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EDITORIAL

It gives me immense pleasure to place the seventh issue of “Gavesana Journal of Management” in your hands

We are glad to inform that that we keep receiving a number of conceptual and empirical research papers which shows the acceptance of our journal’s contribution towards the existing management knowledge. In this issue, we have included the articles from various areas of management with a judicious blend of both conceptual and empirical papers. We strongly believe that the spread of knowledge through our journal is to encourage quality research among the teaching and industry professionals to undertake studies on the areas of further research pointed out by the authors in their article

As a seeker of the areas of further research based on the current affairs and the expectations from the industry, we would like to present before you some basic information on the quality of Management Education that the present day demands. The roles and responsibilities of a business as a global force are gaining recognition in order to understand the fundamental links between business, the environment and society. In this context, companies need integrative management tools that help embed environmental, social and governance concerns into their strategic thinking and daily operations. For this purpose, they require talented and ethical leaders who can not only advance organizational goals and fulfill legal and fiduciary obligations to shareholders, but who are also prepared to convert the business as a positive global force in society. Hence, the question to be raised here is what is the responsibility of Management Education Institutions in supplying ethical and effective leaders for preparing sustainable global economy.

In this connection, the UN Global Compact propounded certain principles in 2000 as “Principles for Responsible Management Education” which is the largest corporate citizenship initiative in the world. The initiative was started in 2007 with the collaboration between International Labour Organizations and academic institutions along with more than 3,000 companies from 100 countries as well as over 700 hundred civil societies for the promotion of responsible corporate citizenship. In this drive, institutions of higher learning are required to engage themselves in a continous process of improvement by following Principles and their application, reporting on the progress to the stakeholders and exchanging effective practices with other academic institutions. There are six principles which serve as a roadmap of achieving this objective. The first Principle is to develop the capabilities of students to work for an inclusive and sustainable global economy. The second Principle concentrates on the inclusion of values of global social responsibility as portrayed into the academic activities. The third Principle provides for the creation of educational frameworks, material, processes and environments that enable effective learning experiences for responsible leadership. The fourth Principle lays importance on the conduct of conceptual and empirical research that advances the understanding about the role, dynamics and impact of corporations in the creation of sustainable social, environmental and economic value. The fifth Principle emphazises the interaction with the managers of business corporations to extend the knowledge of their challenges in meeting the social and environmental responsibilities with academic institutions. The sixth Principle insists upon the facilities on the support dialogues and debates among educators, business, government, consumers, media, civil society organizations and other interested groups and stakeholders on critical issues related to global society responsibility and sustainability.

With so much planning and developments going on in the Management Education at present, it is felt necessary to comprehend the importance of topic as to the real challenges to India in the provision of Responsible Management Education to the future leaders of India. Hence, we would thus make earnest efforts, to make future issues of journal a platform for sharing the research work undertaken by the intelligentsia of the institutes pursuing management education.

Dr. Kamal Ghosh Ray
Editor

Behaviour of Investors: An Empirical Study

Dr Nageshwar Rao* and Dr Prerna Dahane**

Abstract

Information is a very important factor that influences psychological behaviour of the investor. Several theories like Efficient Market Theory, Random Walk Hypothesis etc have been developed which projects the importance of information in the investment world. This study explores how much weighted is given by individual investors to the current information. The information effect is studied on the basis of Gender, Age, Education, Income, Employment status and Active-passive investor. This study undertook an empirical survey of these factors, which influence investor behaviour in the Madhya Pradesh Stock Exchange. It also examined the investment behaviour of passive and active investors and analysed the importance of information given by investor while making investment decisions with the objectives to identify the factors that influence investment behaviour of Investor, analyze the behaviour of active and passive investor under different economic conditions and analyze how does information affect investor's decision. The study covers a survey of 350 respondents through a questionnaire covering different groups of investors of Madhya Pradesh Stock Exchange.

Key Words: Active and Passive investor, Efficient Market Theory, Information,

Introduction

India is currently one of the fastest growing economies in the world. The growing economy is generating higher disposable incomes. Further, savings are increasing – as a result of excess over consumption on income. All such surplus savings are being diverted to stock markets to capitalize on the arbitrage opportunity. In today's competitive environment, countless investment alternatives are available for investment ranging from highly risky to riskless investment options. The increasing popularity of financial investments is luring individual investors. The current investment environment magnifies psychological biases of investors. The investment decisions of individual investors depend on their education level, employment status, family size, risk tolerance capability and other such behavioural attributes. The emerging concept of behavioural finance deals with how people actually behave in an investment situation and how their perception differs from one another. Specifically, it studies how psy-chology affects financial decisions of the investor. On the contrary, traditional finance consider this fact irrelevant and assumes that investor behave rationally to maximize their wealth. These ideas form the under-lying foundation of Capital asset pricing theory, Arbitrage pricing theory, Markowitz portfolio theory. The financial environment in India has changed significantly over the last few years and individual investors from all sections of society have ample of opportunities to invest. It is observed that people are not rational while making investment decisions and their emotions impact their financial decisions to a great extent. The investment decisions are influenced by various personal, social factors and other investment related factors.

Review of Literature

Following are the studies based on empirical surveys already done in the area of behavioural finance:

Huang Hui(2009) examined how financial news affected individual investors' investment behaviour, specially trading frequency, in the Hong Kong stock market. It explored the financial news effects on individual investors based on communication theories, psycho-behavioral theories, as well as behavioral finance theory.

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Jasim Y. Al-Ajmi(2008) presents new evidence on the determinants of risk tolerance of individual investors in Bahrain. On the basis of an analysis of close to 1,500 respondents, the findings indicate that as investors, men have high propensity towards risk tolerance than women.

Huang Hui(2007) investigate risk consistency and other investment behaviour of fund managers working at Japanese investment institutions using a questionnaire based survey that was conducted in October of 2005. In particular, we focused on the herding behaviour and disposition effect of fund managers. It was found that 'risk inconsistent' fund managers have a tendency to show disposition behaviour.

Hoffmann & Jager, (2006) aims at identifying whether investors may strive to satisfy other, more socially oriented, needs than only financially oriented needs.

Hussein A. Hassan Al-Tamimi (2006) aims at identifying the most and the least influencing factors on the UAE investor behavior. It develops a modified questionnaire.

Masayuki Susai Hiroshi Moriyasu(2006) empirical research has been aggressively carried out using both market data as well as information on individual investors. Within this vast research, a variety of behavioral characteristics have been found in investors that match characteristics implicated in behavioral finance studies.

Hisashi Kaneko(2004) is focused on the behaviour of individual investors when buying and selling investment trusts and on the analysis of behavioural finance.

Nik Maheran Nik Muhammad (2003) provides brief introduction of behavioural finance, which encompasses research that drops the traditional assumptions of expected utility maximization with rational investors in efficient markets. The article also reviews prior research and extensive evidence about how psychological biases affect investor behaviour and prices.

Anna, Andreas, George, and Dev Prasad (2003)This study undertook an empirical survey of the factors, which mostly influence individual investor behaviour in the Greek stock exchange. The results revealed by that there seems to be a certain degree of correlation between the factors that behavioural finance theory and previous empirical evidence identify as the influencing factors for the average equity investor.

Ezlika Ghazali Md. Nor Othman (2001) attempt to examine the investment behaviour of passive and active investors in the Kuala Lumpur Stock Exchange (KLSE). Comparisons will be made with respect to investment behavior of individual investors. Primary data were collected using self-administered questionnaires.

Objectives

1 To identify the factors that influence behaviour of Investor.

2 To analyze the behaviour of active and passive investor under different economic conditions.

3 To analyze how does information affect investor's decision.

Research Methodology

A questionnaire was prepared to survey the selected sample. The questions were grouped into three sections relevant to this paper. The first section of questionnaire was designed to collect the demographic information of the respondents. This covered, gender, family size, employment status, education and income of the investor. The second section of questionnaire includes statements related to the common factors affecting behaviour. The statements are developed on the 5-point Likert scale. The third section includes characteristics of individual investors related to their annual savings, size of the investment, number of times they visit stock exchange and period of share holdings. A sample size of 350 was selected in order to normalize the results. The survey was conducted over a 5-week period starting from early April 2010 for investors with Madhya Pradesh Stock Exchange, Indore. Respondents comprised both male and female, Out of 350 respondents only 217 responded. The convenient sampling technique is used. The Primary data collected through questionnaires was analyzed using Chi Square test and Factor Analysis. Considering the human behaviour, certain variables were identified and then on the basis of that statements were generated in the questionnaire on a 5-point Likert scale. Factor analysis was applied to find out the key factors that influence investor's behaviour. While using Factor analysis, rotated component matrix was identified through Principal Component Analysis. To investigate behaviour of active and passive investor Chi Square test was applied.

The Factor analysis and Chi Square test were applied using SPSS.

Analysis and Interpretation

The investor is often influenced by psychological biases and therefore his investment decision making is affected to a great extent. These biases begins from factors like risk tolerance and return expectations. In this study, considering the psychological behaviour of investors 26 questions were generated to measure the important factors that influence investment behaviour of investors. Excluding demographic information, all the other statements were generated on 5- point Likert Scale. The observations were measured using Factor Analysis. Factor loadings were analysed through rotated component matrix (using Varimax rotation).Factor Loadings are presented in the table 1 below.

Table 1: Key Variables Influencing Investor Behaviour

S No	Factors	F1	F2	F3	F4	F5
1	Reputation of the firm (Goodwill)		.643			
2	Promotion and Advertisements			.519		
3	Weighted to Information			.492		
4	Transparent Governance	.484				
5	Current economic indicators			.587		
6	Time Horizon				.643	
7	Risk Tolerance				.552	
8	Condition of financial statements		.616			
9	Dividend payment Record		.598			
10	Size of the firm		.727			
11	Rely on new firms		.522			
12	Assured Returns	.537				
13	Capital Appreciation	.645				
14	Past corporate earnings		.768			
15	Perceived ethics of firm (CSR)					.574
16	Friend or co-worker recommendations					.626
17	Political party affiliation					.711
18	Employment Status				.604	
19	Age				.439	
20	Tax Benefits	.488				
21	Personal Savings				.587	
22	Exchange Visit				.454	
23	Size of Investment Holdings				.577	
24	Method of Investment				.422	
25	Safety	.408				
26	Liquidity	.634				

To make a comprehensive idea about the key factors affecting investment behaviour of investor, various variables are grouped together on the basis of factor loadings determined in Rotated component Matrix and the grouped variables are presented in table 2.

Table 2: Grouping of Identified Variables

S No	Factors	F1	F2	F3	F4	F5
1	Assured Returns	.537				
2	Capital Appreciation	.645				
3	Liquidity	.634				
4	Tax Benefits	.488				
5	Transparent Governance	.484				
6	Safety	.408				
7	Past corporate earnings		.768			
8	Size of the firm		.727			
9	Condition of financial statements		.616			
10	Reputation of the firm (Goodwill)		.643			
11	Dividend payment Record		.598			
12	Rely on new firms		.522			
13	Weighted to Information			.492		
14	Promotion and Advertisements			.519		
15	Current economic indicators			.587		
16	Risk Tolerance				.552	
17	Time Horizon				.643	
18	Personal Savings				.587	
19	Size of Investment Holding				.577	
20	Employment Status				.604	
21	Age				.439	
22	Exchange Visit				.454	
23	Method of Investment				.422	
24	Friend or co-worker recommendations					.626
25	Perceived ethics of firm (CSR)					.574
26	Political party affiliation					.711

Table 3 reveals the key factors that are determined after grouping the variables on the basis of factor loadings. The grouped factors show commonality and they explain behaviour of the investor.

Table 3: Key Factors influencing investor's Behaviour.

F1-Investor Expectations	F2- Performance	F3- Investors Awareness	F4- Personal Attributes	F5-Social Factors
Assured Returns	Past corporate earnings	Weighted to Information	Risk Tolerance	Friend or co-worker recommendations
Capital Appreciation	Size of the firm	Promotion and Advertisements	Time Horizon	Perceived ethics of firm (CSR)
Liquidity	Condition of financial statements	Current economic indicators	Personal Savings	Political party affiliation
Tax Benefits	Reputation of the firm (Goodwill)		Size of Investment Holding	
Transparent Governance	Dividend payment Record		Employment Status	
Safety	Age of the firm		Age	
			Exchange Visit	
			Method of Investment	

It can be observed from the analysis that today investor is more concerned and informed about the environment which can affect returns and the risk of investment. The variables that are grouped as Factor 1 are assured returns, capital appreciation, liquidity, tax benefit; transparent governance and safety are termed as investor's expectations. As these variables project objectives and common expectations of the investor.

The second factor is termed as performance factor as the variables grouped in F2 are related to the performance of the firm in which investor is thinking to invest. The variables grouped in F2 are past corporate earnings, size of the firm, condition of financial statements, and reputation of the firm, dividend payment record and age of the firm. This indicated that investor not only look at the brand name but also go for a in-depth investigation of the firm's performance in terms of past earnings, size and age of the firm, dividend payment record, goodwill etc.

The third key factor is designated as investor's awareness. Today's investor prefers to be more informed and aware about the current happenings, promotional campaigns and other economic indicators to judge the intrinsic value of the firm. The variables that are recorded in F3 are weighted to information, promotion and advertisement and other economic indicators. This category of variables emphasise the importance of news and information flowing in the market and results suggests that the information affects market to a great extent.

The fourth key factor is analyzed as the investor's own personal attributes. It is clearly indicated that investor's personal attributes influence his decision making regarding investments. The variables covered under F4 are risk tolerance, time horizon, personal savings, size of investment holding, exchange visit and employment status. It is always seen that the investor risk tolerance i.e. his risk taking and risk aversion behaviour determines the investment pattern also the time perspective may be long run or short run affect the investments. Personal savings and employment status are other important aspects that influence behaviour.

Factor 5 indicates the importance of social factors that influence the investor's decision making. The variables grouped under F5 are friends/co-worker recommendation, perceived ethics of the firm and political party information. Individual decisions are often influenced by suggestions given by friends, relatives and peers. The investors who are risk aversive always go for advice of some experts. Corporate social responsibility is vital factor which is considered as important criteria for investment. The firms that fulfil corporate social responsibility are considered as more reliable and credible for investment. Investor's perception towards companies affiliated to political parties also differs. Some consider it good and some for it is a matter of uncertainty and high risk.

The five factors explained above are the important key factors that affect psychological behaviour of the investor.

4.2 Investment Behaviour of Active and Passive Investors

The study divided active and passive investor on the basis of their number of transactions done at stock exchange. We assumed that the investor who visited stock exchange more than three times in a month and had done more than three transactions, will be considered as Active Investors and those who transacted less than three times will be passive investor. In the study we found that 32.69 % investors are active investors and 67.3 % investors are passive investors.

In this study we compare active and passive investors on the basis of their amount of investment, Period of shareholding, Method of investment and Annual savings.

Amount of Investment

The study has investment as categorical variable. In which investment holding of the investor is divided into four categories as shown in table 4 below.

Table 4: Amount of Investment

Amount of Investment	Active Investors (%)	Passive Investors (%)
More than Rs 5 Lacs	48.69 %	5.17 %
Rs 2.5 Lacs to 5 Lacs	12.17 %	6.8 %
Rs 50000 to 2.5 Lacs	14.34 %	22.41 %
Less than Rs 50000	24.78 %	63.79 %
		Chi Square Value - .000

**Insignificant Chi Square Value for significance level .05*

Table 4 indicate the difference between the two category of investor ie.. Active and passive investor on the basis of their size of investment holdings. The study found that the there is a significant difference between the active and passive investors with respect to amount of investment. As shown in table 4 active investors tend to have higher investments than passive investors. The results suggest that 48.69% invest more than Rs 5 lacs where as only 5.17 % of passive investor invest more than Rs 5 lacs. Similarly 63.79% passive investor invests less than Rs 50000 and only 24.78% active investor invest less than Rs 50000. A result of Chi Square test is also reporting significant variations.

Period of Shareholding

The other categorical variable taken in the study was period of share holding. In which period of shareholding of the investor is divided into four categories as shown in table 5 below.

Table 5: Period of Shareholding

Period of Shareholding	Active Investors (%)	Passive Investors (%)
Fortnightly and below	78.26 %	5.17 %
1- 4 months	13.03 %	10.3 %
5- 8 months	6.5 %	12.06 %
9- 12 months and above	2.17 %	72.41 %
		Chi Square Value - .003

**Insignificant Chi Square Value for significance level .05*

Table 5 reveals the result of difference between the behaviour of active and passive investor with respect to their period of share holding. When the period of shareholding was examined, it was found the period of shareholding for two groups was significantly different. Active investors tend to invest for a lesser period of time as compared to passive investors. Table below shows that 78.26% investors hold shares for not more than 14 days. However 72.41% passive investors hold their investments for more than 9 -12 months. A result of Chi Square test is also reporting significant variations.

Method of Investment

The third categorical variable taken to measure the difference between active and passive investor is Method of investment.

Table 6: Method of Investment

Method of Investment	Active Investors (%)	Passive Investors (%)
Speculation	58.72 %	2.17 %
Fundamental and Technical Method	25.2 %	29.3 %
Depend on Broker or Analyzer	7.39 %	47.4 %
No Method	8.69 %	21.03 %
		Chi Square Value - .000

**Insignificant Chi Square Value for significance level .05*

Table 6 indicates the methods of investments used by active and passive investors and it also presents the results regarding difference between method used by active and passive investors. The Chi Square results indicated that there is significant difference with respect to the use of method of investment among active and passive investors. The table below reveals that around 58.72% of active investor use Speculation method for investment where as majority of passive investors' i.e...47.4 % of investor depends upon broker or analyzer. It is also observed that only 2.17 % passive investor use speculation method and 8.69% active investor don't use any method for investment.

Annual Savings

The other categorical variable taken in the study was period of annual savings of the investor. In which annual savings of the investor is divided into four categories as shown in table 7 below.

Table 7: Annual Savings

Annual Savings	Active Investors (%)	Passive Investors (%)
1 to 5 %	21.7 %	63.55 %
5 to 10 %	15.65 %	13 %
10 to 15 %	6.52 %	13.79 %
More than 15%	56.08 %	9.66 %
		Chi Square Value- .007

**Insignificant Chi Square Value for significance level .05*

The Table 7 indicates the difference between the pattern of annual savings of active and passive investors. When the annual savings of the passive and active investors was examined, it was found that savings of active investors significantly differ from passive investors. Around 56.08 % of active investor save more than 15 % and only 9.66% passive investor could save more than 15%.How ever results suggests that majority of passive investors i.e. 63.55% are able to save only 1% to 5% of their income and hence their investment holdings are also less. The Chi Square results confirm the same behaviour.

4.3 Information Effect

Information is a very important factor that influences psychological behaviour of the investor. Several theories like Efficient Market Theory, Random Walk Hypothesis etc have been developed which projects the importance of information in the investment world. This study explores how much weighted is given by individual investors to the current information. The information effect is studied on the basis of Gender, Age, Education, Income, Employment status and Active-passive investor. The weighted given to information is measured by asking respondents that whether the timely information is an important criteria for them in investment?

These responses for the statement were taken on 5-point Likert scale.

Table 8: Results of Chi-Square Test

Factors	Category	Chi Square Value
Gender	Male	.014
	Female	
Age	65 or Above	.045
	45 to 64	
	25 to 44	
	Under 24	
Employment Status	Government Employee	.414*
	Private Employee	
	Self Employed	
	Retired/House Wife	
Investor	Passive Investor	.002
	Active Investor	
Income	Rs 50000 Per month or above	.000
	Rs 35000 to Rs 49000 per month	
	Rs 20000 to Rs 34000 per month	
	Below Rs 20000 per month	

**Insignificant Chi Square Value for significance level .05*

The results (Table 8) indicate that male give more importance to the information as compared to females. The figures suggests that only 50.7% of the male respondents are agree with the statement that information is important and affect returns where as only 33.2% female respondents are agree with this. On the other hand 31.5% male investor disagrees with the statement. The results of chi square test also indicate the significant variations in the behaviour of male and female investors.

The study found that the investor from four different age groups don't have similar perception towards importance of information and the similar result is indicated by chi square test that there is significant difference between all the four age groups. Investor between the ages of 25 to 44 years gives more weight to information as compared to other three age groups.

The results also indicate that investor qualified up to post graduation give more weighted to information as compared to less educated investors. However only 10% high school investors agree with this. The results of chi square test indicate the same result and is showing significant variations.

When the relation between income and the weighted to the information given by investor was studied, it was found that people of higher income group give more weighted to information and consider it a important aspect of investments. The results suggests around 60% of investors who have more than Rs 50000 monthly income use information to maximize their returns and only 19.6% investor whose income is less than Rs 20000 collect timely information. Results of Chi Square also indicate the same view and are significant variations.

As shown in the above table there is no significant difference in the results with respect to relation in employment status of the investor and his information collection pattern. The Chi square test is giving the same indication of insignificant variations. This suggests that employment status of investor has no relation with the information collection.

The chi square results indicated that there is a significant difference between the Active and passive investor with respect to information collection. Around 43.5% active investor consider information collection very important to increase the worth of investment. On the other hand 1.7 % passive investor give weighted to information and news.

Conclusion

This study looks at the factors that influence investor behaviour and their decision making. It is observed that the expectations of the investor, firm's performance, investor's awareness, personal attributes of the investor and certain social factors affect the decision making of the investor and generate biases in the behaviour of the investor. The Social factors unexpectedly had the least influence on the behavior of the investor, namely affiliation to the political parties and corporate social responsibility fulfilled by the firms. As response given by investors the most important factor for them are their expectations from their investments in terms of Assured returns, capital appreciation, liquidity, tax benefits, safety etc.

The second part of the study examines the behaviour of active and passive investor in terms of size of investment holding, period of shareholding, method of investments and annual savings. It was found that majority active investors have investments of more than Rs 5 lacs and maximum passive investors have investments less than Rs 50000. When the period of shareholding was studied it was observed that active investors tend to invest for not more than two weeks, however the passive investors have a long term holdings. In case of method of investments, active investor mostly use speculation method and majority of passive investor depend upon a broker or analyzer for investment decisions. In case of annual savings, it was found that passive investors have less annual savings as compared to active investors. Active investors tend to save more than 15% of their income whereas Passive investor can save only up to 5% of their income.

The third part of the study examines the information effect in terms of weighted given to the current information while taking financial decisions. To analyze this objective we tried to see whether the gender, age, employment status, income and education have any relation with the weighted he gives to the information. In the results we saw that investors between the age group of 25-44 yrs consider information more important. Gender wise male investors give more weighted to information. In terms of income investors who have monthly income more than Rs 50000 are more aware and are more serious about the information flows in the market. When the relation between employment status and information was examined it was found that employment status of investor has no relation with his information needs. It was also found that active investors tend to collect more information as compared to passive investors.

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Dimensions of E-Service Quality: An Empirical Study of Online Shoppers

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Abstract

In this study, an attempt has been made to dimensionalise e-service quality and to analyse the impact of e-service quality dimensions on overall service quality and customer satisfaction. A survey of online shoppers, using mall intercept method, was conducted in the National Capital Region, India. Based on extant literature review, a battery of 58 e-service quality dimensions was generated. This battery was further refined with the help of focus groups, resulting into a set of total 30 e-service quality attributes. Data was gathered with the help of self-administered questionnaire. 306 usable questionnaires were obtained from the target respondents. Exploratory factor analysis resulted into six factor solution. E-service quality dimensions uncovered are: Site Aesthetics/Content, Security/Privacy, Efficiency, Fulfillment, Responsiveness, and Communication. Further, these dimensions were then regressed on two dependent constructs of overall service quality and customer satisfaction. Results indicate that all the six dimensions have significant impact overall service quality as well as customer satisfaction. Efficiency turns out to be the most important dimension in evaluation of overall service quality by the online buyers followed by communication and responsiveness. Whereas, security has the greatest impact on customer satisfaction followed by communication and fulfillment.

Keywords: service quality, e-service quality, B2C e-commerce, customer satisfaction

Introduction

A recent study on "Consumer E-Commerce Market in India 2006/07" indicates that there has been a phenomenal growth in the Internet usage over the last few years in India (Internet & Mobile Association of India, 2006). According to this study, conducted by Internet and Mobile Association of India (IAMAI) and IMRB International, B2C e-commerce Industry in India for the year 2006-07 was around Rs. 7080 crores and is expected to reach the mark of Rs. 9210 crores by the end of 2007-08.

Internet has not only created opportunities for businesses to reach out to consumers directly but also allows consumers an immediate access to the electronic markets. However, service delivery in case of online channel is substantially different from that of traditional channels such as "bricks" channels, post and mail order, telephone, or "on location" as for many leisure experiences (Rowley, 2006).

Several researches indicate that service quality has the potential to deliver strategic benefits and also enhances operational efficiency and profitability (Cronin, 2003; Zeithaml, 2000). However, online retailers are finding it difficult to manage online service quality on account of their lack of exposure to this new medium and limited knowledge of online consumer behaviour (Mols, 2000). Therefore, in this empirical study, an attempt has been made to identify the dimensions of e-service quality, and to understand their relationship and impact on overall service quality and customer satisfaction. The output of this study will certainly be of help for e-tailers for making effective marketing strategies.

The rest of the paper is organized as follows. Section 2 presents the review of extant literature, follows by research objectives in Section 3. Research methodology is discussed in Section 4. Results of data analysis and

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discussion are presented in Section 5 and 6 respectively. Directions for further researches are discussed in the last Section.

