960.33	-0.77	± 1.383***

classify and categorized the year on year dividend payout policies recorded by the selected firms. The average payout of dividend during the period 2008 to 2013 is calculated in the last Column which gives an insight about the average payout distributed by the company to its shareholders in form of dividend. Average is also helpful to get a useful insight about the lump-sum rate of return in form of dividend and helps to ignore the effect of fluctuation in the business cycle.

The above table shows the average no. of shares traded one month before and after declaration of dividend. The figure clearly indicates the significant difference in share trading. It may indicate that dividends do affect the share trading. Now we are applying t-test for testing the hypothesis, in this regard.

Null Hypothesis: H₀A-1: Company's Average Share trading remains unaffected before and after one month of the declaration of dividend.

Alternate Hypothesis: H₁A-1: A company's Average Share trading affected significantly before and after one month of the declaration of dividend.

• Statistical Inference:

As we look into the table we found that the value of 't' at 1% level of significance with (n-1) degree of freedom is more than the calculated value of share trading before and after declaration of dividend. Hence, the null hypothesis (H₀) is significant and accepted.

• Implication:

As per the result it is clear that Average **share trading** remains unaffected with respect to event of declaration of dividend.

The below table 1.4 shows the average no. of share volume before and after one month, declaration of dividend. The figure clearly indicates the significant volatility in share volume. It may indicate that dividends do affect the volume of share trading every day. Now we apply t-test for testing the hypothesis, in this regard.

Null Hypothesis:

H₀A-2: A company's Share trading volume remains unaffected before and after one month of the declaration of dividend. Alternate Hypothesis:

H₁A-2: A company's Share trading volume remains affected before and after one month of the declaration of dividend.

• Statistical Inference:

As we look into the table we found that the value of t at 1% level of significance is with (n-1) degree of freedom is more than the calculated value of share trading before and after declaration of dividend. Hence, the null hypothesis (H₀) is significant and accepted.

• Implication:

As per the result it is clear that share trading volume remains unaffected with respect to event of declaration of dividend.

The table 1.6 shows the average no. of shares turnover one month before and after, declaration of dividend. The figure clearly indicates the significant difference in share turnover. It may indicate that dividends do affect the share trading. Now we apply t-test for testing the hypothesis, in this regard.

ANALYSIS BASED ON SHARE VOLUME

Table-1.4: Share Volume Before and After Declaration of Dividend

S. No.	Firms	Average Before Dividend	Average After Dividend	Difference (D)	D ²
1	Hero Moto Corp	1247205	769605	477600	228101760000
2	Bajaj AutoLtd.	102112	188459	-86347	7455804409
3	Ashok Leyland Ltd.	3960	14751	-10791	116445681
4	Mahindra & Mahindra Ltd.	43065	48910	-5845	34164025
5	Maruti Suzuki India Ltd.	2518	1437	1081	1168561
6	Tata Motors Ltd.	236882	160344	76538	5858065444
7	TVSMotor Company Ltd.	237391	188495	48896	2390818816
8	EicherMotors Ltd.	292841	412125	-119284	14228672656
9	Force Motors Ltd.	288122	256739	31383	984892689
10	Escorts Ltd.	18580	58090	-39510	1561040100
	∑ D			373721	260732832381
		∑ D / n		37372.1	(∑ D ²)

Table-1.5: Calculation of t (Share Trading Volume)

D	N	S.D.	t calculated	t tabulated
37372.1	10	165585.15	-0.714	± 1.383***

ANALYSIS BASED ON SHARE TURNOVER

Table-1.6: Share Turnover Before and After Declaration of Dividend

S.No.	Firms	Average Before Dividend	Average After Dividend	Difference (D)	D ²
1	Hero Moto Corp	49685.78	28899.34	20786.44	432076087.9
2	Bajaj AutoLtd.	265509.9	419242.5	-153732.56	23633700004
3	Ashok Leyland Ltd.	1357.94	4243.79	-2885.85	8328130.223
4	Mahindra & Mahindra Ltd.	30260.14	33036.1	-2775.96	7705953.922
5	Maruti Suzuki India Ltd.	764.21	422.04	342.17	117080.3089
6	Tata Motors Ltd.	185030.5	129315	55715.48	3104214712
7	TVSMotor Company Ltd.	177132.7	137542.63	39590.04	1567371267
8	EicherMotors Ltd.	216275.1	290416.74	-74141.63	5496981299
9	Force Motors Ltd.	19128.19	16027.64	3100.55	9613410.302
10	Escorts Ltd.	2693.27	10460.26	-7766.99	60326133.66
	∑ D			-121768.31	34320434078
	∑ D / n			-12176.83	(∑ D ²)

Table-1.7: Calculation of t (Share Turnover)

D	N	S.D.	t calculated	t tabulated
-12176.8	10	60403.9	-0.637	± 1.383***

Null Hypothesis:

H₀A-3: Company's Share Turnover remains unaffected before and after one month of the declaration of dividend.
 Alternate Hypothesis:

H₁A-3: Company's Share Turnover affected significantly, before and after one month of the declaration of dividend.