Literature Survey

Service Quality

Service quality is generally defined as the difference between expected service and perceived service (GrÖnroos, 1982; Parasuraman et al. 1988). Service quality is widely considered as one of the main drivers of perceived value that enhances customer loyalty (Parasuraman and Grewal, 2000) and improves service provider's sales and profitability (Gummesson, 1993; Leung and Fung, 1996; Akroush, 2009; Kheng, 2010). Therefore, it has drawn a great deal of attention from the researchers and has been examined in previous researches in different industries (e.g. Babakus and Mangold, 1992a; Chow et al., 1995; Licata, Mowen and Chakraborty, 1995; Siu and Cheung, 1999, 2001; Siu and Woo, 1997 and 1999).

Parasuraman et al. (1985, 1988) developed the SERVQUAL instrument to quantify customer's evaluation of a company's service quality. SERVQUAL is a 22-item instrument which includes five service dimensions of tangibles, reliability, responsiveness, assurance, and empathy. This instrument was developed based on data from five service industries including retail banking, securities brokerages, credit card companies, appliance repair and maintenance, and long-distance telephone service.

SERVQUAL has been widely tested and used to measure service quality across various industries (Kang, 2006; Ladhair, 2008). These researches were conducted in banking (Yavas et al., 1997; Avkiran, 1994; Lam, 2002), public services (Orwig et al., 1997), professional services (Bojanic, 1991), hospitals (Reidenbach and Sandifer-Smallwood, 1990), hospitality (Barsky, 1992; Oberoi and Hales, 1990; Saleh and Ryan, 1991), retailing (Finn and Lamb, 1991), auto repair (Bouman and Van der Wiele, 1992), and catering (Johns and Tyas, 1996).

Although SERVQUAL has been extensively used, some researchers have questioned its dimensionality (Bouman and Van der Wiele, 1992; Cronin and Taylor, 1992, 1994; Mols et al., 1997), applicability in some industries (Teas, 1993) and measurement of perceptions and expectations (Cronin and Taylor, 1994).

Johnston (1997) provided eighteen service quality dimensions in banking – attentiveness/helpfulness, responsiveness, care, availability, reliability, integrity, friendliness, courtesy, communication, competence, functionality, commitment, access, flexibility, aesthetics, cleanliness/tidiness, comfort, and security.

E-Service Quality (e-SQ)

Santos (2003) defined e-SQ as "the consumers' overall evaluation and judgment of the excellence and quality of e-service offerings in the virtual market place (p.235)". The traditional service quality dimensions cannot be directly applied to electronic markets, because it represents a different and unique service delivery process. Therefore, different dimensions have been adopted in previous researches measuring electronic service quality (Siu and Mou, 2003). Many research studies over the last two decades focused on traditional service quality but only a limited number of comprehensive studies have dealt with the assessment of E-SQ (Sohail and Shaikh, 2008).

Lociacono et al. (2000) developed WEBQUAL scale that includes twelve dimensions – informational fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow, integrated communication, business processes and substitutability. Their approach pertains more towards interface design than service quality measurement (Zeithaml et al., 2002). Wolfinbarger and Gilly (2003) developed .comQ instrument to measure online retailing service quality which includes four dimensions – website design, reliability, privacy/security and customer service.

Yang et. al (2001) identified six E-SQ dimensions – reliability , access, ease of use, attentiveness, security, and credibility, used by online buyers to assess e-tailer's service quality. Zeithaml et. al (2000, 2002) developed the e-SERVQUAL instrument to measure E-SQ. They identified seven dimensions of E-SQ – efficiency, reliability, fulfillment, privacy, responsiveness, compensation and customer contact – through a three-stage process comprising focus groups and two phases of empirical data collection and analysis. The first four dimensions are classified as the core service scale, and the latter three dimensions are regarded as a recovery scale, since they are only salient when online customers have questions or problems with the sites.

Efficiency refers to the ability of customers to get into the website, find their desired product and information about it, and exit the website with minimal effort. *Fulfillment* incorporates accuracy of service promises, having products in stock, and delivering the products at the promised time. *Reliability* is associated with the technical functioning of the website, more particularly the extent to which it is available and operating properly. *Privacy* relates to assurances that users' behavioural data will not be shared and that their credit card information will remain secure. *Responsiveness* measures the ability of e-tailers to provide information to customers after a problem has occurred, to have a mechanism for dealing with returned items and for giving online guarantees. *Compensation* refers to reimbursements of payments made in advance. *Contact* relates to the ability of customers to communicate with someone at the service provider, either online or on the telephone (Zeithaml et al. 2002)

Madu and Madu (2002) identified fifteen dimensions of E-SQ – performance, features, structure, aesthetics, reliability, storage space, serviceability, security and system integrity, trust, responsiveness, service differentiation and customization, web store policies, reputation, assurance, and empathy. Trocchia and Janda (2003) identified five E-SQ factors – performance, access, security, sensation and information. *Performance* refers to the extent to which an e-tailer accomplishes the set of tasks customer expects. *Access* means the extent to which an e-tailer provides a wide range of products. *Security* is defined as the extent to which an e-tailer fosters trust and assurance, and provides freedom from risk. *Sensation* means the aesthetics associated with online shopping experiences. *Information* refers to the comprehensiveness of information posted on the website and its credibility.

Santos (2003) developed a conceptual model of E-SQ based on focus group interviews. He proposed that E-SQ consists of incubative and actual dimensions. Incubative dimension relates to the ease of navigation, aesthetics, website layout, and presentation of factual contents, whereas, actual dimension is determined by reliability, efficiency, support, communications, security, and incentive. Yang and Fang (2004) in their study found that traditional service quality dimensions, such as, competency, courtesy, cleanliness, comfort and friendliness, are not relevant in online context. Whereas, dimensions—reliability, responsiveness, assurance, and access are critical to both traditional and E-SQ.

Lee and Lin (2005) reported that four dimensions of e-service quality website design, reliability, responsiveness, and trust affect overall service quality and customer satisfaction. Parasuraman et al. (2005) conducted an empirical study of online shoppers to measure the service quality delivered by Web sites. Their study reveals that two different scales were necessary for capturing electronic service quality. The basic E-S-QUAL scale comprises four dimensions: efficiency, fulfillment, system availability, and privacy, and the second scale, E-RecS-QUAL (salient only to customers who had non-routine encounters with the sites) contains three dimensions: responsiveness, compensation, and contact.

Kim et al. (2006) modified the E-S-QUAL model and developed E-A-S-QUAL to capture extensive service attributes available on apparel retail web sites. PeSQ model, developed by Cristobal et al. (2007), comprises four dimensions perceived online service quality: web design, customer service, assurance, and order management.

Based on an empirical study of online financial institutions, Sohn and Tadisina (2008) proposed a 6-dimension model for measuring E-SQ: Trust, speed of delivery, reliability, ease of use, customized communication, website content and functionality. Li and Suomi (2009) explored E-SQ issue in the electronic market place, reworded and modified SERVQUAL scale resulting in an 8-dimension instrument for measuring E-SQ, which is yet to be empirically tested. These proposed 8 dimensions are web site design, reliability, responsiveness, security, fulfillment, personalization information and empathy.

Customer Satisfaction

The concept of customer satisfaction is inherent in marketing planning and practice. Customer satisfaction is a closely related term to service quality and relates to customers' assessments of services (Parasuraman et al., 1994). Satisfaction is "a summary of cognitive or affective reaction to a service incident (or sometimes a long-term service relationship)" (Rust and Oliver, 1994, p.2). Research on service quality has examined customer evaluations of the overall excellence or superiority of a service (Zeithaml, 1988) while research on satisfaction has focused on customer evaluations of a specific transaction involving a product or service (Oliver, 1981; Olashavsky, 1985). Rust and Oliver (1994) view quality as one of the service dimensions which make up the consumers satisfaction judgment. Researches in the past have suggested that perceived service quality positively influences customer satisfaction in both virtual and physical marketing environments (Cronin and Taylor, 1992; Reidenbach and Sandifer-Smallwood, 1990; Rust and Zahorik, 1993; Martensen et al., 2000).

Research Objectives

This research study aims to:

1. To identify dimensions of e-service quality as perceived by online buyers
2. To determine impact of e-service quality dimensions on the overall service quality and customer satisfaction

Research Methodology

Measurement of the Constructs and the Survey Instrument

A survey of online buyers was conducted in the National Capital Region, India, to measure e-service quality. Structured questionnaires were used to gather the primary data. A list of fifty eight items was drawn from the extant literature survey on e-service quality so as to ensure their content validity. This list was refined with the help of focus group discussion in the second phase. Ten participants with previous online buying experience were invited for the focus group discussion. The discussion was led by two observers and one moderator, and lasted for ninety minutes. Participants were shown the list of items and were asked to select and assess the variables they found important when evaluating the e-service quality of the Internet sites where they had shopped during the last one month. As a result of this focus group discussion, fifty eight items in the original list were reduced to thirty items.

Along with thirty e-service quality items, one item each for measuring the overall service quality and customer satisfaction were included in the first section of the questionnaire. Each one of these thirty two items was rated on a five point Likert scale ranging from 1 to 5 (strongly disagree to strongly agree). Questions relating to online buyers demographic profile were included in the second section.

A panel of three academicians working in the areas of B2C e-commerce, service quality, and information technology evaluated the content validity of the scale items finalized in the second phase. Changes were made as recommended by the panel. A pilot study was conducted on ten respondents so as to check the framing of questions and fixed-alternatives. As respondents found no difficulty in filling up the questionnaire, the same questionnaire was used for the final survey.

Sample

Prospective respondents were approached in the shopping malls located in National Capital Region, India. A simple random sample of 5 malls was selected using the lottery method. Mall-intercept method was used to conduct the survey. Those who had at least once shopped online during the last one month qualified for the survey. Out of 500 contacts, 306 usable questionnaires were collected, resulting in an effective response rate of 76.5 percent.

Results

Sample Profile

Sample profile of online shoppers is shown in Table 1. Majority of the respondents are males (74%) indicating high popularity of online buying among the males as compared to their female counterparts. Age group wise, about 78% respondents are between 18 to 34 years of age, whereas fewer responses were received among the higher age groups. More than half of the sample respondents (55%) are graduates followed by 30% post graduates. Those who are in service occupation (44%), prefer most to shop online, followed by business persons (23%) and students (17%). Majority of the respondents belong to the middle income groups of Rs. 20001-35000 (34%) and Rs. 10001-20000 (25%), whereas least number of respondents (5%) fall in the highest income group of 'Above Rs. 50000'.

Table 1: Sample Profile (n=306)

Variable	Categories	No. of Respondents (%)
Gender	Male	227 (74.18%)
Female	79 (25.82%)	
Age Group	18-24 Years	86 (28.10%)
	25-34 Years	152 (49.67%)
	35-44 Years	36 (11.76%)
	44-60 years	24 (7.84%)
	Above 60 years	8 (2.61%)
Education	Intermediate or less	47 (15.36%)
	Graduate	167 (54.58%)
	Post Graduate or higher	92 (30.07%)
Occupation	Service	134 (43.79%)
	Business	71 (23.20%)
	Student	52 (16.99%)
	Housewife	37 (12.09%)
	Others	12 (3.92%)
Monthly Income	Less than Rs. 10000	24 (7.84%)
	Rs. 10001-20000	76 (24.84%)
	Rs. 20001-35000	104 (33.99%)
	Rs. 35001-50000	38 (12.42%)
	Above 50000	16 (5.23%)
	Not Applicable	48 (15.69%)

Dimensions of e-Service Quality

Exploratory factor analysis was employed on the dataset (30 e-service quality items; 306 cases) using SPSS 17.0 software.

Data Adequacy

First of all, the suitability of the dataset for conducting factor analysis was examined on the basis of construct correlation matrix, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

Observation of constructs correlation matrix reveals that about 68% correlations are greater than .30, which justifies the application of the factor analysis (refer Appendix A). Additionally, correlations of no pair of measures exceeds .90, thus supports the discriminant validity of the measures (Hair et al., 2005). Table 2 shows the results of KMO and Bartlett's test of sphericity. KMO measure of sampling adequacy quantifies the degree of intercorrelations among the variables and in our case it is 0.854 which is meritorious (Hair et al., 2005). Bartlett's test of sphericity tests the overall significance of all correlations within a correlation matrix. Results of Bartlett's test (χ^2=13153.212, df=435) are statistically significant at p<.01 (Hair et al., 2005). These tests confirm that the dataset is adequate to conduct exploratory factor analysis.

Table 2: Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.854
Bartlett's Test of Sphericity	Approx. Chi-Square	13153.212
	df	435
	Sig.	.000

Reliability

The Cronbach's alpha test measures the consistency of the scale. The closer the value of coefficient of reliability to 1.0, the more reliable is the scale (Cronbach, 1951). From Table 3, overall Cronbach's Alpha value is .918 and for six e-service quality dimension ranged from 0.881 to 0.965. The practical significance criteria considers factor loadings ±0.50 or greater are practically significant and each single factor should include at least two items (Hair et al., 2005). Our exploratory factor analysis meets the criteria for practical significance (Hair et al., 2005) as well as convergent validity (all the factor loadings are above 0.7) (Bagozzi and Yi, 1988).

Principal Components Analysis

Table 3 shows the results of exploratory factor analysis carried out with the help of SPSS software. Principal components analysis was used to capture most of the scale items into minimum number of factors possible. Varimax orthogonal rotation procedure was used to simplify the factor structure and also to increase the generalisability of the research findings. Kaiser criterion was employed to select the extracted factors; therefore factors with Eigen value less than 1 were dropped. Our exploratory factor analysis meets the practical significance criteria which consider factor loadings ±0.50 or higher (ignoring signs) are practically significant and each single factor should include at least two items (Hair et al., 2005).

As a result, six factors were extracted that together explain 82.7% of the total variance. Based on the items included, these six factors were suitably labeled as Site Aesthetics/Content, Security/Privacy, Efficiency, Fulfillment, Responsiveness, and Communication.

Table 3: Results of Exploratory Factor Analysis

Construct/Measure	Component					
	1	2	3	4	5	6
Site Aesthetics/Content						.745
Website design of internet retailer was visually appealing						.559
Products/services featured in the Website caught my attention						.897

Website contents were concise and easy to understand						.732
All the terms and conditions displayed in the Website were easy to read/understand						
Security/Privacy						
I felt secured in providing sensitive information for online purchase				.885		
I felt safe in my transactions with this website				.782		
Website was equipped with adequate security features				.853		
It did not share my personal information with others				.768		
Assured me that information about my web shopping activities will not be disclosed to others				.901		
Efficiency						
It was easy to navigate through this website		.893				
I could easily find what I wanted on this website		.913				
It was quick and easy to complete a transaction this website		.866				
The product was delivered by the time promised by the company		.878				
Website loaded its pages fast		.894				
It was a well organized Website		.906				
Fulfillment						
Website provides accurate product information	.873					
Transactions with the internet retailer's Website were error free	.879					
The Internet retailer had in stock the items it claimed to have	.879					
It sent out the same item/s as I ordered	.898					
The Website handled the billing process accurately	.915					
The Website kept accurate records of my online transactions	.898					
The Website had clearly stated return policies	.912					
Responsiveness						
The internet retailer promptly responded to my inquiry			.919			
The internet retailer showed a sincere interest in solving customer problems			.928			
Website provided online technical support			.784			
Internet retailer was willing to help its customers			.929			
Communication						
Internet retailer's contact details (physical and e-mail addresses, phone and fax numbers) were mentioned in the Website					.820	
Customer service representative could be easily contacted over the phone or via e-mail					.800	
Website supports multiple languages					.778	
Frequently asked questions Webpage resolved most of my questions regarding my online shopping					.794	
% of Variance	18.779	18.424	13.212	12.987	10.519	8.769
Cumulative %	18.779	37.202	50.414	63.401	73.920	82.690
Eigen Value	5.634	5.527	3.964	3.896	3.156	2.631
Cronbach's Alpha (overall Alpha=.918)	.959	.965	.950	.913	.943	.881
Number of Items (total=30)	4	5	6	7	4	4

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.

Impact of e-service quality dimensions on the Overall Service Quality and Customer Satisfaction

Tables 4 and 5 show the regression results of the six e-service quality dimensions with overall service quality and customer satisfaction respectively. Results indicate that all the six dimensions extracted are positively related to both overall service quality (F=90.615; .000; adj. R^2=0.638) and customer satisfaction (F=73.133; .000; adj. R^2=0.587).

From Table 4, examination of standardized regression coefficients reveals that efficiency (ß=0.299, p<0.01) is the most important dimension, followed by communication (ß=0.235, p<0.01), responsiveness (ß=0.225, p<0.01) and fulfillment (ß=0.198, p<0.01). Site aesthetics/content (ß=0.141, p<0.01) has relatively least impact on the overall service quality.

Table 4: Regression results- e-service quality dimensions on overall service quality

Dimension	Standardized Beta (ß)	t-value
Efficiency	.299	6.758*
Fulfillment	.198	4.911*
Security/Privacy	.163	3.699*
Responsiveness	.225	6.463*
Site Aesthetics/Content	.141	3.467*
Communication	.235	4.986*

Dependent Variable: Overall Service Quality

F=90.615 (sig. at p<.01), R=0.803, R^2=0.645, adj. R^2=0.638

*p<.01

Standardized regression coefficients shown in Table 5 indicate that security/privacy (ß=0.384, p<0.01) has the strongest impact on customer satisfaction, followed by communication (ß=0.204, p<0.01) and fulfillment (ß=0.198, p<0.01). However, responsiveness (ß=0.141, p<0.01) has relatively least impact on customer satisfaction.

Table 5: Regression results: e-service quality dimensions on overall satisfaction

Dimension	Standardized Beta (ß)	t-value
Efficiency	.115	2.425**
Fulfillment	.198	4.610*
Security/Privacy	.384	8.168*
Responsiveness	.111	2.975*
Site Aesthetics/Content	.148	3.401*
Communication	.204	4.054*

Dependent Variable: Customer Satisfaction
F= 73.133(sig. at p<.01), R=0.771, R^2=0.595, adj. R^2=0.587
*p<.01, **p<.05

Discussion

The present study resulted into the development of a multidimensional scale for measuring e-service quality in Indian context. This scale includes six online service quality dimensions: Efficiency, Fulfillment, Security/ Privacy, Responsiveness, Site Aesthetics/Content and Communication. Online retailers can use this scale to monitor the level of service quality offered to their customers. This will help them in making judicious allocation of the available resources in today's competitive scenario.

A comparison of the dimensions appeared in this study with those of Parasuraman et al. (2005) and Wolfinberger & Gilly (2003), reveals the existence of similarities and dissimilarities. Parasuraman et al. (2005) developed two different scales to capture electronic service quality: the basic E-S-QUAL scale with four dimensions: efficiency, fulfillment, system availability, and privacy. The second scale, E-RecS-QUAL, (salient only to customers who had nonroutine encounters with the sites) contains three dimensions: responsiveness, compensation, and contact. In the current study only one scale has been reported appropriate to measure online service quality as supported by many past researches (see, for examples, Sohail and Shaikh, 2008; Lee and Lin, 2005; Santos, 2003). Four out of six dimensions: efficiency, fulfillment, security/privacy and responsiveness uncovered in the present study are parallel with Parasuraman et al. (2005). Specifically, the security and privacy concerns of customers are more appropriately addressed in the current study by the 'security/privacy' (5 items are included) as compared to 'privacy' dimension in E-S-QUAL (includes 3 items only). Items included 'communication' dimension appears under the 'contact' dimension included in the E-RecS-QUAL.

Additionally, the results of this study are compared with Wolfinbarger and Gilly's (2003) etailing study—wherein their 14 eTailQ scale items were grouped into four dimensions labeled Web site design, fulfillment/reliability, security/privacy, and customer service. There is a substantial overlapping among the fulfillment, security/privacy and site aesthetics/content dimensions of the current study and those appeared in Wolfinbarger and Gilly (2003). Moreover, items relating to customers' concerns about communication with the company personnel (in case of any query/problem) and promptness of response are better addressed by two separate dimensions—'responsiveness' and 'communication' in comparison to Wolfinbarger and Gilly's (2003) 'customer service' dimension alone. Results regarding the relative impact of dimensions on the overall service quality and satisfaction are different in both the studies. In the current study, all the dimensions have a significant impact on overall service quality and satisfaction. Whereas, Wolfinbarger and Gilly's (2003) study, report only two out of four dimensions—Web site design and fulfillment/reliability to have a significant impact on the overall service quality as well on satisfaction, and surprisingly, security/privacy dimension does not carry any significant impact on the overall service quality and satisfaction. Whereas, in the current study security/privacy dimension carry the strongest significant impact on the customer satisfaction. Moreover, customer service dimension carries a significant but week impact on the overall service quality but carry no significant impact on the satisfaction, whereas responsiveness and communication dimensions that overlap with the customer service dimension eTailQ scale carry strong significant impact on overall service quality as well as satisfaction.

Besides these two studies, there exist similarities between the dimensions derived in this study and those uncovered in several previous studies. Table 6 shows the list of dimensions identified in this study and previous researches where the respective dimension has been uncovered.

Table 6: Comparison of e-service quality dimensions identified by the current study and previous studies

S. No.	Dimension identified in this study	Previous Researches
1	Efficiency	Parasuraman et al. (2005); Santos (2003)
2	Fulfillment	Sohail and Shaikh (2008); Lee and Lin (2005); Parasuraman et al. (2005); Long and McMellon (2004); Santos (2003); Wolfinbarger and Gilly (2003); Janda et al. (2002); Madu and Madu (2002)
3	Security/Privacy	Parasuraman et al. (2005); Santos (2003); Wolfinbarger and Gilly (2003) Janda et al. (2002); Madu and Madu (2002); Yang and Jun (2002); Yoo and Donthu (2001)
4	Responsiveness	Lee and Lin (2005); Long and McMellon (2004); Madu and Madu (2002);Yang and Jun (2002); Kaynama and Black (2000)
5	Site Aesthetics/Content	Lee and Lin (2005); Cai and Jun (2003); Wolfinbarger and Gilly (2003); Madu and Madu (2002); Yoo and Donthu (2001); Kaynama and Black (2000)
6	Communication	Cai and Jun (2003); Santos (2003); Surjadaja et al. (2003)

Conclusions and Future Directions

The six-dimension e-service quality scale developed in this study will certainly be helpful for online retailers to effectively manage service quality in increasingly becoming competitive electronic markets. The output of this research will also be helpful in gaining insights into the relative importance of e-service quality dimensions in customers' evaluation of overall service quality as well as customer satisfaction. Efficient delivery of promised service should be the key focus along with stringent security/privacy provisions to gain the trust of online shoppers. Also, e-tailers must device strong interface and mechanisms to allow seamless communication with their customers. In order to generalize the findings of this study, similar studies should be conducted in other parts of the country on larger samples. Future researches on investigating the relationships among customer intentions to buy, loyalty and customer satisfaction in the virtual markets are warranted. Role of word-of-mouth publicity in the online shopping acceptance and its diffusion can also be investigated using large samples.

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Appendix A

Constructs Correlations

	1	2	3	4	5	6	7	8
Efficiency	1.00							
Fulfillment	0.507	1.00						
Security	0.301	0.196	1.00					
Responsiveness	0.139	0.118	0.074	1.00				
Site Aesthetics/Content	0.455	0.308	0.240	0.081	1.00			
Communication	0.390	0.227	0.615	0.049	0.414	1.00		
Overall Service Quality	0.635	0.505	0.487	0.325	0.493	0.567	1.00	
Customer Satisfaction	0.493	0.437	0.627	0.201	0.447	0.597	0.607	1.00

Would Female Married Celebrities be Effective? Integrating Marital Status, Role Congruence and Credibility in Indian Case

Neetika Kaur Saluja*

Abstract

In Asian countries such as India, the importance of celebrity endorsement has been on the rise since the 1980's and has boomed in the advertising domain in the last five years. According to estimates, the celebrity management business in India (which in includes endorsements), is valued at around USD 225 million (ET Bureau, 2010). However, female celebrities in India have been found to shy away from the camera and thereby from celebrity endorsements post marriage. There also have been counter instances of celebrities continuing to endorse products long after getting married and becoming mother (Hema Malini and Kajol). Moreover in the last two years there has been a trend of celebrities making a comeback to movies (Madhuri Dixit Nene and Karisma Kapoor) and thereby making comebacks in product endorsements. The present study has three major contributions in celebrity endorsement literature. First, the study has shown evidence in support of the fact that effectiveness of female celebrities who have been married diminishes over time. Secondly, the study has brought in a new dimension of congruence, namely Role Congruence and has found that role congruence positively influences consumer attitudes towards the endorsed product. Thirdly, the study has contradicted the age old source credibility theory by challenging its basic tenets. The present study has contributed to the literature on celebrity endorsements in a novel way and has implications for both practitioners and the academicians.