• Statistical Inference:

As we look into the table we analyze that the value of t at 1% level of significance with (n-1) degree of freedom is more than the calculated value of t. Hence, the null hypothesis (H₀) is significant and accepted.

• Implication:

As per the result it is clear that share turnover also remains unaffected with respect to event of declaration of dividend.



INDINGS OF THE STUDY

- Company's Average Share trading remains unaffected before and after one month of the declaration of dividend.
- A company's Share trading volume remains unaffected before and after one month of the declaration of dividend.
- Company's Share Turnover remains unaffected before and after one month of the declaration of dividend.
- As far as investors are concerned they keep a check on the Dividend per share and earnings per share records of a company before making any investment decision in the equity shares of a company.
- Investors do favor a consistent and moderately high dividend payout.

- Dividend alone can't be the right yard stick to judge the performance of a company and it is not the only factor influencing the investment decision of investors particularly in the case of Indian Automobile Industry.
- The investors by and large, have many considerations other than dividends to invest in the equity of a company. These considerations may be excellent quality and reliability, excellent product differentiation and high brand equity, excellent growth and diversification record and professional management, highly innovative and supportive working culture and superb human resource management.



IMITATIONS OF THE STUDY

- The study, by design, covers only Automobile Industry. The norms, traditions, practices and compulsions may vary in other industries.
- The study is based on ET 500 Top Performing Indian Automobile Companies, so it does not include the smaller size companies.



COPE FOR FURTHER RESEARCH

The present study is an serious attempt to explore various facts and facets about the dividend payout prevailing in Automobile Industry moreover it also discuss the outlook and investment intention of the small investors while making their investment decision but due to limitation of time and money there are certain gaps in this present study too. Therefore, further research may be carried out to bridge the gap of present study to get more concrete results. The present study is specifically focused only on the automobile industry and only 10 firms have been selected for the purpose of study in the present study. The present study on one hand revealed

the issues affecting shareholders while pooling of their fund in the security with special reference to automobile industry. This analysis revealed some meaningful inferences about the investment profile and related measures about it. A further investigation may be conducted to measure the quantum of

wealth maximization from the shareholder end those who are having the position in the stock from fairly long period of time. The study may also be conducted to measure the effect of retained earnings on shareholder wealth in the similar industry.

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MBA: Ms. Pratibha Manchanda (Batch 2000-2002), Ms. Manpreet Kaur (Batch 2001-2003), Ms. Silky Mahajan (Batch 2002-2004), Ms. Kavita Sharma (Batch 2003-2005), Mr. Rahul Gupta (Batch 2004-2006), Ms. Priyanka Rastogi (Batch 2008-2010), Ms. Ruchika (Batch 2009-2011), Ms. Swati Jain (Batch 2012-2014), Ms. Niti Chopra (2013-2015)

MCA: Ms. Lovelina Massand (Batch 1999-2002), Mr. Pratham Kailash (Batch 2002-2005), Ms. Neha Garg (Batch 2003-2006), Ms. Neha Chaudhary (Batch 2004-2007), Ms. Shruti Gupta (Batch 2005-2008), Ms. Kanchan Agarwal (Batch 2007-2010), Ms. Richa Gupta (Batch 2008-2011), Ms. Sandhya Soman (Batch 2009-2012), Ms. Sakshi Tyagi (Batch 2010-2013)

PLACEMENT

DIAS provides excellent placement opportunities for its students in prestigious organizations. Some of the companies where our students have been placed include: Tata Consultancy Services, IBM, Nucleus Software Ltd. , Accenture, Intersolutions, American Express , Standard Chartered, ICICI Prudential, Infosys, Adobe , Hughes, Thomas Cook, MAspar, Quark, Syntel, BEC Foods, Grapecity, NIIT, Safenet , Indus Valley Partners, Capital IQ, Federal Bank, Ernst & Young, Pepsico, Ameriprise Financials, Axis Bank, Newgen software and many.

MISSION

DIAS believes in learning to excel and excelling to serve. The aim of the Institute is to develop a unique culture that seeks to scale heights of glory through ethics, passion and perseverance. The guiding philosophy of the Institute is to enhance team spirit, integrity and commitment to serve the cause of humanity.



DELHI INSTITUTE OF ADVANCED STUDIES

(Affiliated to G.G.S. Indraprastha University and approved by All India Council for Technical Education)

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