Introduction

Celebrity endorsements have been used by marketers as a stagey since the early 1900's (Clark and Horstmann, 2003). Celebrities have been found to be credible sources of communication and a positive influencer of consumer attitudes (Caballero et al., 1989; Ohanian, 1991; Priester and Petty, 2003; Silvera and Austad, 2004; Roy et al., 2012). The last decade has experienced an increase in the number of advertisements featuring celebrities as marketers tried to stand out in the high advertisement clutter (Shimp, 2000). In Asian countries such as India, the importance of celebrity endorsement has been on the rise since the 1980's and has boomed in the advertising domain in the last five years. According to estimates, the celebrity management business in India (which in includes endorsements), is valued at around USD 225 million (ET Bureau, 2010). The advertisements featuring celebrities constitute approximately 60% of the advertising expenditure in India (Saxena, 2008). However, female celebrities in India have been found to shy away from the camera and thereby from celebrity endorsements post marriage. There have been various instances of female film celebrities retiring after marriage or at least taking a break. The assumption behind this being that Indian audiences were not willing to accept as a celebrity (screen actress) a woman known to be married and a mother. However, there also have been counter instances of celebrities continuing to endorse products long after getting married and becoming mother (Hema Malini and Kajol). Moreover in the last two years there has been a trend of celebrities making a comeback to movies (Madhuri Dixit Nene and Karisma Kapoor) and thereby making comebacks in product endorsements. In such cases, the product ads where married celebrities have been portrayed belonged to different categories and the celebrities have portrayed a variety of roles ranging from being themselves to motherly roles and being mere actors in an ad story.

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In the past thirty odd years management researchers have conducted considerable amount of research in the area of celebrity endorsements. The researchers have delved into various issues relevant to celebrity endorsements in areas of Psychology and Consumer behavior (Mowen, 1980; Kirmani and Shiv, 1998; Cronley et al., 1999; Silvera and Austad, 2004; La Ferle and Choi, 2005), Sociology (McCracken, 1989), Advertising and Brand management (Friedman et al., 1976; Kamins, 1990; Till and Busler, 1998; Stafford et al., 2002; Roy et al., 2012) and Finance (Agrawal and Kamakura, 1995; Mathur et al., 1997). The most researched stream of celebrity endorsement is the Source Credibility Studies (Friedman and Friedman, 1979; Atkin and Block, 1983; Kahle and Homer, 1985; Kamins, 1989; Ohanian, 1990; 1991; Pornpitakpan, 2003; Silvera and Austad, 2004). Another popular area of celebrity endorsement research is the concept of celebrity-product congruence or (Misra and Beatty, 1990; Kamins and Gupta, 1994; Mittelstaedt et al., 2000; etc).

However, till date no study has tried to address the issue of role congruence of a celebrity and its impact on consumer attitudes. In a country like India where female stereotypes are still dominant and where female celebrities have mostly retired after marriage or taken a break, it would be worth investigating whether a) marital status, b) role congruence of a female celebrity affects the consumer attitudes in case of an endorsement and c) whether the source credibility of the celebrity has a moderating impact on the consumer attitudes. The present study thus investigates the impact of marital status and perceived role congruence of a female celebrity endorser on consumer attitudes incorporating the role of credibility. The rest of the paper is structured as follows: the next section discusses the literature review and builds the study hypotheses. This is followed by the methodology and the results sections. The discussions and implications are provided next to this and the study concludes with limitations and scope for further research.

Literature Review

The literature review section is divided into five subsections. The first subsection discusses the role of marriage and the decreasing effectiveness of married celebrities. This leads to the first hypothesis. The second, third and fourth subsection build upon the concept or congruence, its relevance in celebrity endorsements and the need to investigate role congruence in celebrity endorsements. These three sections lead to generation of the second hypothesis. The last section discusses the concept of source credibility in brief and justifies its role as a moderating variable on consumer attitudes. This leads to the third and last hypothesis.

Marriage and Married Female Celebrities: One of the most applicable definitions of marriage was given by Westermarck (1921) as “a more or less durable connection between male and female lasting beyond the mere act of propagation till after the birth of the offspring” (p. 71). However, in India the general view towards marriage is different as compared to the Western world. Compared to the western world where marriage is largely a matter of individual choice, in India, marriage is viewed as an enduring relationship between two families rather than a union between two individuals (Seymour, 1999). Even though the wave of globalization has brought a lot of changes, the fact is that marriage is still considered as scared and serious matter in India. Thus it is very obvious that celebrities would face different levels of appreciation from their fans after marriage. Literature has suggested that the fan size of a celebrity would decrease once he/she gets married (Muda et al., 2011). Given that a country like India which is still majorly patriarchal (Chitnis, 2004; Chaudhuri, 2004; Ray, 2012), it would be highly likely that a female celebrity would be losing popularity more than a male celebrity post marriage. In practice it has been observed that the career trajectory of female Bollywood actors has shown a decline after they married and had children (Manzoor, 2012). In such a case if we draw an extension, the female married celebrity is expected to lose her star power in product endorsements once she gets married. Till date there has been no study which has investigated the effect of marriage on the effectiveness of a celebrity. Only one study (Lina, 2009) has investigated the effects on nasty and non-nasty married endorsers and has found endorsers without divorce problem to have positive influence on the consumers than endorsers with a problematic marital life. If we draw understanding from the meaning transfer phenomenon (McCracken, 1986; 1989) a celebrity generates meaning through his/her actions. They offer a range of personality traits and lifestyles patterns to the audience/consumers which keep changing over time. Thus the same celebrity may be conveying meanings related to being a girlfriend, wife or mother at different points. These meanings would have their impact on the consumer differently. Given the fact that in India, many female celebrities (married with kids) are making a film comeback and thus a comeback in endorsements, it would be interesting to investigate whether the stage at which a celebrity is in her marital status would have an impact of the consumers when she endorses a product brand. Thus the first hypothesis of the study is stated as:

H1: The stage at which the celebrity is in her married life would affect the consumers' attitudes namely AD, AB and PI of a product endorsed by her.

The Concept of Congruence: Congruence as defined by Mandler (1982) refers to the expression of a structural correspondence between two entities. In marketing research, 'congruence' expresses the fact that two (or more) entities go well together. Various possibilities exist for congruence between two entities (Fleck and Maille 2010) such as: a brand alliance (between two brands), celebrity endorsements (a brand and a celebrity), sponsorship (a brand and an event), brand extensions (a brand and a new product category), brand referencing (a brand and a retailer), product placements (a brand and a film) etc. The cornerstone of the congruence hypothesis lies in the concept of perceived congruence or inconsistency (Hastie and Kumar, 1979). However, perceived congruence and its effects have been considered as an important field of research in psychology, and subsequently in consumer behavior (Loken, 2006). Researchers suggest that perceived congruence may in some cases appear universal, but still it remains a perception (Fleck and Maille, 2010). Thus it can vary considerably from one individual to another, across cultures and demographics. According to literature on congruence, a perceived congruent (as opposed to incongruent) combination should be easier to understand and memorize. Being better understood, familiar and demanding less effort, it would be valued more positively and in case of consumers, would lead to more favorable attitudes.

Congruence Hypothesis in Celebrity Endorsements: The congruence hypothesis in celebrity endorsements has delved into the similarities or correspondence between the product or brand and the celebrity, and is popularly known as the "match-up" hypothesis. The celebrity-product congruence hypothesis argues that for an advertisement featuring a celebrity to be effective on the consumers, there should be congruence or 'match-up' between the celebrity and the product advertised. This hypothesis also has its roots in psychology (Osgood and Tannenbaum, 1955) which investigated the congruence between source and message of a communication. Significant research on the celebrity-brand congruence took place in the decade of the 90's and later on (Kamins, 1990; Misra and Beatty, 1990; Kamins and Gupta, 1994; Mittelstaedt et al., 2000; etc). According to the match-up hypothesis, an endorser would have a favorable effect on consumer attitudes and behavior if there is a 'match up' or congruence between the celebrity and the product brand. However, the concept on congruence has been defined at various levels by different researchers. While some have described congruence through the image of the endorser "matching up" with the image of the brand/product (Parekh and Kanekar, 1994), some have focused on the attractiveness dimension and suggested that attractive celebrities will be more effective while promoting attractiveness enhancing products (e.g., Kahle and Homer, 1985; Kamins, 1990).

Researchers have also focused on the expertise dimension (e.g. Till and Busler, 2000) and have found advertising effectiveness to get enhanced when there was congruency between the product type and the celebrity (say a sports athlete promoting sports shoes). The match up studies have also investigated the perceived congruence between the brand and celebrity in terms of personality and found that higher perceived congruence between the brand personality and the celebrity personality creates more favorable consumer attitudes (Farhat and Khan, 2011). Research in congruence has also been investigated at a higher level where researchers (Gurel-Atay, 2010) have found that high congruence between perceived social values of a celebrity and a product resulted in increased advertising effectiveness (in terms of higher attitudes toward ad, higher attitudes toward brand, and higher WOM intentions). Studies in 'match up hypothesis' have also observed extraneous influences to determine the perceived 'match up' such as Boyd and Shank (2004) who showed that a fit between the celebrity and consumer in terms of gender would lead to increase in perceived credibility of the celebrity irrespective of the product type endorsed. Thus it could be inferred that congruence between a celebrity and a product endorsed has positive ramifications for the marketer.

Role Congruence: Super (1990) theorized that the career of an individual is made up of many different roles occupied over his/her life span, and included the roles of career person, home and family person, community member, etc. Participation is the amount of time spent in a role, whereas commitment and values expectations reflect the importance of the role to the individual, and the degree to which the individual can meet their needs through that role (Super and Neville, 1986). Additionally, research (Perrewe and Hochwarter, 2001; Perrone et al., 2005) has also shown that higher congruence between the current and ideal role combination of an individual would lead to decreased role conflict. However, stereotypes also have an influence on role congruity. According to researchers in role congruity theory (Eagly and Karau, 2002), men and women occupied natural stereotypes in terms of perceived social roles with Men being stereotyped as: agentic, assertive, confident, and powerful, and Women being communal, pleasant, likeable, and trustworthy. Heckler and Childers (1992) suggest that incongruence can influence the perceived relevancy and expectancy of the combination which in turn may be influenced by the predisposition of the consumers towards the cause of incongruence. This predisposition could be caused by both individual and contextual factors. The meaning transfer model of McCracken (1989) could be relevant even in this case. McCracken (1989) postulated that celebrities bring their own symbolic meanings to the endorsement process and through this process, cultural meanings residing in the celebrities pass to the products. In case a celebrity portrays different roles at different points of time (which is most likely in personal life) the consumers would have different role perceptions about the celebrity and those may be stereotypes if the celebrity is female and passes through spinsterhood, marriage and motherhood. Thus the endorsement would be more relevant and effective if there is a match or congruence between the actual roles of the celebrity and the one portrayed in the endorsement (advertisement). The second hypothesis of the study is thus stated as:

H2: A role congruent celebrity would have a more favorable impact on the consumers' attitudes namely AD, AB and PI of a product endorsed by her.

Source Credibility: The 'source credibility' studies dealt with identifying the dimensions of a credible source which affect the consumer in the communication process and the effects of those dimensions on the consumer. The source models owed their origin to psychology and communication research (Hovland and Weiss, 1952; Hovland et al., 1953; McCroskey, 1966; Bowers and Philips, 1967; Giffin, 1967; Whitehead, 1968; Applbaum and Anatol, 1972) which has been discussed in Section 2.2. The three dimensions of source credibility that have evolved in literature are *Trustworthiness*, *Expertise* and *Attractiveness* (Ohanian, 1990). However, there is mixed opinion among researchers on the most important credibility dimension to affect consumer attitudes. While some studies found trustworthiness to be the most important dimension of source credibility (McGinnis and Ward, 1980; Atkin and Block, 1983; Kamins, 1989; Priester and Petty, 2003), there were studies in support of Expertise (Maddux and Rogers, 1980; Swartz, 1984; Ohanian, 1991) and on support of Attractiveness (Baker and Churchill, 1977; Kahle and Homer, 1985; Caballero, Lumpkin and Madden, 1989; Silvera and Austad, 2004). While some of the former studies analyzed the impact of a single dimension of credibility on the consumer there were studies which incorporated all three of the dimensions (Ohanian, 1990), or two of them taken together (Friedman and Friedman, 1979; Weiner and Mowen, 1986; Kamins and Gupta, 1994). Ohanian (1990) developed a scale to measure the credibility of a celebrity endorser using all three dimensions of Attractiveness, Trustworthiness and Expertise. Mowen (1980) discussed the issue of the source dimensions (attractiveness, trustworthiness and expertise) being moderators of the relationships developed as a result of a celebrity endorsement rather than directly influencing the consumer attitude. This issue was investigated only recently when Roy et al.

(2012) found evidence of moderation effect of the source credibility dimensions on consumer attitudes rather than a direct effect. There is a possibility that a female celebrity may lose her credibility post marriage or may gain it depending on the product endorsed (a celebrity mother would be more credible for a baby product than an unmarried celebrity). Thus there would be a moderating impact of source credibility of the celebrity on the consumer attitudes. Thus last hypothesis is thus stated as:

H3: Source credibility of a female celebrity (namely Attractiveness, Trustworthiness and Expertise) would have a moderating impact on the consumer attitudes namely AD, AB and PI of a product endorsed by her.

Methodology

Research Design: Experimental Design was selected as the methodology in the present study because of its ability to test theoretical relations (Bagozzi and Yi, 1989). The research hypotheses were tested in two phases. The first study had only the celebrity marital status as the independent variable and a common product across all the levels. The four levels chosen for the same were: Unmarried (UM), Just Married (JM), Married but Endorsing (ME) (a celebrity who was married but was into endorsements throughout), Married and Comeback (MC) (a married celebrity who took a break and then made a comeback). The design was a 4 (Celebrity: UM/JM/ME/MC) X 1 factorial design. In the second phase, a more complex design was used where both the marital status and the role congruence were allowed to vary. Thus the design for phase two of the study was a 4 (Celebrity: UM/JM/ME/MC) X 2 (Product: Role Congruent/Role Incongruent) full factorial design with eight treatments.

Independent Variables: The independent variables were marital status of the celebrity and celebrity role congruence. Since there was no literature on the effects of marital status of a celebrity on the consumer attitudes, the authors took a practical approach. An investigation of female celebrity endorsements suggested that there were four types of female celebrities based on their marital status. Unmarried, just married (this was a separate category because it was found that many brands were utilizing the just married status of a female celebrity in ads), married but endorsing (there were celebrities who got married at least 20-25 years ago but they were always into advertisements) and married and comeback (this was a recent trend for female celebrities in India. Quite a few female celebrities are making comebacks in movies and thereby they are also endorsing products). The other independent variable was celebrity role congruence or simply whether the celebrity is portraying her actual/perceived role in an endorsement ad or not. This was manipulated at two levels viz. congruent/incongruent.

Dependent Variables and Covariate Measures: The dependent variables selected for the study were commonly measured consumer attitudes in literature, namely, the attitude towards the advertisement (AD), attitude towards the brand (AB) and the purchase intention (PI). The dependent variables, AD, AB and PI were measured using five-point Likert scales adopted from previous research (Friedman and Friedman, 1979; Ohanian, 1990; Henthorne et al., 1993; Pecheux and Derbaix, 1999; Goldsmith et al., 2000; La Ferle and Choi, 2005). The covariates, i.e. attractiveness, trustworthiness and expertise are the dimensions of the Source Credibility concept. Thus, they were measured using Ohanian’s (1990) 15 item scale (5 items each for attractiveness, trustworthiness and expertise) since it has been validated in multiple contexts (Pornpitakpan, 2003; Roy et al., 2012). The covariates were measured using multi-item bipolar semantic differential scales.

Stimuli Development: Hypothetical advertisements were selected as the stimuli, which were developed through a set of pre-tests. The first pre-test was conducted to select preferred celebrities in all levels of marital status. Previous literature (Kahle and Homer, 1985; Caballero et al., 1989; Silvera and Austad, 2004) has found likeability of a celebrity to influence consumer attitudes and thus the objective was to select likeable celebrities in all categories of marital status to avoid confounding. Thirty individuals in the age group 25-45 were asked to give their choice of favorite celebrity endorser (the question asked was, “name three unmarried/just married/etc….. female celebrity would you like to watch in advertisements?). The results were analyzed using modal ranking and preferred celebrities in each categories were found to be Katrina Kaif (UM), Genelia D'Souza (JM), Hema Malini (ME) and Madhuri Dixit (MC). Since traditionally a female celebrity personified glamour, a glamour enhancing product was selected for the treatments (Shampoo). Four treatments were operationalized through four separate print advertisements. Each advertisement had similar layout, graphics, and length to minimize extraneous variances. At the top of the advertisement appeared a headline, followed by a sub-head at the right hand side. The celebrity was positioned in the left of the ad with the face/bust covering 60% of the ad. The product package along with fictitious brand name was placed at bottom left.

For phase 2, the celebrity selection remained the same as in phase 1. But a second pretest was conducted. The second pretest was to ensure a matching product with the perceived role of the celebrities. This was to ensure role congruence which could cause confounding later on if not matched. In the second pretest, another 120 individuals in the same age group as the first pretest were divided into four groups of 30. Each group was given the name of one celebrity obtained from the first pretest and were asked to mention the top five products they would like the celebrity to endorse which matches with the perceived role of celebrity. For each product mentioned, the respondents were asked to write the perceived role in parentheses. Based on modal ranking again, one product each was selected for each treatment in the design. The final celebrity product list is given in Table 1.

Table 1: Final Selection of Products for Main Study

Celebrity	Product	
	Role Congruent	Role Incongruent
Katrina (UM)	Fairness Cream	Kids Food
Genelia (JM)	Bridal Jewelry	Pen
Hema (ME)	Children's Insurance	Fairness Cream
Madhuri (MC)	Anti Age Cream	Detergent Powder

The third step of the stimuli development was performed by the researcher. Eight treatments were operationalized through eight separate print advertisements. The ads prepared were smilar to those in phase 1 with the difference being only in the number of ads.

Sample and Experimentation: Female respondents in the age group 25-45 were recruited for the experimental study. This was done to ensure that the respondents belong to the prospective target audience since the products were all female oriented products. Unlike most studies which use student samples, the present study had the respondents from the working population who had the purchasing power and need to buy the product mentioned in the stimuli (such as anti age cream). This method is followed rarely in literature except some cases such as Chao et al. (2005) but ensures more external validity (Bagozzi and Yi, 1989). List of respondents was obtained from list of members of a reputed club in a central Indian metro city. The respondents represented different geographic regions of India (East, West, South, and North). Around 150 respondents were called and asked to participate in the experiment voluntarily to which 136 agreed. The selected respondents for the main study were randomly assigned to the eight different treatment groups for the experiment. The respondents were asked to assemble at a convenient location in the city and once assembled at a specified time, respondents were assigned the treatment room and asked to wait. A trained assistant of the researcher distributed the experiment booklet and asked the respondents to go through the brief given in the first page of the questionnaire along with him/her. The brief led subjects to believe that a national celebrity management group is seeking their feedback on a potential print advertisement featuring a celebrity endorser. The ad followed the brief which the respondents were asked to observe for a minute.

Following this, the respondents were asked to answer a series of questions on the remaining pages of the questionnaire. Questions included measures for the three dependent variables (AD, AB, PI) followed by the manipulation checks (to check for perceived role congruence), the source credibility scale questions and some demographic questions. Finally, respondents were thanked for their participation, debriefed and the session was closed. The same procedure was repeated for phase two of the study with the only difference being in sample size. The sample size for the second phase was 275.

Results

Psychometric analysis of dependent variables indicated reliable and valid scales, with observed coefficient alphas ranging from 0.72 to 0.93 in both phases of study. Exploratory factor analysis indicated that for each dependent variable items corresponding to a single variable (say the three items of AD) converged on one-factor solutions with Eigen values ranging from 2.16 to 2.33. In addition, the lowest average variance extracted for study constructs was 72%, which was above the 50% benchmark suggested by Fornell and Larcker (1981). For phase 2, perceived congruence was measured on a five point Likert scale with 1 being Celebrity Role is incongruent with the product and 5 being Celebrity Role is congruent with the product. Manipulation check results suggested proper interpretation of role congruence/incongruence since on an average more than 90% of the respondents correctly identified the treatments. To test hypothesis 3, the covariates were added to the MANOVA model in phase 2 and the analysis was repeated which is discussed in phase 3 of the results.

Phase 1: In the first phase on the analysis, the design was 4 (Celebrity: UM/JM/ME/MC) X 1 (Product: Shampoo) and three separate ANOVA tests were run for the Dependent Variables (DV) AD, AB and PI. The results suggested that the Just Married celebrity had the highest mean ratings on dependent variables AD (ì = 3.747, s.d. = 1.054) and AB (ì = 3.225, s.d. = 1.082) and the second highest in PI (ì = 3.484, s.d. = 1.064) followed by the Unmarried celebrity: AD (ì = 3.629, s.d. = .861); AB (ì = 2.957, s.d. = 0.965) and PI (ì = 3.663, s.d. = 1.029). Both the ME and MC celebrities had lower mean ratings on the dependent variables than the JM and UM celebrities. The means for ME were: AD (ì = 2.323, s.d. = .584); AB (ì =2.0343, s.d. = .867) and PI (ì = 2.200, s.d. = 1.06826). The same means for MC were: AD (ì = 2.529, s.d. = 1.099); AB (ì = 1.735, s.d. = .796) and PI (ì = 2.259, s.d. = 1.041). ANOVA tests suggested a significant F statistic for all the dependent variables AD ($F_{3,132}$ = 21.748, p = 0.000); AB ($F_{3,132}$ = 17.551, p = 0.000) and PI ($F_{3,132}$ = 15.005, p = 0.000). The post hoc tests suggested that there was significant difference in attitudes for the JM and UM celebrity on one hand and ME and MC on the other. However, there was no significant difference between the JM and the UM celebrity as well as the ME and MC celebrity at 5% level of significance for any of the dependent variables (Refer Table 2). Thus Hypothesis 1 was supported.

Table 2. Phase 1: Post Hoc Tests (Bonferroni)

Dependent Variable	(I) Celebrity	(J) Celebrity	Mean Difference (I-J)	Std. Error	Sig.
AD	UM	JM	-.11830	.22445	1.000
		ME	1.30514(*)	.21937	.000
		MC	1.09916(*)	.22098	.000
	JM	ME	1.42345(*)	.22445	.000
		MC	1.21746(*)	.22602	.000
	ME	MC	-.20598	.22098	1.000
AB	UM	JM	-.26786	.24198	1.000
		MBE	.92286(*)	.23650	.001
		MCB	1.22185(*)	.23823	.000
	JM	MBE	1.19071(*)	.24198	.000
		MCB	1.48971(*)	.24367	.000
	MBE	MCB	.29899	.23823	1.000
PI	UM	JM	.17914	.28803	1.000
		MBE	1.46320(*)	.28151	.000
		MCB	1.40438(*)	.28357	.000
	JM	MBE	1.28406(*)	.28803	.000
		MCB	1.22524(*)	.29004	.000
	MBE	MCB	-.05882	.28357	1.000

* The mean difference is significant at the .05 level.

Phase 2: Descriptive analysis was conducted for phase 2 data and it was observed that for the dependent variables AD and AB, Treatment 3 (Just Married celebrity + Role Congruent Product) had the highest group mean, and for PI, Treatment 1 (Unmarried celebrity + Role Congruent Product) had the highest group mean. The lowest group means for all dependent variables were observed for the Married Celebrity making a comeback with role incongruent product (Refer to Table 3).

Table 3: Descriptive Statistics: Phase 2

Celebrity	Product	
	Role Congruent	Role Incongruent
Katrina (UM)	5.7647, 5.3235, 5.5588	2.9286, 2.6667, 2.4762
Genelia (JM)	5.9714, 5.8571, 5.3714	4.1250, 3.9063, 3.1563
Hema (ME)	3.7143, 3.8286, 3.7143	3.1818, 3.4545, 2.4848
Madhuri (MC)	3.0323, 2.9032, 2.7419	1.6875, 1.7813, 1.8125

The group means in each cell represent AD, AB and PI respectively

Table 4. Phase 2: Between Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Celebrity	AD	265.318	3	88.439	62.688	.000	.414
	AB	215.759	3	71.920	49.935	.000	.360
	PI	163.465	3	54.488	40.100	.000	.311
Congruence	AD	182.779	1	182.779	129.558	.000	.328
	AB	158.249	1	158.249	109.875	.000	.292
	PI	236.177	1	236.177	173.812	.000	.395
Celebrity X Congruence	AD	49.713	3	16.571	11.746	.000	.117
	AB	52.071	3	17.357	12.051	.000	.120
	PI	50.400	3	16.800	12.364	.000	.122

In phase 2 the full factorial design, i.e. 4 (Celebrity: UM/JM/ME/MC) X 2 (Product: Role Congruent/Role Incongruent) was analyzed using MANOVA. The dependent variables remained the same as in phase 1. The multivariate tests suggested a significant effect of the Celebrity Marital Status (Wilk's Lambda = 0.388, F = 33.985, p = 0.000), the Role Congruence (Wilk's Lambda = 0.432, F = 115.828, p = 0.000) and the interaction term (Wilk's Lambda = 0.729, F = 9.892, p = 0.000). The between subjects effects supported the same findings. The Celebrity Marital Status was found to have a significant effect of AD ($F_{3,266}$ = 62.688, p = 0.000), AB ($F_{3,266}$ = 49.935, p = 0.000) and PI ($F_{3,266}$ = 40.100, p = 0.000). The Celebrity Product Role Congruence also was found to have a significant impact on AD ($F_{1,266}$ = 129.558, p = 0.000), AB ($F_{1,266}$ = 109.875, p = 0.000) and PI ($F_{1,266}$ = 173.812, p = 0.000). Moreover, the Celebrity Marital Status X Celebrity Product Role Congruence interaction term also had a significant effect on all three DV, i.e. AD ($F_{3,266}$ = 11.746, p = 0.000), AB ($F_{3,266}$ = 12.051, p = 0.000) and PI ($F_{3,266}$ =,12.364, p = 0.000) (Refer Table 4 for detailed results). The post hoc (Bonferroni) test and univariate tests suggested that there was a significant difference in means for all DV's with Celebrity Marital Status as the Independent variable as: AD ($F_{3,266}$= 62.688, p = 0.000); AB ($F_{3,266}$= 49.935, p = 0.000) and PI ($F_{3,266}$= 40.005, p = 0.000). Similar findings were observed when univariate tests were conducted for Celebrity Role Congruence as the independent variable: AD ($F_{1,266}$= 129.558, p = 0.000); AB ($F_{1,266}$= 109.875, p = 0.000) and PI ($F_{1,266}$= 173.812, p = 0.000). In this case the post hoc Bonferroni tests suggested a statistically significant difference at 5% level between the all the DV's for the congruent and the incongruent conditions. Thus results in this phase supported both Hypothesis 1 and 2.

Phase 3: EFA of the Source Credibility Scale items resulted in a three factor solution with a KMO value of 0.906 and a significant Bartlett's test. Reasonable levels of communality (the minimum communality for an item was 0.477 and the maximum was 0.818) were obtained for each item and the factor solution explained 68.508 % of the variance. The rotated component matrix had no high cross loadings and the items under each factor were the same as obtained by Ohanian (1990), i.e. Trustworthiness, Expertise and Attractiveness. Summated score method was used to calculate scores for the three factors. The scores obtained for the three factors respectively were used in the next phase of analysis. (Table 5)

Table 5. Phase 3: Between Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Celebrity Marital Status	AD	245.588	3	81.863	58.385	0.000
	AB	178.675	3	59.558	41.481	0.000
	PI	133.602	3	44.534	33.008	0.000
Role Congruence	AD	182.264	1	182.264	129.992	0.000
	AB	145.388	1	145.388	101.261	0.000
	PI	214.602	1	214.602	159.063	0.000
Celebrity Marital Status X Role Congruence	AD	52.814	3	17.605	12.556	0.000
	AB	48.572	3	16.191	11.277	0.000
	PI	45.865	3	15.288	11.332	0.000
Attractiveness	AD	.040	1	.040	.028	0.866
	AB	1.572	1	1.572	1.095	0.296
	PI	.369	1	.369	.274	0.601
Trustworthiness	AD	3.152	1	3.152	2.248	0.135
	AB	3.235	1	3.235	2.253	0.135
	PI	3.412	1	3.412	2.529	0.113
Expertise	AD	5.798	1	5.798	4.141	0.042
	AB	7.836	1	7.836	5.457	0.020
	PI	6.098	1	6.098	4.520	0.034

The multivariate tests in Phase 3 suggested significant main effects of the Celebrity Marital Status (Wilk's Lambda = 0.415, F = 30.764, p = 0.000), the Role Congruence (Wilk's Lambda = 0.440, F =110.933, p = 0.000) and the interaction term (Wilk's Lambda = 0.728, F = 9.839, p = 0.000) quite similar to phase 1. Only covariate Expertise was found to be significantly affecting the DVs (Wilk's Lambda = 0.673, F = 4.933, p = 0.043), but not Attractiveness (Wilk's Lambda = 0.995, F = 0.434, p = 0.729) or Trustworthiness (Wilk's Lambda = 0.983, F = 1.528, p = 0.208). The between subjects effects supported the same findings. The Celebrity Marital Status, the Celebrity Product Role Congruence and the interaction term had a significant effect on all three DVs like phase 2 (Refer Table 5 for detailed results). Covariate expertise had a significant effect of all the DV's namely AD ($F_{1,263}$ = 5.798, p = 0.042); AB ($F_{1,263}$ = 5.457, p = 0.020) and PI ($F_{1,263}$ = 4.520, p = 0.034). Both attractiveness and trustworthiness were not found to have any significant effect on any DV (Refer to Table 5). Thus hypothesis 3 was partially supported. Descriptive statistics revealed that the mean credibility of the just married celebrity was the highest on all dimensions whereas that of the comeback celebrity was the lowest. However the difference in mean credibility was statistically significant only for the expertise dimension across the celebrities.

Discussion

The present study has three major contributions in celebrity endorsement literature. First, the study has shown evidence in support of the fact that effectiveness of female celebrities who have been married diminishes over time. Secondly, the study has brought in a new dimension of congruence, namely Role Congruence and has found that role congruence positively influences consumer attitudes towards the endorsed product. Thirdly, the study has contradicted the age old source credibility theory by challenging its basic tenets. The first finding, i.e. the effectiveness of a female married celebrity is less than an unmarried one is a very novel finding in celebrity endorsement literature. In countries like India, a recent trend is to use female celebrities who have made a comeback in movies. The study findings suggest that having such celebrities as endorsers may not be a good idea for marketers. Very few studies have investigated this phenomenon (Muda et al., 2011) and the present study supports the fact that the appeal of a married celebrity decreases over time. The finding of the recently married celebrity creating very favorable consumer attitudes could be attributed to the fact of media coverage. Whenever a celebrity marriage takes place, the media is overexcited and hypes the marriage. For the selected 'just married' celebrity the same was true. In fact the celebrity actress got married to another celebrity actor and thus the marriage was news for quite some time. Moreover, the married celebrity who was endorsing products since the last few years (and did not go out of sight) was able to generate more favorable attitudes than the comeback celebrity in the role incongruent condition (Table 3). This phenomenon could be explained by the source credibility theory (Ohanian, 1991). The source credibility theory suggests that a credible celebrity would create more favorable impact on the consumers than a less credible one. In this case, the comeback celebrity had low credibility (as per findings from phase 3) since she was not in exposure whereas the married celebrity being always into ads, got a boost in credibility.

The second major finding of the study advances the congruence hypothesis (Misra and Beatty, 1990; Kamins and Gupta, 1994; Mittelstaedt et al., 2000; Farhat and Khan, 2011; etc) in a novel way. The present study suggests that when a celebrity (in this case female celebrity) is perceived to have changing roles over time, the endorsements by her should reflect her in the same role in which she is perceived. Thus the same role portrayal by the same celebrity at two different time points in the lifetime of the celebrity may not be effective. The marketer should be careful in pre-empting the perceived role of the celebrity and then utilize it in the endorsement. In a country like India where stereotypes of female roles are still prevalent, the study suggests the transference of the same in celebrity endorsements and supports the role congruence theory (Heckler and Childers, 1992).

The third major finding of the study is that all source credibility dimensions may not have a moderating role on the consumer attitudes. The finding that only covariate expertise was significant implies that when an endorsement takes place, the audience judge whether the celebrity has expertise to make the advertisement claims. This phenomenon could be coupled with the concept of role congruence to explain why it is happening. When role congruence is high, for example a celebrity mother portrays the role of a loving mother in an advertisement; the audience perceives the expertise by virtue of role congruence. A point to be noted here is that some of the early studies have investigated congruence through expertise (Wang, 2005; Biswas et al. 2006). However, both attractiveness and trustworthiness were not found to have any significant impact of the consumer attitudes. There could be various reasons behind this. First, earlier studies that have investigated the effectiveness of attractiveness of a celebrity endorser (Kamins, 1990; Ohanian 1990; Bower and Landreth, 2001; Le Ferle and Choi, 2005) have compared between attractive and unattractive celebrities/models. In case of female celebrity endorsers, whether or not they are endorsing they might be considered attractive. This fact is justified since there was no significant difference between the mean attractiveness across the four celebrities. Lastly, the finding that trustworthiness did not have a significant impact may be addressed from many angles. In this information age, news of the payments that celebrities receive is easily available. Thus the audience may already form correspondence inferences because of which they do not trust the celebrities (Silvera and Austad, 2004). Similar findings of trustworthiness not having a significant effect on consumer attitudes have been reported in literature (Ohanian, 1990; Roy et al., 2012). Thus the study findings imply that we have to start looking beyond the notion of source credibility.

Limitations and Scope

The present study has contributed to the literature on celebrity endorsements in a novel way. The study findings have implications for the practitioner and the academicians. However, the study has its own limitations and those may lead to scope for future studies. Firstly, the study was conducted in a cultural setup which is unique in its own way. A worthwhile investigation would be a cross cultural study investigating the same phenomenon across two or three culturally different nations and checking whether the results are different and if they are, then how. The present study involved only female consumers as respondents. However, there are instances of female celebrities endorsing consumer durables such as water purifiers. An interesting extension of the study would be to investigate the effectiveness of the celebrities on male consumers and to observe whether similar results are obtained. The findings from the study indicate that the credibility of the celebrity may not have a moderating impact on the consumer attitudes. Thus it would stimulate researchers to think of newer ways to measure credibility or to look beyond it. Nevertheless, the present study has made a meaningful contribution in a less researched area in celebrity endorsements and has provided some directions for academia and practitioners for future action.

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The Determinants of Capital Structure of Pharmaceutical Players in Gujarat

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Abstract

Capital structure of an organisation is a mixture of long-term and short-term debts, common equity and preferred equity. Capital structure decision is not only the product of the firm's own characteristics, but also the result of the corporate governance, legal framework and institutional environment of the countries in which the firm operates. The purpose of the present study is to analyse the financial data of 4 leading players of Gujarat Pharmaceutical leaders based at Ahmedabad and Baroda for the financial period 2002-03 to 2009-10 with a view to examining impact of determinants such as size, profitability and tangibility on Total Debt-Total Assets as well as Long Term Debt – Total Debt. The study finds that the change in size, tangibility and profitability leads to increase in TD/TA in the companies based at Ahmedabad, while decrease therein of the companies of Baroda. It reveals that change in size leads to decrease in LTD/TD of the companies based at Ahmedabad, while increase therein the companies based at Baroda, change in tangibility results into decrease in LTD/TD of Alembic, while increase in the rest of the players and the change in profitability leads to decrease in LTD/TD in all the pharmaceutical players in Gujarat.

Keywords: Capital structure decision, profitability, size, tangibility

Introduction

Capital structure of an organisation is a mixture of long-term and short-term debts, common equity and preferred equity. It reflects its financial framework. Financing of an overall operations and growth of an organisation are determined by an optimum capital structure and use of different sources of debt and equity. In terms of finance, capital structure shows financing of assets of an organisation through combination of equity and debt or hybrid securities (Saad 2010). Modigliani and Miller Theorem states that capital structure of an organisation is not related to its value in perfect market (Millar & Modigilani 1961). Contemporary theories of capital structure have travelled a long way since the publication of the pioneering article by Modigliani and Miller in 1958. Capital structure decision is not only the product of the firm's own characteristics, but also the result of the corporate governance, legal framework and institutional environment of the countries in which the firm operates (Deesomask et al. 2004). Capital structure is closely linked with corporate performance. Corporate performance can be measured by variables like productivity and profitability (Barbosa & Louri, 2005) which are based on financial framework of an organisation. Although there has been a great deal of research on the subject of capital structure, this study makes a contribution to the literature in this area because it is an attempt to unfold the capital structure practices of selected pharmaceutical companies operating in a unique environment in Gujarat. The purpose of this study is to analyse the financial data of 4 leading players of Gujarat Pharmaceutical leaders based at Ahmedabad and Baroda for the financial period 2002-03 to 2009-10 with a view to examining impact of determinants such as size, profitability and tangibility on Total Debt-Total Assets as well as Long Term Debt – Total Debt. The study proceeds as follows: section two provides overview about the relevant literature review. A study methodology follows in section three. Section four describes the result and analysis of the available data and final section presents the main conclusions.

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Literature Review

It is possible for highly levered firms to react operationally to short-term distress as compared to less levered. They are capable to take actions such as restructuring assets and laying off employees when performance deteriorates. They also react quickly by cutting down dividend, restructuring debt and bankruptcy (Ofek, 1993). Larger firms tend to disclose more information to outside investors than smaller ones. Overall, larger firms with less asymmetric information problems should tend to have more equity than debt and thus have lower leverage. However, larger firms are often more diversified and have more stable cash flow; the probability of bankruptcy for large firms is smaller compared with smaller ones (Rajan & Zingales, 1995). Capital structure differs by the cultural classification of retailers' influences capital structure. Furthermore, result also shows that retailer performance is not depending on the cultural influence. Where else, capital structure influences performance (Gleason et al., 2000). As far as relationship between ownership and performance is concerned, only managerial ownership reveals significant relationship with performance (Panchali, 2000). Since emerging market economy like India have poorly functioning institutions, this may lead to sever agency and information problems. These problems make it costly for firms operating in India to acquire necessary inputs such as finance, technology, and managerial skills (Khanna & Palepu, 2000). A model that accounts for the possibility of restructuring costs in attaining an optimal capital structure and address the measurement problem that arises due to the unobservable nature of attributes influencing the optimal capital structure has been developed (Bhaduri, 2002). There has been negative relationship of market to book value ratio with low levels of insider ownership, but positive relationship with insider ownership above 25% (Sarkar & Sarkar, 2004). There is significant positive interrelation between short-term debt and Return on Earning and hence Ghanaian firms which earn a lot use more short-term debt to finance their business representing 85 percent of total debt financing. However, the results showed an adverse relationship between Long-Term Debt and Return on Earning. There is positive relationship between Total Debt and Return on Earning indicating firms which earn a lot are depending on debt as their key financing option (Abor, 2005). Increase in size of the board increases the cost associated with coordination and communication and corporate performance (Raheja, 2005). Sensitivity of performance to capital structure on selected food and beverage company in Nigeria revealed that performance indicators to turnover (Earnings Before Interest and Taxes, Earning Per Share and Dividend Per Share) and the measures of leverage (Degree of Operating Leverage, Degree of Financial Leverage and Dividend Per Share) are significantly sensitive (Akintoye, 2008). By measuring the profit efficiency of manager, it is revealed that shareholder losses from agency costs are relatively close to the losses of potential accounting profits. The result shows that neither higher leverage nor lower equity capital ratio are connected with higher profit efficiency for all range of data (Berger & Bonaccorsi, 2008). Based on Tobin's q ratio, the result of examining the linkage between family ownership, firm performance and capital structure divulges that self-supporting family owned firms with a single share class have similar market performance compared to other firms, superior accounting performance based on Return on Assets, and higher financial leverage based on Debt-to-Total Assets (King & Santor, 2008). Capital Structure has weak-to-no influence on the financial performance of listed firms in Egypt (Ebaid, 2009).

Methodology

The primary objectives of this study are as under:

1. To study capital structure of pharmaceutical players in Gujarat (i.e. Ahmedabad and Baroda)
2. To study whether the explanatory power of capital structure determinants is applicable to and their impact on selected players.
3. To compare TD/TA and LTD/TD of the selected players.

The study includes 4 (2 based at Ahmedabad and 2 based at Baroda) major pharmaceutical players in Gujarat selected on the basis of performance, position, sales and paid up capital. The number of selected entities should not be considered as a limitation of the study because the sample accounts for the major contribution in the pie of Gujarat as well as Indian Pharmaceutical industry. Though numbers of factors determine capital structure of the business, the following dependent and explanatory variables which influenced capital structure decision of Gujarat pharmaceutical industry during the period of the study i.e. 2002-03 to 2009-10 have been selected:

Dependent Variables

1. Total Debts/ Total Assets Ratio
2. Long-Term Debts/Total Debts

Independent Variables

1. Size
2. Profitability
3. Tangibility

Specification of Model

Above mentioned explanatory variables have been taken together as factors determining capital structure decision and the model has been developed in order to analyse whether the Capital structure decision (Total Debts - Total assets Ratio and Long-Term Debts – Total Debts Ratio) of Gujarat pharmaceutical industry have been influenced by explanatory variables or not. The model has been based on Multiple Linear Regression consisting of various variables as shown below:

$$y = b_0 + b_1 x_1 + b_2 x_2 + \ldots + b_k x_k$$

Where,	y	-	The Dependent Variables,
		-	Independent Variables
	$b_0, b_1, b_2, \ldots, b_k$	-	The Regression Coefficients
	TDTA	=	$(b_o + b_1 Size + b_2 P + b_3 T)$ and
	LTDTD	=	$(b_o + b_1 Size + b_2 P + b_3 T)$
Where,	TDTA	-	Total Debts/Total Assets Ratio
	LTDTD	-	Long-Term Debt/Total Debts Ratio
	Size	-	Log of Total Assets
	P	-	Profitability (Return on Investment)
	T	-	Tangibility (Fixed Assets/Total Assets Ratio)

To test the significance of explanatory variables (size, profitability and tangibility) in determining dependent variables (Total Debts/Total Assets ratio and Long Term Debt/Total Debts Ratio), the following hypothesis has been framed and tested:

Hypothesis

H_0**:** Explanatory Variables are statistically insignificant in explaining Capital Structure Decision of the companies under the study.

H_1: Explanatory Variables are statistically significant in explaining Capital Structure Decision of the companies under the study.

Results and Analysis

Table 1: Correlation Matrix of the Dependent and Explanatory Variables

	TD/TA	LTD/TD	Size	P	T
Alembic					
TD/TA	1				
LTD/TD	0.701915	1			
Size	-0.07925	0.384434	1		
P	-0.37388	-0.42472	-0.40943	1	
T	-0.37229	-0.60243	-0.4502	-0.00295	1
Cadila					
	TD/TA	LTD/TD	Size	P	T
TD/TA	1				
LTD/TD	-0.42671	1			
Size	0.074824	-0.12109	1		
P	0.785298	-0.51796	0.512042	1	
T	0.693876	-0.25719	-0.57746	0.324133	1
Sun					
	TD/TA	LTD/TD	Size	P	T
TD/TA	1				
LTD/TD	0.973862	1			
Size	0.331917	0.302549	1		
P	-0.81338	-0.7817	-0.76475	1	
T	-0.42121	-0.36598	-0.98261	0.805557	1
Torrent					
	TD/TA	LTD/TD	Size	P	T
TD/TA	1				
LTD/TD	0.963562	1			
Size	0.840153	0.87235	1		
P	-0.88312	-0.88449	-0.61097	1	
T	-0.80606	-0.80549	-0.82892	0.721032	1

Table 1 presents correlation matrix of the dependent and explanatory variables. Form these results, it can be seen that size is positively related to TD/TA in all the players except Alembic. As far as profitability and tangibility are concerned, they are negatively related to TD/TA in all the players except Cadila. It can be observed that size is positively related to LTD/TD in all the players except Cadila, while profitability and tangibility are negatively related to LTD/TD in all the players. It can also be observed that the independent variables for Sun and Torrent have high correlations indicating multi-collinearity problem.

Table 2 Determinants of Capital Structure of pharmaceutical Players in Gujarat during 2002-03 to 2009-10 (Dependent Variable – TD/TA)

Alembic				
Particulars	Coefficient	Std. Error	T	P
Constant	2.47217	0.946665	2.611452	0.059329
Size	-0.39934	0.269326	-1.48274	0.212285
P	-0.01745	0.010525	-1.65844	0.172568
T	-0.66717	0.395901	-1.68519	0.167233
R^2 = 0.534863, TD/TA = 2.47217 – (0.39934*SIZE) - (0.01745*P) – (0.66717*T)				
Group	DF	SS	MS	F
Regression	3	0.028477	0.009492	1.533205
Residual	4	0.024764	0.006191	
Total	7	0.053241		
Cadila				
Particulars	Coefficient	Std. Error	T	P
Constant	-0.35403	0.85838	-0.41244	0.701163
Size	0.167484	0.304235	0.550509	0.611268
P	0.010896	0.014036	0.77633	0.480902
T	0.44608	0.306897	1.453515	0.219748
R^2 = 0.844174, TD/TA = -0.35403 + (0.167484*SIZE) + (0.010896*P) + (0.44608*T)				
Group	DF	SS	MS	F
Regression	3	0.035565	0.011855	7.223196
Residual	4	0.006565	0.001641	
Total	7	0.042129		
Sun				
Particulars	Coefficient	Std. Error	T	P
Constant	4.03945	2.128364	1.897913	0.130553
Size	-0.76949	0.519528	-1.48113	0.21269
P	-0.02773	0.006665	-4.16085	0.014135
T	-1.60557	2.061243	-0.77893	0.479529
R^2 = 0.882194, TD/TA = 4.03945 - (0.76949*SIZE) - (0.02773*P) - (1.60557*T)				
Group	DF	SS	MS	F
Regression	3	0.2629	0.087633	9.984694
Residual	4	0.035107	0.008777	
Total	7	0.298007		
Torrent				
Particulars	Coefficient	Std. Error	T	P
Constant	0.024229	0.535493	0.045246	0.96608
Size	0.297857	0.139082	2.141597	0.09891
P	-0.01547	0.004971	-3.11277	0.035776
T	0.094485	0.372119	0.25391	0.812083
R^2 = 0.925278, TD/TA = 0.024229 + (0.297857*SIZE) - (0.01547*P) + (0.094485*T)				
Group	DF	SS	MS	F
Regression	3	0.139553	0.046518	16.51062
Residual	4	0.01127	0.002817	
Total	7	0.150823		

From multiple linear regression model, it is clear that the model has a coefficients of determination of 53.4863%, 84.4174%, 88.2194% and 92.5278% in Alembic, Cadila, Sun and Torrent respectively which explain 53.4863%, 84.4174%, 88.2194% and 92.5278% of variation in TD/TA of players in Gujarat pharmaceutical industry during the study period as shown in Table 2. It can be observed that R^2 value for Alembic is 53%, and the regression fit is weak as 47% variation remains unexplained hence the values of constant and regression coefficients are not statistically significant. For other companies, the value of regression co-efficient for Profitability in the case of Sun and Torrent is statistically significant. All other values are statistically not significant based on P value. The model also states that the dependent variable i.e. TD/TA can be predicted from a linear combination of determinants of capital structure i.e. Size, P and T. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to decrease of 0.39934 percent, 0.01745 percent, and 0.66717 percent respectively in the TD/TA of Alembic. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to increase of 0.167484 percent, 0.010896 percent, and 0.44608 percent respectively in the TD/TA of Cadila. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to decrease of 0.76949 percent, 0.02773 percent, and 1.60557 percent respectively in the TD/TA of Sun. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to increase of 0.297857 percent, decrease of 0.01547 percent, and increase of 0.094485 percent respectively in the TD/TA of Torrent. The critical value with three degrees of freedom in numerator and four degrees of freedom in denominator at five percent significant level is 6.591382. The calculated Values of 'F' for Alembic, Cadila, Sun and Torrent are 1.533205, 7.223196, 9.984694 and 16.51062 respectively. Tabulated value of 'F' is more in Alembic and less in the rest of the players. Hence, the model fitted is best described the behaviour of dependent variable against suitable alternatives. The relationship between TD/TA and explanatory variables is insignificant in Alembic, while significant in the rest of the players under the study. Hence, null hypothesis is accepted and alternate hypothesis is rejected as far as Alembic is concerned, while null hypothesis is rejected and alternate hypothesis is accepted as far as the rest of the players are concerned.

Table 3 Determinants of Capital Structure of Pharmaceutical Players in Gujarat during 2002-03 to 2009-10 (Dependent Variable – LTD/TD)

Alembic				
Particulars	Coefficient	Std. Error	T	P
Constant	1.065115	0.516856	2.060757	0.108359
Size	-0.0343	0.147046	-0.23326	0.827013
P	-0.00711	0.005746	-1.23752	0.283575
T	-0.36338	0.216152	-1.68114	0.16803
R^2 = 0.550934 and LTD/TD = 1.065115 – (0.0343*SIZE) - (0.00711*P) – (0.36338*T)				
Group	D F	SS	MS	F
Regression	3	0.009057	0.003019	1.63579
Residual	4	0.007382	0.001845	
Total	7	0.016439		
Cadila				
Particulars	Coefficient	Std. Error	T	P
Constant	0.157801	1.504504	0.104886	0.921515
Size	0.26045	0.533239	0.48843	0.650812
P	-0.0225	0.0246	-0.91469	0.412107
T	0.190729	0.537906	0.354577	0.74081
R^2 = 0.317881 and LTD/TD = 0.157801 + (0.26045*SIZE) - (0.0225*P) + (0.190729*T)				

Group	DF	SS	MS	F
Regression	3	0.009398	0.003133	0.621359
Residual	4	0.020168	0.005042	
Total	7	0.029566		
Sun				
Particulars	**Coefficient**	**Std. Error**	**T**	**P**
Constant	3.961532	4.997885	0.792642	0.472347
Size	-0.63796	1.219971	-0.52293	0.628649
P	-0.05703	0.015652	-3.64388	0.021889
T	0.418831	4.840271	0.086531	0.935203
R^2 = 0.821374 and LTD/TD = 3.961532 - (0.63796*SIZE) - (0.05703*P) + (0.418831*T)				
Group	**DF**	**SS**	**MS**	**F**
Regression	3	0.890168	0.296723	6.131056
Residual	4	0.193587	0.048397	
Total	7	1.083754		
Torrent				
Particulars	**Coefficient**	**Std. Error**	**T**	**P**
Constant	-0.98782	0.703409	-1.40434	0.232903
Size	0.677714	0.182694	3.709565	0.020662
P	-0.02939	0.006529	-4.50166	0.010809
T	0.400862	0.488805	0.820086	0.458223
R^2 = 0.964177 and LTD/TD = -0.98782 + (0.677714*SIZE) - (0.02939*P) + (0.400862*T)				
Group	**DF**	**SS**	**MS**	**F**
Regression	3	0.523373	0.174458	35.88625
Residual	4	0.019446	0.004861	
Total	7	0.542818		

From multiple linear regression model, it is clear that the model has a coefficients of determination of 55.0934%, 31.7881%, 82.1374% and 96.4177% in Alembic, Cadila, Sun and Torrent respectively which explain 55.0934%, 31.7881%, 82.1374% and 96.4177% of variation in LTD/TD of players in Gujarat pharmaceutical industry during the study period as shown in Table 3. It can be observed that R^2 values for Alembic and Cadila are 55% and 31% respectively, and the regression fit is weak as 45% and 69% variation remains unexplained for them hence the values of constant and regression coefficients are not statistically significant. For other companies, the value of regression co-efficient for Profitability in the case of Sun and Torrent is statistically significant. All other values are statistically not significant based on P value. The model also states that the dependent variable i.e. LTD/TD can be predicted from a linear combination of determinants of capital structure i.e. Size, P and T. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to decrease of 0.0343 percent, 0.00711 percent, and 0.36338 percent respectively in the LTD/TD of Alembic. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to increase of 0.26045 percent, decrease of 0.0225 percent, and increase of 0.190729 percent respectively in the LTD/TD of Cadila. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to decrease of 0.63796 percent, 0.05703 percent, and increase of 0.418831 percent respectively in the LTD/TD of Sun. Coefficients of determinants of capital structure propose that each 1 percent change in Size, P and T leads to increase of 0.677714 percent, decrease of 0.02939 percent, and increase of 0.400862 percent respectively in the LTD/TD of Torrent. The critical value with three degrees of freedom in numerator and four degrees of freedom in denominator at five percent significant level is 6.591382. The calculated Values of 'F' for Alembic, Cadila, Sun and Torrent are 1.63579, 0.621359, 6.131056 and 35.88625 respectively.

Tabulated value of ‘F’ is more in Alembic, Cadila and Sun, while less in Torrent. Hence, the model fitted is best described the behaviour of dependent variable against suitable alternatives. The relationship between LTD/TD and explanatory variables is insignificant in Alembic, Cadila and Sun, while significant in Torrent. Hence, null hypothesis is rejected and alternate hypothesis is accepted as far as Torrent is concerned, while null hypothesis is accepted and alternate hypothesis is rejected in case of the rest of the players.

Conclusion

The study found that there is a significant positive relationship between TD/TA and size, tangibility and profitability of Cadila and Torrent, while negative relationship in case of Alembic and Sun. It means that the change in size, tangibility and profitability leads to increase in TD/TA in the companies based at Ahmedabad, while decrease therein of the companies of Baroda.

It is found that there is a significant negative relationship between LTD/TD and size of Alembic and Sun, while positive relationship in case of Cadila and Torrent. It reveals that change in size leads to decrease in LTD/TD of Alembic and Sun, while increase therein Cadila and Torrent. The study also revealed that there is a significant negative relationship between LTD/TD and tangibility, while positive relationship in the rest of the players. It means that change in tangibility results into decrease in LTD/TD of Alembic, while increase in the rest of the players. There is a significant negative relationship between LTD/TD and profitability of the selected players. It means that the change in profitability leads to decrease in LTD/TD in the pharma players in Gujarat.

As the average TD/TA (65% in Ahmendabad and 45% in Baroda) and LTD/TD (65% in Ahmedabad and 40% in Baroda) of pharmaceutical players in Ahmedabad are found to be higher as compared to that of players in Baroda, it is summarized that pharmaceutical players in Ahmedabad are depending on Borrowed Funds for financing their investments as compared to the players of Baroda. Conversely, it can also be said that assets sold at 65% in Ahmedabad and 45% in Baroda of their book value would meet and extinguish the company’s liability commitments. The results of the study show that Gujarat pharmaceutical industry is highly leveraged because it is able to reduce the risk of insolvency and its greater degree of diversification. Moreover, greater degree of diversification enables Pharmaceutical players in Ahmedabad to obtain debt more easily as compared to the players in Baroda.

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Economic Impact of Self-Help Group Bank Linkage Programme (SBLP) in Andhra Pradesh - An Empirical Study

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Abstract

Self Help Group – Bank Linkage Programme (SBLP) is the largest Microfinance programme in the world. Since the launch of the Pilot Project in 1992 by NABARD and MYRADA, more than 103 million poor households have been covered under this programme by linking 8 lakh SHGs with banks under the provision of MF Services. Andhra Pradesh has been in the forefront of the programme and is maintaining its lead status till date, further its share peaked during 2003-04 at 64.95 per cent and of late its hovering above the half way mark. The SBLP in Andhra Pradesh is making its presence felt through wide participation from women. The government of Andhra Pradesh has created a nodal agency Society for Elimination of Rural Poor (SERP) to monitor and guide the SHGs. This programme has caught the imagination of the poor and illiterate people living across the state. The programme has enabled the banks both nationalized and private banks to penetrate deeper into the villages. The SBLP has proved to be a better poverty alleviation scheme than that were launched earlier. The economic impact on the beneficiaries is widely manifested through reduced incidence of poverty, coming out of the clutches of money lenders. Marked improvement in income to the beneficiaries is also observed.

Key Words: SBLP, NABARD, SERP, SHG

Introduction

Self Help Group Bank Linkage Programme (SBLP) in India is the largest Microfinance Programme in the world. Two decades have elapsed since the Pilot project by NABARD and MYRADA in 1992 by linking 500 SHGs. In the first decade, the progress has been impressive covering 0.5 million households. In the second decade, the programme made rapid strides by covering over 8 million households. The state of Andhra Pradesh has always been a active participant in the Programme and has been maintaining its dominant status in implementation of the programme. SBLP was launched with an aim of empowerment and upliftment of the poor and was not gender centric. As the results were not on the expected lines, Andhra Pradesh government innovated and made the programme women centric and with good results. With the success of the women centric programme in Andhra Pradesh, other states are emulating the Andhra Pradesh women centric Model. More than ten million poor women households (SERP 2010) are covered under the programme in Andhra Pradesh.

SBLP has been recognized as decentralized, cost effective and fastest growing MF initiative in the world enabling over 103 million poor households access to a variety of sustainable financial services from the banking system. More than 8 million SHGs have become the banks customers. The bank linkage has enabled the SHG members to pool their savings or thrift and access to credit. This financial discipline and access provided the poor a platform to launch livelihood initiatives and also facilitate empowerment process.

Through SBLP, the poor are given microcredit at lower rates of interest initially. For these people to be eligible for micro credit, they have to form groups of homogenous nature. Prior to applying for loan, they have to show a sort of financial discipline in the form of savings. The group should be adequately old enough for it to be judged. The bank initially sanctions an amount equivalent to four times the groups savings corpus which is to equally distributed among the beneficiaries. All the beneficiaries have to repay the loan within a stipulated time.

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Once the first tranche of loan is repaid, a second tranche of bigger loan will be sanctioned and the same cycle continues.

This process of the programme will result in economic, social and behavioural impact at the individual level, household level and community levels. With micro savings and micro credit being the main aspects of SBLP, the economic impact is a more visible feature of the programme.

To judge the economic impact of the SBLP, a family should have utilized a minimum of two or more tranches of loans. As the SBLP in Andhra Pradesh is more than a decade old, majority of the SHGs have taken a minimum of two tranches of loans. The success or failure of the SBLP can be gauged only when one takes the before and after scenario. This paper tries to analyse the economic impact on the beneficiaries and their households in the perspective of before and after joining SBLP.

Review of Literature

Earlier studies on the impact of microfinance confirm that access to financial services generally improved household economic position, asset base and diversified into higher return occupations among SHARE beneficiaries in AP (Todd 2001), increased ownership of livestock and levels of savings or reduced reliance on money lenders among SHG beneficiaries in Jharkhand (Kabeer and Naponen 2004). Lakshmanan [2001] in his study in rural Tamil Nadu observed that the saving of SHGs increased from Rs. 20 in the beginning to Rs. 50 in the latest period. It was concluded that the SHG is really a boon, which gives financial autonomy and make the participants economically independent. Puhazhendi (2002**)** in his study assessed the impact on SHG beneficiaries in three eastern states, i.e., Orissa, Jharkhand and Chattisgarh. The overall findings of the study suggest that the SHG-Bank linkage programme had made a significant contribution to social and economic improvement of SHG beneficiaries. The sample SHG beneficiary households were able to raise their income levels sufficiently to cross the poverty line. Sustainability of SHGs was well established in terms of increased asset value and higher savings rate, better access to institutional loans, higher rate of repayment of loans, elimination of informal sources and impressive social empowerment. Rajasekar [2003] analysed the impact of the economic programmes of SHARE, a NGO in Tamil Nadu on poverty reduction with the help of data collected from the households of 84 women beneficiaries. The economic programmes have contributed to saving and income increase for the women. Manimekhalai (2004) in her study in Tiruchirapally, Tamil Nadu, took five categories of SHG Micro Financing models and analysed their comparative performances both in rural and urban areas. The pre and post SHG empowerment Index levels indicated that in the economic spheres the pre SHG scores were relatively higher than social spheres. SIDBI (2008) in its seven year longitudinal study highlighted the benefits received by the client households from their association with Microfinance in terms of expansion and diversification of livelihood activities, growth in employment opportunities, income growth, asset acquisition, savings, access to loans from various sources, reduction in vulnerability and enhancement of women empowerment. The study has brought out that there is vast unfulfilled demand for Microfinance in India and MFI sector has immense potential and scope to grow, supplement and complement the SBLP programme investment purposes on a sustainable basis. APMAS(2012) in their study of Six States in India found more focus on economic aspects than other social and behavioral factors.

Review of microfinance efforts from various parts of the world suggested that by and large access to microfinance has a positive economic impact, that this impact has been often larger for those closer to the poverty line than those far away as that they increase with duration of membership or intensity of loans as beneficiary begin to invest in assets rather than consumption (Modruch and Haley 2001).

Objectives of the Study

1. To delineate the socio economic profile of the beneficiaries.
2. To analyse the economic impact on the beneficiaries of SBLP in Andhra Pradesh.

Methodology

Andhra Pradesh state is normally identified by the four regions viz: North Coastal, Coastal, Telangana and Rayalaseema. To analyse the economic impact of SBLP, most backward districts in Andhra Pradesh are selected. One backward district from each of the four regions in terms of HDI, HPI, GDI and GEM is selected. On the basis of above factors, Vizianagaram from North Coastal, Guntur from Coastal Andhra, Mahboobnagar from Telangana and Anantapur from Rayalaseema are identified. Four backward mandals each from the above four districts are identified. 64 villages and 16 urban segments were considered for the study. A total of 936 beneficiaries from four districts using proportionate sampling were selected for the study. The beneficiaries with 5 years of membership and those who have taken two or more tranches of Bank loan were interviewed. Since the geographical area covered is large and the population for the study is 10 lakh SHG beneficiaries a Multi stage sampling technique was adopted. Stratified Random sampling technique was adopted for the selection of regions, districts, mandals and villages.

Data Collection: A structured schedule is administered to collect the data. The schedule is divided into 3 sections. 1) Socio Economic profile of SBLP beneficiaries. 2) Savings and borrowing pattern and loan utilization profile of SBLP beneficiaries 3) Economic Impact of SBLP on the beneficiaries with 8 economic attributes.

Statistical Tools used: A Five point Likert's Scale was used to measure economic impact in before and after scenario of SBLP. Paired t- test, ANOVA were used.

Analysis and Discussion

This paper analyses the economic impact of changes in income, savings, assets, dependence on money lenders, business pattern and occupation. Economic attributes like income, savings, poverty, borrowing capacity, assets, business, and living standards are also analysed on individual attributes on before and after joining SBLP. The socio-economic profile of the SBLP members is presented in Table-1

Table 1: Socio Economic Profile of SBLP Beneficiaries

Attribute		Vizianagaram	Guntur	Mahboobnagar	Anantapur	Total
SHG Age in Years						
5-8	Count (%)	124 (71.70)	159 (57.20)	59 (29.10)	148 (52.50)	490 (52.40)
9-12	Count (%)	47 (27.20)	108 (38.80)	136 (67.00)	128 (45.40)	419 (44.80)
>=12	Count (%)	2 (1.20)	11 (4.00)	8 (3.90)	6 (2.10)	27 (2.90)
Group Size						
10-11	Count (%)	78 (45.10)	229 (82.40)	43 (21.20)	190 (67.40)	540 (57.70)
12-13	Count (%)	52 (30.10)	30 (10.80)	61 (30.00)	38 (13.50)	181 (19.30)
>=13	Count (%)	43 (24.90)	19 (6.80)	99 (48.80)	54 (19.10)	215 (23.00)
Age						
21-30	Count (%)	39 (22.50)	26 (9.40)	3 (1.50)	77 (27.30)	145 (15.50)

31-40	Count (%)	59 (34.10)	93 (33.50)	77 (37.90)	101 (35.80)	330 (35.30)
41-50	Count (%)	53 (30.60)	130 (46.80)	93 (45.80)	65 (23.00)	341 (36.40)
>50	Count (%)	22 (12.70)	29 (10.40)	30 (14.80)	39 (13.80)	120 (12.80)
Religion						
HINDU	Count (%)	164 (94.80)	187 (67.30)	190 (93.60)	252 (89.40)	793 (84.70)
MUSLIM	Count (%)	2 (1.20)	23 (8.30)	13 (6.40)	20 (7.10)	58 (6.20)
CHRISTIAN	Count (%)	7 (4.00)	68 (24.50)	0 (0.00)	10 (3.50)	85 (9.10)
Social Category						
OC	Count (%)	16 (9.20)	68 (24.50)	13 (6.40)	63 (22.30)	160 (17.10)
BC	Count (%)	115 (66.50)	116 (41.70)	124 (61.10)	163 (57.80)	518 (55.30)
SC	Count (%)	36 (20.80)	86 (30.90)	32 (15.80)	35 (12.40)	189 (20.20)
ST	Count (%)	6 (3.50)	8 (2.90)	34 (16.70)	21 (7.40)	6 9 (7.40)
Literacy						
Literates	Count (%)	94 (54.30)	166 (59.70)	76 (37.40)	229 (81.20)	565 (60.40)
Illiterates	Count (%)	79 (45.70)	112 (40.30)	127 (62.60)	53 (18.80)	371 (39.60)
Education						
Primary	Count (%)	28 (16.20)	83 (29.90)	14 (6.90)	126 (44.70)	251 (26.80)
Secondary	Count (%)	64 (37.00)	78 (28.10)	61 (30.00)	95 (33.70)	298 (31.80)
Graduate	Count (%)	2 (1.20)	5 (1.80)	1 (0.50)	7 (2.50)	15 (1.60)
Technical	Count (%)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.40)	1 (0.10)
NA	Count (%)	79 (45.70)	112 (40.30)	127 (62.60)	53 (18.80)	371 (39.60)
Occupation						
Housewife	Count (%)	2 2 (12.70)	11 (4.00)	19 (9.40)	37 (13.10)	89 (9.50)
Ag. Labourer	Count (%)	64 (37.00)	107 (38.50)	92 (45.30)	81 (28.70)	344 (36.80)
Business	Count (%)	82 (47.40)	143 (51.40)	84 (41.40)	145 (51.40)	454 (48.50)

Landlord	Count (%)	2 (1.20)	11 (4.00)	7 (3.40)	8 (2.80)	28 (3.00)
Service	Count (%)	3 (1.70)	6 (2.20)	1 (0.50)	11 (3.90)	21 (2.20)
Family Income						
Less than 2000	Count (%)	1 (0.60)	0 (0.00)	0 (0.00)	13 (4.60)	14 (1.50)
2-5000	Count (%)	51 (29.50)	31 (11.20)	27 (13.30)	37 (13.10)	146 (15.60)
5001-10000	Count (%)	108 (62.40)	122 (43.90)	142 (70.00)	182 (64.50)	554 (59.20)
>10000	Count (%)	13 (7.50)	125 (45.00)	34 (16.70)	50 (17.70)	222 (23.70)
	Count (%)	173 (100)	278 (100)	203 (100)	282 (100)	936 (100)

Source: Primary Data

Analysis of table-1 reveals that 97 per cent of SHGs covered were older than 5 years. As per NABARD, for sustained growth the average members per SHG should be 12 or more. In the current study, 75 per cent SHGs have the ideal number of 12 members. 86 per cent beneficiaries are in the productive age group of 15-65 years which is a positive indicator. In India, the majority poor people are from social and economically backward classes. In the sample surveyed, 55.30 per cent are from backward classes, 20.20 per cent SCs and 7.4 per cent STs (Total 83 per cent) indicates that the programme is being lapped up by socially and economically backward communities. 60.40 per cent being literate indicate that SBLP has attracted both literates and illiterates. 26.80 per cent have been educated up to primary level and 31.80 per cent up to secondary level. Petty businesses like pan shop, push cart business, tailoring etc. have been dominant with 48.50 per cent, Agricultural Labourers being 36.80 per cent, 76 per cent beneficiary families are earning less than Rs. 10,000 per month.

Apart from the basic needs of Food, clothing and shelter, a person should enjoy basic amenities like electricity, TV, Phone etc. The beneficiaries ability to posses these basic amenities is presented in Table 2.

Table 2 : Facilities of Amenities available in Beneficiary Households

		Yes	No	Total
Electricity	Count (%)	934 (99.8)	2 (0.2)	936 (100)
Television	Count (%)	878 (93.8)	58 (6.2)	936 (100)
Refrigerator	Count (%)	62 (6.6)	874 (93.4)	936 (100)
Mobile / Telephone	Count (%)	619 (66.1)	317 (33.9)	936 (100)
Grinder	Count (%)	70 (7.5)	866 (92.5)	936 (100)
Two Wheeler	Count (%)	31 (3.3)	905 (96.7)	936 (100)
Four Wheeler	Count (%)	84 (9.0)	852 (91)	936 (100)

Toilets	Count (%)	383 (40.9)	553 (59.1)	936 (100)
Cooking Gas	Count (%)	332 (35.5)	604 (64.5)	936 (100)
Drinking Water	Count (%)	342 (36.5)	594 (63.5)	936 (100)

Analysis of Table-2 on basic amenities of life reveals that 99 per cent beneficiary households are electrified and 93.8 per cent having television facilities, 66 per cent have phone connectivity, 40 per cent have toilet facilities at home, 36 per cent have access for safe drinking water, 35 per cent households are using cooking gas. Most of the amenities were secured after joining SBLP or as apart of the programme.This has become an attraction for the poor to join the programme.

SBLP intends to provide a helping hand to the downtrodden in facilitating them to come out of poverty through their own efforts by enabling them to make productive investments in income generating activities and also in coming out of the clutches of money lenders. Loans are extended to the beneficiaries at cheap rates and the received monies are used as per the beneficiary discretion. Table-3 reveals the bank loan utilization pattern.

Table 3: Bank Loan Tranche Utilisation by Beneficiaries

		First Loan	Second Loan	Third Loan
Agriculture	Count (%)	252 (26.9)	233 (24.9)	66 (7.1)
Consumption	Count (%)	395 (42.2)	340 (36.3)	200 (21.4)
Business	Count (%)	239 (25.5)	283 (30.2)	160 (17.1)
Others	Count (%)	50 (5.3)	64 (6.8)	44 (4.7)
NA	Count (%)		16 (1.7)	466 (49.8)
		936 (100)	936 (100)	936 (100)

Source : Primary Data

Analysis of Table-3 reveals that the need for consumption is still dominant in each loan tranche, with 42.2 per cent, 36.3 per cent and 21.4 per cent for first, second and third loans respectively. Investments in business is slowly picking up with each loan tranche at 25.5 per cent and 30.2 per cent and 17.1 per cent respectively. Investments in agriculture is gradually coming down from 26.9 per cent to 24.9 per cent to 7.1 per cent.

Empirical analysis of economic variables on Five point Likert's scale is presented in Table-4

Table 4: Economic Variables on Five Point Likert's Scale

		Nil	Low	Moderate	High	Very High	Total
		Count %	Count %	Count %	Count %	Count %	Count %
Assets	Before	682 (72.86)	0 (0.00)	250 (26.71)	4 (0.43)	0 (0.00)	936 (100.00)
	After	266 (28.42)	63 (6.73)	543 (58.01)	64 (6.84)	0 (0.00)	936 (100.00)
Poverty	Before	18 (1.92)	52 (5.56)	93 (9.94)	773 (82.59)	0 (0.00)	936 (100.00)
	After	297 (31.73)	369 (39.42)	270 (28.85)	0 (0.00)	0 (0.00)	936 (100.00)
Dependence on Money Lenders	Before	543 (58.01)	180 (19.23)	80 (8.55)	133 (14.21)	0 (0.00)	936 (100.00)
	After	664 (70.94)	128 (13.68)	54 (5.77)	90 (9.62)	0 (0.00)	936 (100.00)
Income	Before	78 (8.33)	645 (68.91)	177 (18.91)	25 (2.67)	11 (1.00)	936 (100.00)
	After	60 (6.41)	101 (10.79)	682 (72.86)	77 (8.23)	16 (2.00)	936 (100.00)
Savings	Before	517 (55.24)	369 (39.42)	50 (5.34)	0 (0.00)	0 (0.00)	936 (100.00)
	After	12 (1.28)	416 (44.44)	474 (50.64)	34 (3.63)	0 (0.00)	936 (100.00)
Borrowing Capacity	Before	540 (57.69)	180 (19.23)	94 (9.51)	121 (12.93)	1 (0.10)	936 (100.00)
	After	204 (21.79)	194 (20.73)	411 (44.44)	126 (13.46)	1 (0.10)	936 (100.00)
Business	Before	675 (72.12)	114 (12.18)	104 (11.11)	42 (4.49)	1 (0.10)	936 (100.00)
	After	364 (38.89)	271 (28.95)	200 (21.37)	97 (10.36)	4 (0.40)	936 (100.00)
Living Standards	Before	0 (0.00)	594 (63.46)	318 (33.87)	16 (1.71)	8 (0.80)	936 (100.00)
	After	0 (0.00)	258 (27.56)	596 (63.78)	73 (7.80)	9 (0.90)	936 (100.00)

Source: Primary Data

Analysis of Table-4 indicates that with the intervention of SBLP beneficiaries' income levels have increased to a considerable extent. Saving habit has been inculcated and regularity in savings is observed. Asset base in terms of durable consumer goods and electronic gadgets has shown significant improvement. High level of poverty has been brought down to moderate and low levels with the intervention of SBLP. Borrowing capacity has been increased and dependence on money lenders has been reduced to certain extent. Not much difference is observed with living standards. 26% beneficiaries started business at low and moderate levels after joining the programme.

Economic Impact on beneficiaries in A.P - A Statistical Analysis

To sum up the identified eight economic variables of beneficiaries like income, savings, living standards, dependence on money lenders were measured on five point Likert's scale ranging from nil to very high for before and after joining SBLP. To measure whether there is any significant change or difference in economic impact after joining the SBLP, Paired T test was exercised. To realize the economic impact objective on the beneficiaries, the following hypotheses are formulated.

H_0 : There is no significant difference in economic impact on beneficiaries in Andhra Pradesh after joining SBLP

For testing of the hypotheses paired t- test is employed and the test results are presented in table-5

Table -5: Economic impact – Andhra Pradesh - paired t-test results

	Economic variables	Mean Score	Degrees of Freedom	P Value
Pair	Before SBLP	15.0534	935	0.000
	After SBLP	18.4904		

At 5% Level of significance

The paired t-test results from Table- 5 state that as the p value is 0.000 which is less than 0.05, the null hypothesis is rejected and alternative hypothesis is accepted namely there is significant difference in economic impact on beneficiaries and their households after joining SBLP. It can be concluded that SBLP has created significant impact on beneficiaries and their households.

Ranking of Economic Variables

After analyzing the impact of SBLP on different economic variables, these individual attributes identified are ranked to assess the impact of the programme on the beneficiary household. The attribute ranking is presented in Table-6

Table 6: Ranking of Mean scores of Economic Variables before and after SBLP

Ranking of SBLP Beneficiaries Mean scores Before SBLP	Factors affecting Economic Impact	Ranking of SBLPBeneficiaries Mean scoresAfter SBLP
3	Income	1
2	Living Standards	2
8	Savings	3
4	Borrowing Capacity	4
6	Assets	5
7	Business	6
1	Poverty	7
5	Dependence on Money Lenders	8

Source: Primary Data

Ranking of economic variables presented in table-6 and the mean scores of factors on economic impact reveal that income and savings (1 and 3 ranks respectively) are significantly influenced by the programme. Poverty was very high in pre SBLP and has been reduced to rank 7 in post SBLP scenario. Dependence on money lenders has been reduced from 5 to 8 rank. Change in income level, savings, poverty and dependence on moneylenders is an indicator of positive economic impact on the SBLP on the beneficiaries.

The ranked economic factors were tested for their association with the number of years in the Programme and the results obtained are presented in Table-7

Table-7: Group Age VS Economic Factors 'Results of Chi Square Test at 5% Level of Significance

'Attribute	Null Hypothesis	X^2p value	Df	Result @ 5% significance level
Group Age Vs Income (Ranked 1)	More years in SBLP does not increase the household income	0.000	8	Reject Null Hypothesis
Group Age Vs Savings (Ranked 2)	More years in SBLP does not increase savings	0.000	6	Reject Null Hypothesis
Group Age Vs Bussiness (Ranked6)	More years in SBLP does not increase Bussiness	0.014	8	Reject Null Hypothesis
Group Age Vs Dependence on money lenders(Ranked 8)	More years in SBLP increase Dependence on money lenders	0.000	4	Reject Null Hypothesis
Group Age Vs Poverty (Ranked 7)	More years in SBLP increase Poverty	0.000	6	Reject Null Hypothesis

The Chi Square results presented in Table-7 state that more years in SBLP have resulted in increasing the income and savings and reduced poverty and reduction in dependence on money lenders.

Findings of the study

The government of Andhra Pradesh has turned the SBLP into women centric programme. The group size is on par with that of the national average of SHGs i.e. 12. The programme is being lapped up by the targeted beneficiaries i.e. landless poor, BCs, SCs and STs. More than half of the beneficiaries are earning an average of Rs. 5000 per month. Most of the beneficiaries are married, following small family norms and are joining the programme with an eye on the government subsidies and benefits being doled out. Majority of the beneficiaries are mobile savy and possess the basic benefits of electricity, Television etc. The loan component is primarily being used for consumption, agriculture and business activities. Prior to joining the programme, nearly 82 per cent of the beneficiaries lived in absolute poverty and 13 per cent have come out of the clutches of money lenders.

Conclusion

On the basis of the findings emerging from the study it is concluded that there is significant difference in economic attributes of beneficiary households after joining SBLP. Poverty has been reduced to a considerable extent. Dependence on money lenders had been reduced. Income level has increased and habit of regularity in savings is inculcated. A good number of people have started small and petty business activities after joining the programme and their assets and borrowing capacity have increased. A positive economic impact has been created with the intervention of the SBLP. Further, with SBLP becoming a women centric programme, the results can still be better, provided the banker comes to their house for transactions. The loans have to be disbursed in time and should be need based. SHPIs should take more active part in improving and bridging the gaps. A closer follow up action improves the programme's impact.

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Overcoming Challenges to Implement Constraints Based Planning in Small and Medium Manufacturing Units

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Abstract

Small and Medium Enterprises (SME) play a significant role in the development of our nation, economy and provide employment opportunities to almost 59.7* million (*4th Census 2006-07) people in the society. In the current economic and business scenario, due to globalisation and open markets, there is an undue pressure on these enterprises to compete with larger enterprises. These SMEs face inventory shortages, missed delivery schedules and increased idle times on some specialized equipment. All these lead to inefficiencies and increased costs. Govt. of India is servicing these units by way of different policies and measures. Some of them include Lean manufacturing competitiveness programmes for SME, Mini Tool rooms under PPP mode; Technology and Quality upgrade support, etc. In spite of these measures, SMEs face stiff challenges on regular basis. Implementing Theory of Constraints (TOC) based systems seems to be the key strategy for overcoming these obstacles. Constraints based planning systems help in optimizing resources, by focusing on increasing the thru-put, while Enterprise Planning Systems(ERP) ensure integration of data and reduce transaction cost. However these organizations face challenges to implement systems to improve productivity. This paper addresses the challenges faced by these SMEs and a framework to overcome these limitations.

Key Words: Theory of Constraints (TOC), Inventory Management, Six Sigma, Resource Planning

Introduction

Small and Medium manufacturing enterprises (SME) contribute significantly and form key constituent of Indian economy in terms of its contribution to manufacturing output, exports and providing employment particularly in the rural areas [1]. It is estimated that this sector provides around 39% of the total manufacturing output and accounts for one third of our exports in terms of value. These units are facing many challenges in the current open and global economy. According to Ministry of Micro, Small and Medium Enterprises* (MSME), these include problems related to credit, infrastructure, making use of technology and reaching out to markets effectively (*www.dcmsme.gov.in). Expectations of the customers are changing regularly leading to more and more variants in the products or services. There are other business demands to get these services in the shortest possible time and with zero defects. To meet these demands, the product mix, manufacturing schedules and the material requirements keep changing almost every day. This has huge impact on planning, funds and available resources utilization.

Theory of constraints (TOC) is one of the best known management approaches gaining prominence in the recent past. Dr. Eli Goldratt [3] developed this concept and explained it through his now famous book, "The Goal."TOC focuses on improving Thru-put, by reducing lead times, cycle times and reducing inventory. Steven and Victoria in their paper [4] reported that, Mean Lead time reduction was 69%, Mean cycle time reduction was 66%, Mean revenue/Thru-put was increased by 68%, as per their survey results of about 100 companies. In India, Salora International Limited (* Khaitan, Vice Chairman and Managing Director, 2002) reported lead time reduction from 5 days to 1 day and Finished goods inventory by 30% using TOC methodology.

In the first section of this paper we will review, Theory of constraints and its effectiveness. The second section we will focus on what are the challenges faced in implementing TOC. In the third section we will present

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a framework to implement Theory of constraints for SMEs and in the last section we will conclude with the limitations of that framework.

What is Theory of Constraints (TOC)?

TOC is a methodology which focuses on total system oriented process improvement that has been applied effectively to improve manufacturing processes and organization development as well. Mabin and Balderstone[5] reported that TOC implementations reduced cycle times by 66%, lead times by 69%, inventory levels reduced by 50% and this has resulted in 68% improvement in revenue/thru-put. In India too, Goldratt India reported that a steel manufacturing unit, increased manufacturing dispatches by 72% and thru-put by 96% by implementing TOC. Another precision forging company reported increase in thru-put by 41% and improved profit by 129%.

TOC seeks to identify constraints in the production line which affect the thru-put. The underlying assumption is that a production facility is only as fast as the slowest process in the entire system or product line. When a constraint exists in the system, it limits the performance of the entire system, not just the affected production facility.

To understand better, take a simple example of an automobile, if one of the tyres is deflated, even if the engine and other parts are working well, automobile can't run until the deflated flat tyre is replaced. In a similar way within an organization, if there is a constraint in the system, without addressing the constraint, any amount of effort on improving the process or adding additional facilities will not help. However the biggest challenge is to identify the constraint within the system. To achieve the goal, the following five step process is suggested by Dr.Goldratt .[6]

Step 1: Identify the constraint of the system under study

Step 2: Exploit the constraint and maximize its productivity

Step 3: Subordinate every other process in the system to the constraint capacity

Step 4: Elevate the constraint, by adding more capacity there by eliminating the constraint

Step 5: Repeat, go to step 1 to identify if the constraint has moved out and any new constraint has replaced. Do not let the initiative to slip.

TOC differs fundamentally from traditional way of improving the process of reducing the cost to find avenues to increasing the revenue [7] .This is a significant factor for SMEs as they can't reduce the cost beyond a point. Boyd and Gupta [8] introduced a framework for TOC. They present the following dimensions for an organization to be successful.

a. **Organizational mindset**: The management approach shifts its attention towards the constraint and its impact on thru-put by setting up performance measures, takes decisions to improve performance by working on the constraints.

b. **Performance measurement systems**: To enable this change, TOC recommends the following measures. [9]

Thru-put: (TH) Total revenue generated by the entire system through sales

Inventory: (I) Total money invested in the system on the things intended to be sold, like raw materials or purchased parts, WIP and finished goods.

Operating Expenses: (OE): all the cost incurred on turning investment (inventory) into Thru-put, such as fixed costs, direct labour cost, overhead cost and so on.

These measures are different from traditional measures which generally focus on improving local optima than global optima.

c. **Decision Making**: Any decision taken by management should be inline with improving the constraint resource capacity than the non constraint. Improving efficiency of a non constraint will not improve through put and in addition will waste key resources of SMEs.

Challenges faced by SMEs for implementing TOC:

Lack of Management Commitment: Implementing TOC needs a paradigm shift in business decision making. This can't be achieved without Management commitment. The team at the shop floor need to be empowered to take action against a constraint. Management should drive the positive change to look at the system as a whole than in silos. Enthusiasm shown by the management at the start of implementation should not wane away to leave the implementation in disarray.

Lack of trained/skilled man power: This is one of the major causes for not implementing or failures in implementation. Once the organization has made a commitment, the key resources that would drive this initiative need to be identified. They should be sent for necessary skill up gradation and training. Some roles may need to be redefined for successful implementation. This is a major challenge for the organization as most of the team leaders will be playing multiple roles, not just one.

Poor IT investment: This is a tricky decision and one has to be careful. There are so many cases, investment is made on IT without understanding the requirements, current needs and future expected growth for next 5-6 years at least. Majority of the organizations ended up buying systems which are too rich in functionalities to use them. When IT investment is made, it needs to be supported with necessary systems to utilize the IT appropriately. Many a times, this investment goes down the drain with lack of knowledge about the applications and very expensive to customize to the needs. A fine balancing act is required to arrive at the right software application package suitable for the given requirements. A thumb rule is no software application package fits all the requirements. If around 85-90 % of the requirements are satisfied then it is reasonably a good fit and work around to cater to other needs. If we try to customize every process, the implementation takes long time and cost goes up.

Lack of Quality Focus and direction: If there is no quality focus within the organization, defects and defective parts keep raising leading to significant amount of re-work. This throws the delivery schedule out of gear and lead times suffer. It is very essential to set the quality focus for the organization. The work force should be trained on Quality aspects, inspection and review process and should be empowered to decide in case of a quality issue.

TOC Implementation Framework: Here is a suggested framework which can be used for implementing Constraint based planning systems effectively and reap benefits.

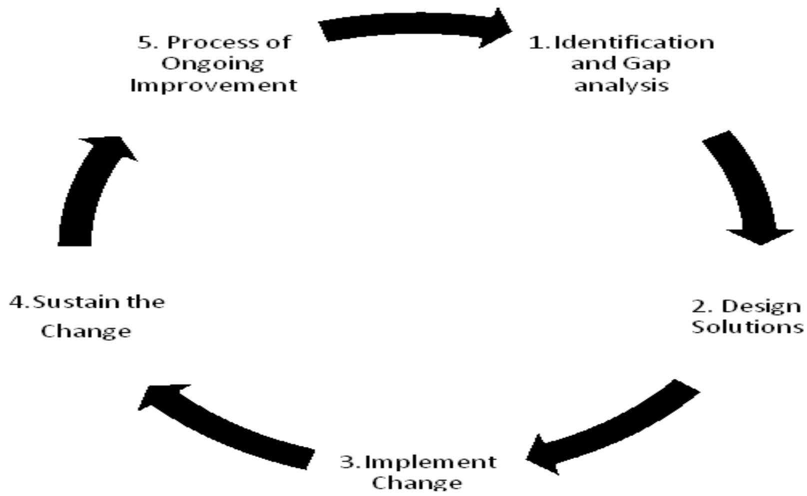
As suggested by Dr.Goldratt[3] ,there are three fundamental questions that need to be answered before embarking on the journey to implement TOC;

a. What to Change?

b. What to change to?

c. How to cause that change?

Dettemer [10] emphasised the need for an integrated system that will focus on global optima than local optima and a system that will have a long term horizon in the decision making process. The following framework as depicted in Fig 1. is explained below for implementing the TOC process.



TOC Implementation Framework

Step 1: Identification and Gap analysis: Listing down the Goals and key focus areas for the organization is the first step to set the change management process. The management need to focus on both long term and short term goals and directions. Internal and external influencing factors need to be taken into account. The goals should address the customer expectations in terms of agile service, shorter response times, shorter turn around times, low variability and high quality at an affordable price. Process is another dimension to be considered for the analysis. Management team should demonstrate its commitment by resolving conflicts during the entire implementation process. This phase answers the first question, "What to Change?"

a. Project Creation: Create a project charter and form a project team to complete this project. Identify a dedicated senior manager, who has the knowledge about the organization, business needs and also good negotiating skills to function as a Project Manager. Project Manager has to be empowered to take decisions as appropriate to complete the project in the shortest time. Along with the Project manager, a project team should be identified who can work on the project. Identify the project team to prepare a detailed project plan listing all the possible risks and schedule along with necessary resource needs.

b. Tools that can be used: The existing system need to be mapped to analyze the process flow. Tools like, Flow charts, brain storming, Voice of the customer, value stream mapping (VSM) may be used for this phase. Organizations may use TOC thinking process tools like Current Realty Tree [11] to map the current process, Future realty tree to identify the negative branches and to map the future processed.

Once the flow charts/VSM for each process are ready, mark the non value added tasks or processes, duplicate processes and redundant processes that hinder the material flow or add to the lead time. Resist the temptations to make changes or come to conclusions immediately. Prioritize the processes for improvement. Collect data for these processes to record the behaviour and variability of this process. Next stage is to analyse the data and baseline current performance and the variability in the constraints. Prioritize these processes in the order of their importance for setting the new processes. Identify necessary tools, or software packages for implementation. Re-look at the lot size. Decide the lot size dynamically.

Step 2: Design Solutions: In the previous step, the goals were set and processes were analysed and priorities were set. This step answers the second question, "What to Change to?" Based on the prioritisation, solutions need to be designed for the identified problem areas [12]. Evaporating Clouds [13] may be used in case of conflicts as per the direction of the organizations. While designing the solutions, care needs to be taken to understand organization capability and dynamics [14]. Future Reality Tree is drawn along with the Pre-requisite tree for implementation of the solution. Failure Mode and effects analysis (FMEA) will also be a useful tool to insure against product/process failures[15]. Do it Right for the first time (DRIFT)" is the key focus for Total Quality Management[16]. The solutions thus designed should be lean, consistent while addressing adequately both internal and external influencing factors. The solution also should include and identify the IT investment that is required for enabling the change. Necessary resources required for the entire process should be budgeted. Training is an important activity that can't be under valued. Tools like Quality Function Deployment (QFD), PUGH Matrix and Design of Experiments will be useful in designing solutions for processes.

Step 3: Implement change: Perhaps this is the toughest of the entire process as this answers the third question, "How to cause that change?" *Resistance to change* is the biggest challenge while implementing change. This needs to be handled with care, focus and without letting the emotions take over the outcome. Effective Communication becomes essential for this step and involvement of all the layers of people and getting the buy in to implement the change will reflect in the success of the implementation. With the new process focused to improve thru-put, the other processes in the system should be revised to work in synchronization with the constraint. Majority of these SMEs have work force doing multi-tasking and multiple roles. Unless there is a team work and resist the temptation to get back to older ways, change can't happen easily. The team should be educated not to draw excess inventory and make sub assemblies, just to maintain the capacity. This will not only increase the WIP, but also increase the lead time. This reduces the flexibility of the set up to make changes as per dynamic demand. The excess capacity may be offered for some other process. The management should be convinced not to penalize the foreman for not maximizing the output at this work centre. Implement pull systems for the shop floor. Analyse the data collected, improvements made. A few questions that need to be addressed:

a. Are these improvements significant?

b. If yes, are these sustainable?

c. Are these repeatable and reusable in other processes?

During this phase, emphasis needs to be laid on the metrics that need to be collected, analysed and monitored. Expect difficulties during this period and resolve to continue with the implementation of change. Celebrate even small success during the journey to instil confidence in the work force.

Step 4: Sustain the change: In this phase, the benefits realized need to be circulated across all other process owners. Celebrate the success, document the lessons learnt, recognize and reward the workforce who made it possible. After this success, the entire organization will be ready to implement this across the organization. Automate this process by investing in appropriate software tool or application. If there is already a tool existing, make necessary modifications to make it more dynamic in nature. It is not necessary to automate every process. Automate only those which add value and reduce duplication and eliminate errors. *Automating a wrong or redundant process will only make things more complicated and make the team lose quickly confidence on the entire process itself.*

During this stage bench marking is carried out. Metrics collection process is standardized and institutionalised across the organization. Regular trainings, knowledge sharing and distribution mechanisms will help sustain the changes and make the changes as part of the routine.

Step 5: Process of ongoing Improvement (POOGI) [10] : Performance improvement can lead to complacency, resulting in lack of effectiveness in employing principles of knowledge thus gained and decline of performance of IBM in early 90's is a prime example for this[17] . The organization need to be moulded to adapt to changes quickly. The feedback mechanism and metrics enabled to collect data, measure variations should act as trigger agents for further improvement. Customer needs and expectations are subject to change rapidly. External environment also keeps changing regularly, the organizations need to have a process to sense these changes quickly and initiate the above steps. Focus should be on the thru-put rather than improving local optima. Maturity of an organization is reflected in optimising the processes using continuous improvement processes, which are followed zealously by all layers of the work force. Organizations need to promote a culture of innovation than just making minor improvements in existing systems. Innovation and improvement initiatives are natural by-products of a culture of improvement [18]. Quality performance improvement should be recognized and rewarded regularly.

Limitations of this framework:

1. Though this looks simple, unless each task force member understands the philosophy of TOC well, it would be difficult to implement.
2. It may require help of some external consultant for coaching and mentoring during the progress of the project.
3. It requires maturity to get the change management and get over from traditional systems and follow a process meticulously.
4. This methodology has been designed based on the experience of the authors and available proven literature. Efficacy of this model is yet to be tested in actual conditions.

Conclusion

Small and Medium Enterprises are vital organs of Indian economy and have a bigger role to play in future as well. Any improvement in their efficiency and productivity will help create more wealth and more opportunities for employment. However these organizations face several challenges and constraints in achieving high productivity rate. Theory of Constraints offers such methods to improve effectiveness even while constraints exist. A simplified methodology is proposed which comprises of best practices of project management, change management, Six Sigma and TOC. This framework is useful in implementing the TOC methodology for a sustained long term improvements and profitability by being adaptive to changes and responsive to the needs of such changing environments. Even though every organization wants to change and improve better, only those organizations where management and the work force believe in improvement are successful as they strive whole heartedly.

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Dharmic Goal Model of Management

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Abstract

Maximizing shareholders wealth has become the primary objective of corporate sector and good governance has gained importance in the post globalised era. The rise and fall of certain companies have prompted the need to protect the shareholders values. It is believed that not only the goals but also the path way is equally important. Here we draw an analogy with Mahabharatha to infer lessons in this direction. Mahabharatha, a great Indian epic, suggests that one should pursue four goals in life which are Dharma-Artha-Kama-Moksha. Human mind is confronted with conflicting demands from the environment. Decision making by the authorities is crucial to guide the company. Many companies have fallen due to their weak foundations. 'Dharmic Goal Model' is the way forward for companies which aim for success which is sustainable for longer periods.

Keywords: Corporate Governance, Management, Stakeholders value, Dharmic Goal, Mahabharatha

Dharmic Goal model of Management

Introduction

Fewer concerns are more critical to international business and developmental strategies than that of corporate Governance. Several instances have placed Corporate Governance at centre stage with paramount importance both for international business and finance business. Successive business failures and frauds have brought Corporate Governance to the fore front.

Definition

Corporate governance refers to the process by which a corporation is governed. It is the technique by which companies are directed and managed. It is the interaction between various participants i.e. share holders, board of directors and management in steering company towards better performance.

Adrian Cadbury defined Corporate Governance as ".......... holding the balance between economic and social goals, and between individual and communal goals. Corporate Governance implies protecting the interest of shareholders to achieve long term sustained value. It ensures truth, trust and transparency in a balanced economic development. Corporate Governance also deals with determining ways to take effective, strategic decisions for gaining competitive advantage.

Changing ownership structure has resulted in more pressure on management to comply with Corporate Governance. Also, Importance given to Social responsibility and steering the company in a direction to protect the share holders interests and impact of globalization are some of the major forces responsible for growing importance of corporate governance.

The management including the Board of Directors are responsible to lead the organization in the desired direction. Companies formulate the vision and mission statements for clarifying the direction. The goals of the organizations are reflected in the vision and mission statements.

Below are some of the examples of statements of vision and mission of some organizations:

"Building Reliance into an iconic Brand which is benchmarked by others and leads industry in Intention to Purchase and Loyalty" – ***Reliance Communications***

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*"To be the leading provider of financial services in India and a major global bank." – **ICICI Bank***

Customer Satisfaction:

Another important goal is to meet customer expectations.

"To delight and deliver beyond expectation" ***– Videocon***

*"Achieving customer satisfaction is fundamental to our company" - **Ranbaxy***

Value for Stakeholder:

"To enhance the wealth generating capability of the enterprise in a globalising environment, delivering superior and sustainable stakeholder value" – **ITC Ltd**

"To assimilate knowledge, develop capabilities and manage collective enterprise to profitably tap global commercial advantages for the benefit of stakeholders" – **ADANI Group**

*"Ensure profitable growth and enhance wealth of the share holders" – **Ranbaxy***

*"Creating customer delight and shareholder's wealth" – **Maruthi Suzuki***

*"A world class engineering enterprise committed to enhancing stakeholder value" - **BHEL***

*"Create value for our stakeholders" – **ICICI Bank***

Fairness & Honesty:

"To achieve our objectives in an environment of fairness, honesty, and courtesy towards our clients, employees, vendors and society at large."- **Infosys**

From the above mission statements we may draw some connections. To increase market share one needs to achieve customer satisfaction and to increase stakeholders value, market share needs to be increased. Hence the primary goal of the corporations is to increase the value for stake holders. The process adopted may be Dharmic in its approach. While attempting at good governance several dilemmas may be experienced. These dilemmas may be compared with the dilemmas undergone by some characters in Mahabharata.

Kurukshetra: War between two different ideologies.

The goals pursued by Kauravas and Pandavas were different. Pandavas gave importance to attaining Moksha and used Dharma as means for achieving the goal. They obtained wealth as a result of practice of Dharma and also enjoyed worldly pleasures as fruits of the wealth achieved by them. On the other hand Kauravas were driven by desires and their main goal was to obtain wealth and power.

Yudhistira, the leader of Pandavas always preferred to be on the side of Dharma. Here are some examples to understand the practice of Dharma by Yudhistira.

Example 1: Once Pandavas went to a forest. They were thirsty and one after the other went to a pond to fetch water but did not return. In the end Yudhistira, the eldest of Pandavas went to the pond and saw the brothers lying dead. He then heard a voice of Yaksha who asked scholarly questions for which Yudhistira answered correctly.

Then the Yaksha said,—'Thou hast, O king truly answered who is a man, and what man possesseth every kind of wealth. Therefore, let one only amongst thy brothers, whom thou mayst wish, get up with life!'

Yudhishthira answered,—'Let this Nakula, O Yaksha, get up with life!'

The Yaksha rejoined,-'This Bhimasena is dear unto thee, and this Arjuna also is one upon whom all of you depend! Why, then, O king dost thou, wish a step-brother to get up with his life! How canst thou, forsaking Bhima whose strength is equal to that of ten thousand elephants, wish Nakula to live? People said that this

Bhima was dear to thee. From what motive then dost thou wish a step-brother to revive? Forsaking Arjuna the might of whose arm is worshipped by all the sons of Pandu, why dost thou wish Nakula to revive?'

Yudhishthira said,—'If virtue is sacrificed, he that sacrificeth it, is himself lost. So virtue also cherisheth the cherisher. Therefore taking care that virtue by being sacrificed may not sacrifice us, I never forsake virtue. Abstention from injury is the highest virtue, and is, I ween, even higher than the highest object of attainment. I Endeavour to practice that virtue. I will never depart from my duty. My father had two wives, Kunti and Madri. Let both of them have children. This is what I wish. As Kunti is to me, so also is Madri. There is no difference between them in my eye. I desire to act equally towards my mothers. Therefore, let Nakula live?'

The Yaksha said,—'Since abstention from injury is regarded by thee as higher than both profit and pleasure, therefore, let all thy brothers live, O bull of Bharata race!"

Example 2: As the Pandavas were trekking in some high terrains, Draupadi was the first to fall down. All the other brothers also fall down. Yudhishthira does not turn back; he walks on followed by a dog, which has been following them from Hastinapura.

Then Indra appears before him and says. 'Thou shalt behold thy brothers in Heaven. They have reached it before thee. Indeed, thou shalt see all of them there, with Krishna. Do not yield to grief, O chief of the Bharatas. Having cast off their human bodies they have gone there, O chief of Bharata's race. As regards thee, it is ordained that thou shalt go thither in this very body of thine.'

"Yudhishthira said, 'This dog, O lord of the Past and the Present, is exceedingly devoted to me. He should go with me. My heart is full of compassion for him.'

"Indra said, 'There is no place in Heaven for persons with dogs. Besides, the (deities called) Krodhavasas take away all the merits of such persons. Reflecting on this, act, O king Yudhishthira the just. Do thou abandon this dog. There is no cruelty in this.'

"Yudhishthira said, 'O thou of a 1,000 eyes. O thou that art of righteous behaviour, it is exceedingly difficult for one that is of righteous behaviour to perpetrate an act that is unrighteous. I do not desire that union with prosperity for which I shall have to cast off one that is devoted to me.'

"Yudhishthira said, 'It has been said that the abandonment of one that is devoted is infinitely sinful. It is equal to the sin that one incurs by slaying a Brahmana. Hence, O great Indra, I shall not abandon this dog today from desire of my happiness. Even this is my vow steadily pursued, that I never give up a person that is terrified, nor one that is devoted to me, nor one that seeks my protection, saying that he is destitute, nor one that is afflicted, nor one that has come to me, nor one that is weak in protecting oneself, nor one that is solicitous of life. I shall never give up such a one till my own life is at an end.'

About right and wrong:

The difference between right and wrong is ambiguous. It is not that easy to say which is right and which is wrong. Throughout Mahabharatha, issues are raised regarding right and wrong. Here are some of the examples:

1. (Arjuna said) O Keshava, see how the entire state of affairs looks like a bad omen. By slaughtering my own people on the battlefield, I do not see any fortune to be gained ultimately.

O my Lord! I crave not for victory, nor for the kingdom, nor for any pleasure. What is the significance of a kingdom or the materialistic gains or even the existence as regards to me?

Those for whose sake I desire these things stand here about to forfeit their belongings and their lives.

All the warriors I can see on this battlefield are teachers, fathers and grandfathers, sons and grandsons, uncles, father-in-law, brothers-in law and other relatives.

I would not kill them, and it matters not even if they kill me. Even the kingdom of the three worlds means nothing to me, why then for this poor earth?

2. At a point when Drona, as the Kuru commander is killing vast numbers of Pandava troops, Krishna advises Yudhisthira to adopt a plan to kill Drona.. As it is known that as long as Drona has raised his weapons he is invincible to all other warriors. So they plan to make Drona fall into grief so that he will drop his weapons at least temporarily, and to achieve this It was devised that it would be a lie about Aswathama the son of Drona.

Yudishtra's adherence to dharma does not allow him to say this. Krishna justifies this lie to Yudhisthira as necessary to the victory of morality in the war. As Yudhisthira continues to hesitate, his brother Bhima kills a known elephant in the Kuru legions called Aswathama and celebrates shouting "Aswathama is dead! Aswathama is dead!".

Shocked when the news reaches him, Drona seeks out Yudhisthira to ascertain the news, knowing that the son of Dharma would never speak a lie. Yudhisthira tells him that Ashwathama is dead, but mutters "the elephant...." (Aswathama Hatha.(Aswathama is dead).. Kunjaraha (elephant))in an inaudible voice to prevent telling a whole lie.

3. He cites the story of Kaushika, an ascetic, who reveals to some robbers which way the witness of the robbery has gone. His truth results in violence! conflict between two values of dharma - satya (truth) and ahimsa (non-violence).

Corporate Dilemma: . Let us try to picture various scenarios where corporate leaders face tough questions.

Scenario 1: A fresh management graduate from IIM starts a real estate company. He comes to know that actual purchase price of the land is many times more than government assessed price. If he declares the actual price, he will be required to pay many times more stamp duty and thereby making the cost of the property much higher than that of the competitors. Also he understands that following all the rules stipulated by the corporation planning department means more cost per sft. What to do? Follow the rules and get out of business or know the smart ways to bypass the rules and climb the corporate ladder?

Scenario 2: A corporate head of a big telecom company comes to know that 2G spectrum allocations are being made to very small players who do not have any experience. The dilemma is whether to approach higher authorities and get bulk orders through some recommendations or wait for the turn. If he waits and does not get the order, the company may not be in a sustainable position in the following year. The issue is should he or he not.

Here are some of the examples of companies which deviated from good governance practices.

Enron Corporation:

In 1985, Kenneth Lay merged the natural gas pipeline companies of Houston Natural Gas and InterNorth to form Enron. By December 31, 2000, Enron's stock was priced at $83.13 and its market capitalization exceeded $60 billion.

Enron's non-transparent financial statements did not clearly depict its operations and finances with shareholders and analysts. In addition, its complex business model and certain practices required that the company use accounting limitations to misrepresent earnings and modify the balance sheet to portray a favourable depiction of its performance. On December 2, 2001, Enron filed for bankruptcy.

WorldCom:

In 1983 LDDS was started. The company name was changed to LDDS WorldCom in 1995, and later just WorldCom. On November 10, 1997, WorldCom and MCI Communications announced their US$37 billion merger to form MCI WorldCom, making it the largest merger in US history.

In 2002 investigators unearthed $3.8 billion fraud in WorldCom. On July 21, 2002, WorldCom filed for Chapter 11 bankruptcy protection in the largest such filing in United States history at that time.

Arthur Andersen LLP:

Arthur Andersen was founded in 1913. Andersen, who headed the firm until his death in 1947, was a zealous supporter of high standards in the accounting industry. A stickler for honesty, he argued that accountants' responsibility was to investors, not their clients' management. During the early years, it is reputed that Andersen was approached by an executive from a local rail utility to sign off on accounts containing flawed accounting, or else face the loss of a major client. Andersen refused in no uncertain terms, replying that there was "not enough money in the city of Chicago" to make him do it. For many years, Andersen's motto was "Think straight, talk straight."

In 1990's Andersen struggled to balance the need to maintain its faithfulness to accounting standards with its clients' desire to maximize profits. Andersen later has become mere spectator of fraudulent practices of certain companies.

The Raise: The Company was respected by the entire world as long as they followed Dharma. For almost 80 years, the company was in the top 10 auditing companies. Artha, the wealth, followed Dharma and company has grown from strength to strength. In 1990's company aimed at multiplying its profits and was prepared to deviate from the earlier path.

Some examples of good governance:

IBM

IBM is a successful organization which celebrated its hundredth anniversary. In 2011, Fortune ranked IBM as the 18th largest firm in U.S., as well as the 7th most profitable company. Globally, the company was ranked as the 33rd largest firm by Forbes in 2010. Other rankings in 2010 include #1 company for leaders (Fortune), #2 best global brand, #3 green company (Newsweek), #15 most admired company (Fortune), and #18 most innovative company (Fast Company). IBM employs more than 425,000 employees in over 200 countries, with occupations including scientists, engineers, consultants, and sales professionals.

IBM holds more patents than any other U.S based Technology Company and has nine research laboratories worldwide. Its employees have received five Nobel Prizes, four Turing Awards, nine National Medals of Technology, and five National Medals of Science.

IBM never believed in achieving wealth by compromising on ethics. Let us read what Thomas J. Watson, Jr. the then chairman said on April 1969 "We accept our responsibilities as a corporate citizen in community, national and world affairs. We serve our interests best when we serve public interest. We acknowledge our obligation as a business institution to help improve the quality of the society we are part of."

General Electric: By 1890, Thomas Edison had brought together several of his business interests under one corporation to form Edison General Electric. GE provides services ranging from aircraft engines, power generation, water processing & household appliances to medical imaging, business & consumer financing, media content & industrial products. GE has sales of $ 152 billion with profits of over $13 billion per year. It has assets worth $ 727 billion and 287,000 employees.

In Fortune Magazine's 2005 "Global Most Admired Companies" list, GE ranked first overall. (February 2005). GE was named to Dow Jones Sustainability World Index as one of the world's leaders in environmental, social and economic programs. Three traditions of GE are Unyielding Integrity, Commitment to Performance and Thirst for Change.

Infosys

Infosys believes that 'The primary purpose of corporate leadership is to create wealth legally and ethically'. The company was ranked India's 'Most Admired Company' in the Wall Street. Infosys has achieved this distinction for nine years in a row. Infosys has always shared relevant information with stakeholders. They have gone a step further by disclosing information that is not required by law. In the fiscal year 1994-1995 Infosys provided a comparison of actual performance vis-à-vis projections made in the prospectus. After setting the precedent, such disclosure became mandatory in India.

Vision of Infosys: "We will be a globally respected corporation."

Mission of Infosys: "To achieve our objectives in an environment of fairness, honesty, and courtesy towards our clients, employees, vendors and society at large.

Dharmic Goal Model:

Bhisma's Goal Hierarchy

In the Santhi Parva of Maha Bharatha Bhishma explains to Yudhistira the goals worth pursuing:

'When men in this world endeavour with good hearts to achieve Wealth with the aid of Virtue, then those three, viz., Virtue, Wealth, and Pleasure, may be seen to co-exist in a state of union in respect of time, cause, and action. Wealth has its roots in Virtue, and Pleasure is said to be the fruit of Wealth. All the three again have their root in Will. Will is concerned with objects. All objects, again, in their entirety, exist for gratifying the desire of enjoyment. Upon these then does the aggregate of three depend. The aim of the triple aggregate is towards emancipation.

'That man, who, abandoning Virtue and Wealth pursues only Pleasure, reaps as the consequence of such conduct the destruction of his intelligence. The destruction of intelligence is followed by heedlessness that is at once destructive of both Virtue and Wealth. From such heedlessness proceed dire atheism and systematic wickedness of conduct. With virtuous behaviour, there is nothing impossible to achieve.

There are four goals mentioned and they are:

- Dharma: Righteousness, Duty
- Artha: Wealth
- Kama: Desire, Pleasure
- Moksha: Liberation, the End Goal

1. Pursuit of only Pleasure, leads to the destruction of intelligence, which in turn destructs both Virtue and Wealth.
2. Virtue, Wealth, and Pleasure, co-exist in a state of union in respect of time, cause, and action. Wealth has its root in Virtue, and Pleasure is said to be the fruit of Wealth.
3. The aim of the triple aggregate 'Dharma, Artha and Kama', is to attain Moksha, the end goal. Dharma, Artha and Kama are not ends in themselves, but are just means to an end, and that end is Moksha.
4. When put in hierarchical perspective, Moksha sits at the top followed by Dharma, Artha and Kama in the same order.

Moksha

Dharma

Artha

Kama

When applied to corporate sector, the above four components of goal model becomes the following:

Moksha : The Mission, The end goal of the organization.

Dharma : Ethics, Corporate Social Responsibility, Value System, Compliance to law

Artha: Profits, Value for the shareholders

Kama: Desires for pleasure

This model will lay a strong foundation for any organization which can grow in size and sustain for longer period. Various aspects of this model are given below :

State the vision statement

Give the mission statement

Translate the mission statement into goals and action plans.

The following plans may also be reviewed:

* Business Plan
* Marketing Strategy
* Sales Plan
* HR Plan
* Financial Plan

Translation of mission statement into policies and actions in the organization takes place by undertaking training sessions for policy makers in the company and all the managers who are responsible for implementation of the policies. Also there needs to be a separate team which reviews all the plans and policies in the company to ensure that they are in accordance with company mission.

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Mobile Banking Technology : Risks and Regulations

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Abstract

Banking has developed over many centuries and the risks inherent in banking are risks for the bank, the risks for its clients and the risk for the economy. The banker's risks include credit risks, liquidity risks, operational risks, interest rate risks, foreign exchange risks and reputation risks. The banking risks that the client may face include moral hazard as well as fraud. The risks to the economy in general are resulting from the money creation function as well as the money distribution function. Apart from general risks relating to banking business, there are additional risks which are inherent in a Mobile banking financial service (MBFS). A large part of these risks depends on the ability of the government to impose financial service regulations and supervision on Mobile Bankers. The regulators commonly list certain risks arising from the use of mobile channel for financial services such as loss of device, restricted screen and keypad of the device, the information security of the end-to-end network, the availability and reliability of the communications network, the use of outsourced service providers, **s**peeding velocity of money leading to inflation, billing risk, identification risk, risk of fraud, risk of privacy of information, delay in the communication of transaction effected, risk due to interoperability resulting in a weak chain and risk due to non-co-operation among the providers. Hence, the paper attempts to study the various types of risks relating to the business of banks and mobile networking operators in the mobile banking service, very specifically the technological risk connected with the mobile banking financial service and discusses the proportionate regulation required for such risks.

Key Words: Mobile Banking, Financial Inclusion, Mobile Tecchnology, Financial Services, Mobile Risk.

Introduction

Attaining economic development in many countries has become a dream as it has not been made possible due to the 1.7 billion working adults making less than US$2 per day. Over the last 30 years, the microfinance industry has proven that even the extreme poor can be banked. Microfinance Institutions (MFIs) have become viable by supplying finance to these poor whose default rates are low. At the same time Microfinance industry has not been able to grow commensurately with the size of microfinance requirements.[1] This is the reason why all over the world practitioners and regulators are lobbying for a strong microfinance industry with the technology, ie. Mobile technology that can reach the customers with the money at their doorsteps. The mobile financial services are the outcome of mobile technology and it offers significant opportunities for improving the efficiency of financial services by expanding access and lowering transaction costs. The study conducted by United States Agency for International Development (USAID) reveals that the rapid public acceptance of these services in countries such as Philippines, Brazil, India and Kenya has demonstrated that the technology is mature and brings real benefits to people who could not access to financial services earlier.

Literature Survey

Helms and Reille (2004) argued that interest rate ceilings are not likely to be a solution to the concerns of the policy makers. This is because they will retard the long term growth of availability of credit for the target set of borrowers as if formal financial institutions are not able to cover their costs, they would tend to exit the market. This in turn would result in increase in dependence of the poor on informal sources of finance. It, therefore follows that microcredit providers need to look at innovative ways to reduce costs, which would result

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in interest rates coming down in a sustainable manner. Hence, MFIs face the challenge of finding ways to reduce lending costs.

Department For International Development's (DFID) Focus Note 43, (2008) says that in a fast increasing number, policy makers and regulators in developing and transition countries are embracing "Transformational branchless banking", the use of Information and Communication Technologies (ICTs) and non-bank retail channels to reduce costs of delivering financial services to clients beyond the reach of traditional banking. The research by DFID was conducted on seven countries where policy makers and regulators find themselves on the frontlines of policy making about regulation of branchless banking targeted at the unbanked poor in Africa, South Africa and Kenya, in Asia, the Philippines, India and Pakistan, in Europe/Central Asia, Russia and in Latin America, Brazil. Despite the many dissimilarities among these countries, policy makers and regulators in the countries studied a common challenge: how to formulate proportionate regulatory policy that gives space for innovation and permits branchless banking to scale up safely.

Ivatury, Gautum and Mas, Ignacio[a] (2008) focused on smaller banks and Micro Finance Institutions (MFIs) that face a much higher cost-of-delivery because of the smaller transaction values they handle and the likely more remote and dispersed location of at least some of their customers. Their discussion highlights that the banks and MFIs have adequate back office and transaction switching capability and sufficient internal controls, whether managed in-house or outsourced. Without that, mobile banking is not possible because it is fundamentally a front end to a financial institution's information technology system.

Mas, Ignacia[a] (2008), has developed a broad vision for financial inclusion, where payments can be easily made through an electronic network. What makes visioning such a payments utility possible is the technology we have today, which can be used to bridge distances, close information gaps, contain settlement risks, and generally reduce transaction costs. The paper outlines the main challenges for the mass deployment of branchless banking.

The work of Sridhar and Sridhar (2000) points out that as the ICT infrastructure improves, transaction costs reduce, and output increases for firms in various sectors of the economy.[2] Thus investment in ICT infrastructure and derived services provide significant benefits to the economy. Bangens and Soderberg (2008) say that so far policy makers and regulators have taken on a "wait and see" approach and their attitude favours the payment service but not deposit taking service. The regulators will eventually know the gap in the service and clarify the rules of the game and it is not an easy task for regulators to fix the rules of the game on one hand and m-banking evolutionary pace and curve are difficult to predict on the other hand.

A study done by Edgar, Dunn and company, management consultants in Feb 2007 on "Mobile Financial Services Study", identified that the success of Mobile Financial Services for the Unbanked/Underbanked depends on consumer education and a sound business model. Further stated that adequate consumer education on how to access, use and trust financial services in conjunction with mobile technology will be critical to the adoption of this method of financial servicing as well as for more people to access the financial resources they need. And also stated that Mobile financial services are likely to fail if key stakeholders such as financial institutions and mobile carriers do not structure a sound business model to operate effectively.

A study on "Adoption of Customers of M-banking Services: Iranian Perspective" by Samaneh Soroornejad, has identified in the research that customer adoption of mobile banking services is strongly dependent on the degree of risk taking. In other words people who prefer risk taking and innovation, use the new and innovative mobile banking services more than others.

In the paper on "The Development of Mobile Money Systems" by Ernesto Flores – Roux and Judith Mariscal, published in the Proceedings of the 4th ACORN-REDECOM Conference Brasilia, D.F., May 14-15th, 2010, it was argued that mobile banking offers the opportunity to diminish the financial exclusion suffered by the poor by offering access to credit and to savings which are key tools capable of transforming the livelihoods of the poor as well as the efficiency of the market. However, mobile phones need a complete ecosystem that supports its application to a functioning mobile banking service. The paper highlights the two key barriers to financial inclusion for the poor: affordability and physical availability.

SanBoeuf (2006) identified regulatory/legal, bank participation, customer acceptance/trust, inter-bank clearing capabilities as the major obstacles for the success of mobile banking in Iraq.

In an article by Fabien Buliard on "Mobile banking taking off, any minute now" in 2009, based on a Pan-European survey of 5,000 online banking users and of about forty banking and mobile phone luminaries, the study predicts that within two to three years, making purchases and managing bank accounts on a mobile phone will become common practice. Customers seem to be ready for it, too. Out of the respondents, 66% said they would be interested in using their mobile to manage their account, while 70% would use it for payment purposes, 25% said they were prepared to change banks for an attractive mobile banking offering, while only 4% of bankers polled considered mobile banking to be a potential customer acquisition tool. However, half the bankers see it as a customer relationship management channel in its own right. The study also revealed that the security aspect of mobile transactions remains a prominent concern, with 50% of respondents seeing increased security as the main change banks need to make to their mobile offering. Still, it appears that most prerequisites (mature technology and client demand) now seem to be in place for a richer mobile banking experience.

Objectives

The paper employed the archival method of reviewing the literature available - theoretical, applied and empirical to provide an understanding on what are various types of risk which are general in nature for a Banking industry and mobile banking industry very specifically attached with the technology and to discuss the risk mitigation measures.

Discussion

Mobile Banking Financial Service Models

From the regulatory perspective, there are three types of models of m-banking, i.e., Bank-led, Non-bank-led (MNO model) and Hybrid model. In the bank-based model, customers have a direct contractual relationship with a prudentially licensed and supervised bank or a financial institution. In the non-bank model[3] customers have no direct contractual relationship with a fully prudentially licensed and supervised financial institution. This virtual account is stored on the server of a non-bank. Whatever be the model, there is presence of all the players even in non-bank-led model where banks hold excess cash deposit to effect the m-transactions (Russell 2009).

Bank-led model: In the case of Bank-led model, the bank holds the license and each client is required to have an established account with the bank. Access is made through a cell phone based system where the cell phone company provides a menu-based communications services in partnership with a bank, but is not involved in any underlying financial transactions, all of which pass through the client's bank account and for which the bank assumes responsibility. In this model, MNO is a bearer and MNO supports the bearer channel for voice/data usage. Under this strategy, there is no lock-in to the MNO and this strategy allows banks to provide mobile services directly to their customers without involving MNOs except for voice/data usage. Above all, this strategy is best suited for additive m-banking, without questioning its transformational nature for financial inclusion.

MNO Model : A pure cell phone company service extends the wireless under solo provider strategy model, the MNOs lack banking license, with the highest level of MNO involvement, where MNOs would own the entire value chain by involving banking hosts, switches, customer management system, audit and reporting practices. The advantage of this model is the vulnerability and disadvantages are the growth of store value of money outside the monetary control and non-inter-bank transfer, however recently MNOs started with inter-

MNO transfer. For example, M-Pesa and G-Cash do not have banking license and they do not offer inter-bank transfer service, however they offer inter-MNO transfer of funds

Hybrid model: This model is a combination of a bank, MNO or other third party that combines characteristics of both the pure bank and pure MNO models. Such combination includes (a) MNO/Bank model: Mobile-based payment services that handle payments internally with cash in/cash out through the MNO's network, yet link to formal banking services such as savings, loans and insurance in partnership with a regulated financial institution by enabling communications with the bank; (b) Government Provider/Bank Model: This model includes clearing system that has access functionality either using smart cards or smart cell phone that temporarily act as a store of value . There are two types of Hybrid model as discussed under.

Bank-mobile exclusive partnership: In case of Joint venture model where MNOs and Banks form partnership, MNO facilitates the implementation of a mobile banking platform or hub and offers the solution in a hosted environment to the banks in market. Exclusive partnerships imply that banks and MNOs are locked into a contractual relationship to jointly enable mobile banking financial services. This strategy allows the partnership to significantly reduce coordination costs and time to market. Users' needs can be highly customized to reflect the capabilities and brand positioning of the partnership.

However, bank-mobile exclusive partnerships may not be considered as a viable strategy since the size of the addressable market, which is the total base of customers of banks and MNO, may be small compared to the Bank-mobile open partnership. Furthermore, exclusive partnership models limit new opportunities in a dynamic market and it may face significant threats from open partnerships that can aggregate to a much larger addressable market and use standardized platforms to reduce costs.

Bank-mobile open partnership: Open partnership models allow banks and MNOs to connect to each other using standardized interfaces allowing strategic flexibility to both the parties, allowing each to exploit opportunities with much of entry or exit cost. Additionally, open models can create larger addressable markets than exclusive partnerships. The full-spectrum of mobile banking financial services may not be available to end-users, hence the possibility of developing a stable banking and payment platform is challenging. Such unstable environments are unlikely to attract significant investment or foster innovative services.

On the other hand, open partnerships may be viable in the short-term as banks and MNOs figure out their optimal partnering strategies and assess customer demand for their initial offerings. The greatest threat to open partnerships comes from open federated models that offer larger addressable markets along with a stable platform for driving innovation by third-party developers. This model gives value to the banks and to the MNO and thus preventing churn and generating new revenue sources.

Apart from these models under hybrid model, there is also another model called Open federation model[4] which brings more number of banks and MNO together in common platform which results in greater inter-operability. Hence, we feel that it is too early to discuss about the MNO model and Open Federation model for the Indian context. Hence the paper concentrates more on the risks relating to the Bank-led model and under Hyrbid model, Bank and MNO exclusive partnership model.

Risks related to banking

Banking industry involves more risks due to a number of reasons, the main reason being involvement of others' money. We can generally classify the risks as systematic, operational, reputation, legal, liquidity and international risks. These risks can be split into risks for the bank, risks for its clients and risks for the economy. The banker's risks include credit risks, liquidity risks, operational risks, interest rate risks, foreign exchange risks and reputation risks. The credit risk is related to loans and is the possibility or probability of non-repayment by the client leading to non-performing assets.

The liquidity risk is a risk of meeting the demands from the customers for want of money either on maturity or before maturity. The operational risk is the risk of losses from operations, including failure of people, systems or external events. The interest rate risk is related to loans and advances with fixed interest rates. The bank would have made, at least, an opportunity loss when the bank lends to a customer at a certain rate and thereafter the rates of interest for the economy increase. (Mas, I., & Rotman, S. 2008)

Another risk which may result in the loss of reputation of a bank is account opening to a terrorist, without knowing his status, who would have gone through customer due diligence (CDD) process. There are also broader risks for the bank related to its governance and its reputation. There are certain risks that are related to the customers . When a bank faces liquidity and credit risk, it affects the good customers. A second risk is wrong payment to persons who are not actual customers. The first risk to the economy is money creation which gives rise to multiplier effect, leading to inflation. And the second risk to the economy is the money distribution function, serving as a conduit for transfer of money for illegal activities indirectly (Isern & Koker, 2009).

Mobile Banking Risks based on the parties to the mobile banking financial services:

Other than the common risks to banks, a mobile banking financial service is exposed to various types of exclusive risks which may be listed from the perspective of parties to the mobile banking financial service namely consumers, merchants, agents and service provider.

The risks pertaining to the **consumers** are as follows:

- ➢ Delay or late issuance of Universal ID (UID) may affect the potential customers to have access to mobile banking services for want of identity. The policy options are:
  - Use Financial IDs like PAN and Credit bureau information
  - Institutional implementation of KYC requirements
- ➢ It may happen that the existing customers may lose the scope of accessing the mobile banking services because of inability to prove their identity. The policy options are:
  - restrict access to the users who cannot prove identity,
  - ensure the appropriate risk-based service access at the time of opening of account with the agents
  - return the money to sender
  - other acceptable procedures in place of PIN
- ➢ 3. The customer's identity may be stolen and used to open a mobile payment account fraudulently. This may happen when the account is fraudulently used, or ID is stolen, or unauthorized customer's account is opened in another place. The policy options are:
  - Biometric national ID or financial ID
  - Providing caution system and blocking of accounts
  - Enhancement of fraud detection system
  - Limiting the liability of frauds to the providers
- ➢ The customer's account credentials are not adequately protected, and it may be used for illegal transactions. The policy options are:
  - Strong privacy legislation and it requires institutions to institute controls to reduce.
  - Provider-led control

- Provider's disaster plan

➢ The customers may be unable to efficiently dispute a transaction or account charge. The policy options are:

- Referring disputes back to the account provider
- Association or NGO/individual dispute provider/independent alternate dispute provider providing dispute resolution process
- No dispute resolution process

➢ The customers may be charged of unauthorized fee by the agents. The policy options are:

- Regulatory requirement of full disclosure of fee in account agreement
- Disclosure of fee structure in all service stations

➢ The customer cannot access cash from mobile money account due to lack of agent availability, or agent may be unwilling to perform transactions due to liquidity problems or system problems. The policy options are:

- Fixing of minimal geographical coverage
- Regulatory authority allowing account providers to appoint agents
- Account providers to set institutional anti-discrimination policies and monitor agent behavior/compliance.

➢ The customer cannot access cash from mobile money account due to loss of handset/failure of handset due to low battery or pre-paid charges are over. The policy option is: Regulatory authority requires system availability service level

➢ The customer may face lack of interoperability facilities, where customers do not have facility to shift from one provider to other provider or transfer funds to other provider customer's accounts. The policy option is: Establishment of interoperability of payment networks through inter-account provider links

➢ The customer may lose balance due to failure of a bank holding trust fund or if the customer dies his family may not be able to access etc. The policy options are: Law or regulations relating to bank failure or insolvency segregates assets held in trust accounts from the general pool of assets of a trustee in the bankruptcy process.

The risks pertaining to the **merchants** are referred below:

- The merchants may need immediate money, hesitating to convert the mobile money into cash and this could be resolved if regularity authority requires account providers to maintain an "agent of last resort".
- Merchants could be restricted by a contract with an account provider from accepting payments for or from another account provider. Longer term agreements can be restricted to avoid monopoly.

The risks pertaining to the **agents** are mentioned below:

➢ Agent may be unable to easily liquidate e-money inventory when the agency relationship is terminated. The policy options are:

- Regulatory authority requires providers to facilitate agent cash-out upon transmission.
- Providers set contractual agent termination provisions with guidance from the regulatory authority.

➢ Misuse of cash/cash robbed from agent, provided by the service providers. The policy option is: Customer awareness about the right to receive cash from the agents.

The risks pertaining to the **Service providers** are stated below:

- Provider employee may manipulate agent credit allowances, agent e-money balances, or customer e-money balances for financial gains
- Improper training provided to the agents and super agents by the service providers; agents' frauds may not be traceable due to improper records maintained
- Multiple agents connected with the service providers

Mobile Technology and Risks

Mobile banking is seen as an extension to existing payment infrastructure of a bank to mobile phone as a channel for leveraging of the mobile network and its reach to deliver banking services to the consumers. It is a more convenient method for customers to perform remote banking transactions. Mobile banking infrastructure thus has similar technical environment as ATMs, POS, branch and internet banking.

A bank's core banking system, the system that houses the consumer's account and related transaction management and history, would require a means to translate banking instructions, received from consumers, through one of the bank channels such as ATMs or the internet, into a format that the core banking system can process. This translation is normally performed by an Electronic Fund Transfer (EFT) switch that would switch transactions from the channel to an appropriate area within the core banking system. The mobile banking channel can be delivered to the consumer through two bearer or application environments: (1) Client-side Technology: These are the applications that reside on the user handset. Client-side technologies includes J2ME (Java 2 Micro Environment) and S@T (SIM Application Toolkit) commonly known as SKT. (2) Server-side Technology: These applications are developed on server. Server-side technologies include USSD/USSD2, IVR, SMS/SSMS and WAP. These bearer channels provide consumer access to the bank through their mobile phone.

The bank may select one or more bearer channel based on its bearer channel strategy for implementation of mobile banking. Selected bearer channel is independent of mobile banking platform location.

Mobile Banking Platform: Most of the banks have already Core banking System in place. In this scenario the mobile banking platform that the bank would use, or integrate with, would have the following components:

- Data Repository: Stores adequate and appropriate customer information to authenticate and facilitate transactions.
- Financial Switch: Acts as an interface to the bank core banking system, instructions collected from application development environment through Mobile Network Operator (MNO) interface, and using data from date repository, are translated through financial switch into transaction format that the bank can use.
- Application Development Environment: Facilitates actual service development to the consumer. It fosters the intelligence delivered to the consumer handset and back to the server.
- Bearer Channel and MNO Integration.

We shall discuss bearer channel technologies and the risk emanating from their use and the mitigation measures.

Mobile Banking Bearer Technology Options and risks : The client and server technologies have differing characteristics and processes. Each of these technologies requires that the consumer registers or activates the application with the bank/MNO/vendor offering the service in the market. This registration process is defined by the service provider and serves as an initial identification of the consumer to ensure ongoing trust in, and security of, the transaction. There are many methods of registering or activating customers in existence, all of which require the endorsement of the bank offering the service. Consumer registration often creates a barrier to consumer adoption, but serves as a necessary step in the process of eliminating fraud and potential transactional risk in the offering (as well as being a regulatory requirement).

In server-side applications, consumer data that enables the processing of transactions, such as account/ card details, are typically stored in a secured environment, on a server at a bank or at their allocated service provider/vendor. In client-side applications, the consumer data is typically stored on the application, or entered by the consumer, and encrypted by the application in the SIM or handset. Each of the server-side and client-side applications are briefly described below.

Server-Side Technologies

Short Message Service (SMS): This technology provides financial institutions with a way to serve widest possible market to serve as majority of mobile sold world over support SMS. From consumer perspective, SMS is relatively inexpensive compared to all other data services. This is one of the reasons that almost all banks have deployed some form of the SMS-based mobile banking service. A simple application or the APIs can be used by the bank to generate short message to send to customer's mobile device, or respond to a customer's request. For example a registered customer of the bank generates a structured SMS (SSMS) request for balance. Bank then returns the appropriate information via a SMS to the customer. A short message is 160 character, however, some operators restrict it to 140 characters. A short code of 5 to 6 character, similar to URL of a company, would be licensed by banks to use in its mobile service, that they would use to communicate with their customers for an SMS mobile banking service. SSMS required a tag word identifier to instruct the SMS gateway to submit the message to the correct SMS application. Tag word is the first word in the SSMS. SSMS would pass from customer handset to through the GSM network to the Short Message Service Centre (SMSC) which would store and forward SSMS to the SMS gateway allocated to the short code used by the Mobile Banking Service Provider (MBSP). MBSC will identify the customer by the customer mobile number provided by the SMSC along with the SSMS to respond to the customer request in an appropriate manner.

Advantages of SMS: SMS has a variety of advantages for financial application and services:

- Easy to use and inexpensive
- Simple and common messaging tool has a wide acceptability
- Works across all MNO; stored messages can be accessed without a network connection

Risks in SMS: The SMS Risks are the initial idea for SMS usage that was intended for the subscribers to send non-sensitive messages across the open GSM network. Mutual authentication, text encryption, end-to-end security, non-repudiation were omitted during the design of GSM architecture. SMS may be eavesdropped by the man-in-the-middle attack as no encryption is applied to SMS message transmission. Hence an SMS channel is least secure and there are many points of exposure.

i. SMS Spoofing: SMS spoofing is an attack that involves a third party sending out SMS messages that appear to be from a legitimate sender. It is possible to alter the originator's address field in the SMS header to another alpha-numerical string. It hides the original sender's address and the sender can send out hoax messages and perform masquerading attacks.

ii. Handset: The SMS would be automatically stored on the handset of the customer and would be available to any one that looks at the consumer phone, similarly incoming messages are also stored on the handset.

iii. Third Party: It may also happen that the SMS may come to the MBSP through a MBSP appointed mobile banking processor (Third Party) on a secure fixed line into a secure environment. However, third party involvement is also a risk, a careful selection of third party may mitigate the risk to a great extent.

iv. Store and Forward: The SMS channel is a store and forward channel. Hence delivery of the message in real time is not guaranteed, as a result there is a possibility that either customer or the bank may not receive Request/Response in time to act. In fact there is always a probability of losing the message altogether.

Mitigation Measures

i. SMS Encryption: The default data format for SMS messages is in plaintext. The only encryption involved during transmission is the encryption between the base transceiver station and the mobile station. The robustness of this encryption is also questionable and will be discussed with risk in GSM Network. End-to-end encryption is currently not available. However, secure environment may be provided by incorporating an encryption algorithm both at the MBSP end and at the handset through the SIM or application. Many such applications are available that can be customized to the requirements of the MBSP.

ii. Handset: One may mitigate the handset security risk to a great extent by following the under mentioned steps:-

- Locking the handset keyboard and display through a password
- Always switch off Bluetooth if not in use
- Be sure whatever application one downloads on mobile is trusted.
- Report loss of one's mobile to the banker and to ask for deletion of mobile banking application from the handset.

SMS based mobile payment systems are already in use globally. There might be certain risks when using SMS in the payment transaction. The SMS can be used for mobile payments provided the customized client built by SIM toolkit or Java application is used for the deployment of SMS transaction to provide end-to-end encryption.

IVR Channel

IVR is the oldest form of consumer-facing mobile banking technology. IVR has been used prior to the existence of mobile phones in the form of telephone banking and is still in use today. IVR system is very useful where some limited inquiry is asked like checking bank balances, transferring funds etc. IVR is a technology that requires the use of professional voiceover recordings. It allows callers to interact with a computer system over a telephone. The IVR system is able to detect voice and keypad inputs from a telephone. Deployed extensively in banks, IVR allows registered customers to call a Bank published telephone number and service their inquiries on their own. An Interactive Voice Response system enables the customers to retrieve information from a database or enter information into that database directly without the need for human support. IVR systems respond with pre-recorded or dynamically generated voice messages to direct customers on how to proceed. By following the instructions of the IVR system, a customer can do simple business transactions by speech or via a telephone keypad. Through a series of simple menu choices for call-in customers, IVR systems can be customized for almost any function of mobile banking. Customer identification is done through the customer mobile number provided by the network as a factor of authentication

Risks in IVR: The IVR systems are quite cost saving and inexpensive to put in place but there is always the risk of the customers holding the voice line for long times may make it expensive to maintain. Also depending upon number of customers to be served it can scale up to be fairly expensive. IVR essentially a voice call passes through the mobile network and hence suffers with the usual risk of mobile channel.

Risk Mitigation Measures: The risk of customer making a lengthy call can be mitigated by making customer pay for the call or call can be timed out. IVR system may be made more secure by incorporating voice biometric in the IVR system. The idea behind IVR voice recognition is that it's possible to identify a voice as uniquely as a fingerprint or retina. Voice biometrics is increasingly emerging as a potential means of reducing the risk in IVR mobile banking channel and fraudulent use of credit cards when making purchases online. Apart from authentication voice /data may be encrypted to provide end to end security. However, encryption algorithm need to be built in both user handset and the bank-end.

USSD Channel: Unstructured Supplementary Service Data (USSD) is a capability of all GSM phones. It is a technology that is built into the signaling layer of the GSM specification, and is therefore already present in all GSM phones and networks. It is session-oriented, unlike SMS which is a store-and-forward, transaction-oriented technology. It is a powerful technology with many applications, and it is particularly useful for mobile banking and mobile payment. USSD opens a secure session that leaves no message trail and requires no local storage in the phone. A USSD message can be up to 182 alphanumeric characters in length. Unstructured Supplementary Service Data allows interactive services between a MS and applications hosted by the Mobile Operator. These messages are composed of digits and the #, * keys, and allow users to easily and quickly get information/access services from the Operator. USSD strings for the banks are registered with MNO in order for MNO to recognize where to send the request. E.g. *120*949# belongs to Wizzit bank and is registered with MTN. The first USSD services were called "Phase 1", system and were only able to pass information from the handset to the USSD application at the bank end with a confirmation. There was therefore no session held between the handset and the application. USSD phase2 added the capability for establishing a session, this meant that the handset and the USSD application could now respond to the user generated USSD queries in real time and also could push the info to the customer when required.

GSM handsets supported USSD from the early days of GSM, so unlike SMS, every single GSM handset in the world supports USSD. Phase 2 has been supported for years and over 99% of handsets currently in use can use sessions on the USSD bearer. Another important fact about USSD, is that messages from handsets always route to the home network. This means that if one is roaming in another network, then dialing a USSD string on the phone will always route to the application on the home network. If one is used to accessing a particular service in the home network, then one will also be able to access it from another country. It implies roaming subscribers from other networks cannot access USSD services on a host network.

Risks in USSD: USSD Commands Request/Response Tampering – A malicious user can tamper with USSD command requests and responses through hardware and software interceptors leading to fraudulent transactions. Weak encrypted request and response messages are prime concerns in such threat vectors. USSD Request/ Response Message Replay Attacks – When a phone is lost, an adversary may perform fraudulent transactions through an installed USSD application in absence of authenticating USSD request originator (e.g., by Mobile Station International Subscriber Directory Number 3(MSISDN), International Mobile Equipment Identity (IMEI), PIN and unique Message Tracking ID). Weak cryptography implementation for critical data (customer number, account number, PIN, beneficiary details – account numbers, balance summary) can be tampered with, leading to fraudulent transactions. Improper Data Validation (USSD IP Mode Applications) – Improper data validation in USSD IP mode application can lead to SQL injection, cross site scripting attacks. An adversary may purposely insert specifically crafted scripts in user input and may try to use the same to perform malicious actions at the database or at another user's active session.

Risk Mitigation Measures: Mapping vulnerabilities to flaws at the architecture and design levels helps prepare a comprehensive remediation plan identifies vulnerabilities in financial transactions, application residing on mobile device and sensitive data transmission over wireless network. Many of the risks can be taken care of by careful design of the applications by enhancing Mobile client application and mobile validation layers security through a proactive approach during entire Software Development Life Cycle. Use two-way authentication while performing critical financial transactions and use secure USSD communication channels with a strong encryption mechanism.

Mobile Web: According to IDC, 101 million smartphones were sold in Q4 of 2010, versus 92 million PCs. Smartphone shipments, meanwhile, grew 87% year over year, while PCs only grew 3%. Many mobile phones sold in the market today include a web browser which provides access to the internet. At the same time, web browsing has become more affordable, handset screens have become larger with higher resolution, and mobile networks have upgraded to 3G providing unique browsing experience. This combination of affordability and steadily improving user experiences are encouraging more consumers to use their phone's browser on a regular basis. Although the mobile web suffers from the proliferation of many different browsers on devices with various form factors, the majority of the handsets available today come with a browser. The mobile web allows users to access web sites from their handset. The mobile web is a channel for delivery of banking service akin to online banking. The consumer would browse to a mobile internet site by accessing the Wireless Access Protocols(WAP) browser on their mobile phone and entering the website address. The actual banking application resides at the bank and is secured and monitored in the same way as an internet banking website. The mobile phone and bearer (GPRS) is used to display or transmit the data between the consumer and the bank. A consumer's handset would need to be capable (functionality developed/loaded by the handset manufacturer), and have the right configuration (provided by the MNO), in order to support mobile banking.

Risk in Web banking: GPRS (General Packet Radio Service) enables data transmission between mobile phones and transmission towers. But by itself, GPRS does not provide the mechanisms for user to browse the internet. For that, WAP is used which aGPRS session to be opened between the handset web browser and the web application at the bank end. It is similar to an internet session except part of the communication link till the application is handed over by the MNO into the bank secure environment, is over the air and suffer the risk of unsecure channel. Otherwise Web Banking is exposed to the similar type of risk as that of Internet Banking, except it is further secured in that bank can establish that the session has been initiated by the SIM

Client-Side Technology

In order to have rich user experience and exercise greater control financial institutions and the customers are increasingly adopting advanced agent-based technologies and other downloadable applications. These technological advancements in handsets create a more secure, user-friendly environment with many rich features for both banks and their customer base. Mobile client applications are a rapidly developing segment of the global market. Mobile client applications (downloadables, client applications) are common on most mobile phones today and are key to providing user interfaces for basic telephony and messaging and banking services, in addition to many more innovative experiences. The combination of a client application on the handset and a server component enables many benefits including the access to all banking functionalities, strong authentication and encryption of sensitive data, and the ability for customization and branding. A light weight encryption technology could enable mobile banking deployments on devices that do not support rich clients, or whenever managing and pushing such applications is not possible. Mobile client applications are differentiated by the runtime environment in which they are executed, it includes OS like Symbian, Windows Mobile, Blackberry, Android etc; Browser runtimes e.g. Mozilla, Opera Mini and RIM; and managed platform such as Java/ J2ME(Java2 Micro Edition), Binary runtime environment for wireless (BREW), Flash and Silverlight. Mobile client applications can offer powerful and secure application functionality while protecting the consumer and the application data on the mobile handset. Once installed and configured on the mobile handset, the application vendor can easily distribute updates, upgrades, and easily manage the device and application configuration.

J2ME: J2ME applications enable the device to run small, user-installable software applications written especially for mobile devices (assuming phone has capability to run such applications). It requires a phone that can support the GPRS download of the initial application, unless the phone is pre-provisioned with the application.

Once installed on the phone, the application would use GPRS, USSD or SMS to carry the consumer data or instruction from the device to the service provider(the bank) and can be in an encrypted format. The application can be downloaded and used across any MNO that supports mobile internet.

A user would browse through his phone menu to find the J2ME application, select and launch the application, and follow the JAVA browser menus to complete a transaction. The data is typically encrypted prior to leaving the handset and being sent to the bank. Once received, the bank would decrypt the message and process the users' instruction. In fact the basic aim of using J2ME is to provide secure environment by encrypting the data. J2ME applications can be pushed to the mobile phone by a service provider or downloaded by a consumer by accessing the service provider's mobile internet site.

SAT/S@T: The SIM Application Toolkit(SAT/S@T) is a set of commands which define how the Subscriber Identity Module (SIM) card in the handset should interact with the outside world. SIM Toolkit programmed into the special SIM card essentially enables the SIM card to drive the GSM handset interface, build up an interactive exchange between a network application and the end user and access or control access to the network. For the first time the SIM card has a proactive role in the handset. This means that the SIM initiates commands independently of the handset and the network. The SAT/S@T allows for the service provider or bank to house the consumer's mobile banking menu within the SIM card. The SIM also gives commands to the handset, such as 'display menu' and 'ask for user input'. SIM Toolkit features can be classified into different categories:

- Control of the Man-Machine Interface
- Communication services
- Menu management and application control
- Accessory management
- Miscellaneous

The first SIM Toolkit application was the Cellnet/Barclaycard remote banking service launched in May '97 on GemXplore SIM cards. In 1997, the Telia/PostGirot remote payment service was also launched on GemXplore SIM cards, and in June '98 SmarTone Hong Kong launched the first Asian SIM Toolkit information service on GemXplore cards.[5] STK has since been deployed by many mobile operators around the world for many applications, where a menu-based approach is required, such as mobile banking and content browsing. The challenge in SIM based applications is getting the application onto a SIM card that already exists in the market. The service provider has the option of sending the application Over The Air (OTA), which entails the delivery of several encrypted SMS messages that self-configure the application on the SIM, or, provisioning a new SIM card with the application already embedded within the SIM. However this will entail additional expenditure for the network operator as the customer need to obtain new SIM card to use mobile banking application, thereafter the user instructions can be entered encrypted and sent to the bank. Another challenge is in terms of upgrading, making changes to the application. The only practical option is to load the upgrade/changes over-the-air(OTA) as replacing SIM card each time application is changed, not a viable solution. There is a mutual benefit of SIM based application to both network operator and the bank, in that it holds an important application on SIM of a specific MNO, this would discourage customer switching over the network operators benefitting both the bank and the MNO

Risks in Mobile Client Applications: Mobile client applications channel is much more secure as the combination of security built in handset and the server through encryption of data, and a strong authentication mechanism. Sensitive data/info like user ID, password and transaction info is thus secure. However, client application channel poses a different type of threat. The use of memory cards with the handset could be problematic. A Trojan horse that arrives as an installer for a normal application may overwrite existing applications (except those required to communicate), rendering them useless.

The application is at risk of malware attacking the client application on the handset. More often than not a user down load a number of applications for their handset, any one of it may have malice code malicious code (e.g., worms, Trojans, backdoors)that may disable completely the security of device. It may effect the OS or the application or both. A malicious code may also be injected along with the legitimate updates. Some of the mobile browsers are subject to the same flaws as PC browsers such as malicious scripts, man in the browser attacks, cross site site scripting (XSS), and cross site request forgery (XSRF). Although they have smaller feature sets, mobile browsers have been subject to attacks in which unauthorized commands are transmitted from a user to a Web site. It is difficult to determine the legitimacy of a URL with a mobile browser. The small form factor makes it incapable of displaying full URL or it takes many menus to display security information of the website.

Risk Mitigation measures: Downloads-The client side environment includes the applications downloaded and installed on the device. These can be signed by either the carrier or the financial institution. Often the applications are sandboxed on the device. The most secure choice for financial institutions is not to send sensitive data to the handset at all. The next best is to delete it at the end of each session, or if sensitive data is stored on the handset, to encrypt the data.

Applications-Enterprises and commercial software developers should employ secure software development best practices. Authentication of the application code could be used to help customers know they are downloading the real banking application. This is a problem with open source software, such as that designed for Android or Linux platforms. Here, no one vets the application, unlike Symbian and Apple. (Booz, Allen, Hamilton 2010)

GSM Network Security: GSM Security algorithms are used to provide authentication and radio link privacy to users on a GSM network. GSM uses three different security algorithms called A3, A5 and A8. In practice, A3 and A8 are generally implemented together (known as A3/A8). Authentication Algorithm A3 – It is operator-dependent and is an operator option. The A3 algorithm is a one-way function. That means it is easy to compute the output parameter SRES by using the A3 algorithm but very complex to retrieve the input parameters (RAND and KI) from the output parameter. Remember the key to GSM's security is keeping KI unknown. While it may sound odd that each operator may choose to use A3 independently, it was necessary to cover the case of international roaming. Ciphering Algorithm A5 – Currently, there exists several implementations of this algorithm though the most commonly used ones are A5/0, A5/1 and A5/2. The reason for the different implementations is due to export restrictions of encryption technologies. A5/1 is the strongest version and is used widely in Western Europe and America, while the A5/2 is commonly used in Asia. Countries under UN Sanctions and certain third world countries use the A5/0, which comes with no encryption. A new A5/3 algorithm to replace A5/2 has also been agreed to. Ciphering Key Generating Algorithm A8 – It is operator-dependent. In most providers the A3 and A8 algorithms are combined into a single hash function known as COMP128. The COMP128 creates KC and SRES, in a single instance. The latest release is COMP-3 with a modified hash function. An A3/A8 algorithm is implemented in SIMs and in GSM authentication centers. It is used to authenticate the customer and generate a key for encrypting voice and data traffic, as defined in 3GPPTS 43.020 (Release 11 current). An A5 algorithm encrypt the user's voice and data traffic between the handset and the base station to provide privacy. An A5 algorithm is implemented both in the handset and the base station subsystem (BSS).

In the past, several attacks have been identified. However, there are continuous improvement to cryptographic algorithms and network equipment. For an attack on GSM network to succeed, it would have to be an active one; requiring the attacker to transmit distinctive data over the air to masquerade as a GSM base station. It would require costly equipment and other resources, in addition to, an attacker would also have to physically stand between the caller and the base station to intercept the call. Never the less the threat scenario exists.

CDMA Network Security: CDMA developed for Military use, use spreading techniques to form unique code channels for individual users in both directions of communication channel. Because the signals of all calls in a coverage area are spread over the entire bandwidth, it disguise the signal as noise, and as such for any other mobile or detectors in the network, it would be impossible to first distinguish the signal from the noise and the decode. CDMA also has a unique soft handoff capability that allows a mobile to connect to as many as six radios in the network, each with its own Walsh code. Someone attempting to eavesdrop on a subscriber's call, therefore, has to have several devices connected at exactly the same time in an attempt to synchronize with the intended signal. In addition, CDMA employs a fast power control – 800 times per second to maintain its radio link. It would be further difficult for any intruder to have a stable link for interception of a CDMA voice channel, in the absence of synchronization, even if he knows the Walsh code. In CDMA subscriber authentication is a key control mechanism to protect the infrastructure and to prevent unauthorized access to network resources. Access authentication is accomplished by means of an 18-bit authentication signature that is verified by the network's databases of user information, the home location register (HLR) and authentication center. CDMA network are, therefore, much more secure for financial application

Conclusion

There are various types of risks at different levels of mobile banking financial services. Such risks may arise out of technology or non-technology factors. And these factors are different from models to models. In the Indian context though we find partnerships between MNOs and Banks as it appears, these are not under Hybrid model and still they are under Bank model because of the restriction by the regulation that e-money is a deposit. However this restriction ensures risk avoidance to MNOs. Still MNOs can be permitted to enter into partnership with the bank at a level of bearing the risks relating to technology, through not non-technology risks. Hence we conclude that proportionate regulation for the models of Bank and Hybrid model can be formulated at every level of risk shared between bank and MNO.

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End Notes

[1] www.microfinancecapital.org

[2] http://www.nipfp.org.in/working_paper/wp04_nipfp_014.pdf

[3] A more limited version of license the nonbank-based model can be f ound in payment networks, which involves a technology provider or other nonbank institution offering a network of 'payment points' such as ATMs, or retail agents equipped with POS devices.

[4] Qualcomm-owned Firethorn, which is an additive m-banking model has used an open-federation strategy to bring banks and MNOs together to provide m-banking solutions on a standardized, scalable mobile platform

[5] (www.benbissong.wordpress.com/2011/03/24/what-is-sim-toolkit/ - accessed on 14 Aug 2011)

Leveraging Financial Inclusion to Enhance India's Global Competitiveness

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Abstract

India's ranking declined by three places to 59th position in the Global Competitiveness Index 2012–2013 of the World Economic Forum owing to "disappointing performance" in the basic factors. Global competitiveness speaks of the growth and economic development of the country. Earlier theories on economic development considered labour, capital, institutions etc., as important factors contributing to the growth and development of a country, under the assumption that markets are perfect. But today's markets are highly competitive, volatile and complex, creating an emphasis on the role of financial markets in a real economy. The policy makers thus have become cognizant of the importance of the financial system in promoting growth as well as equality. Indian financial system is largely influenced by the banking sector. Though the banking sector has evolved tremendously, access to banking services and products are available to only certain segments of the society. A major sector is financially excluded. To tap the resources from this sector in terms of money as well as entrepreneurship, the concept of financial inclusion has emerged. The complexity of the global economic environment recognizes and encourages qualitative as well as quantitative aspects of growth, integrating concepts such as inclusiveness and economic sustainability. Taking this as a cue the policy makers are trying to leverage the financially excluded sector, by inclusion, so as to enhance the country's global competitiveness.

Key Words: Global competitiveness index, Financial exclusion, Financial inclusion

Introduction

Today's economic environment which is globalised and highly competitive has made it imperative to recognize and encourage the quantitative as well as qualitative aspects of growth. The Global Competitiveness Report, released by the World Economic Forum, which assesses the competitiveness landscape of economies, contributes to the understanding of the key factors that drive economic growth. Competitiveness is defined as the set of institutions, policies and factors that determine the level of productivity of the economy. The level of productivity in a country in turn determines a country's long term growth and capacity to sustain prosperity.

The Global Competitiveness Report 2012-2013, prepared by the World Economic Forum, has placed India in the 59th position, down three places from last year. Since reaching its peak at 49th position in 2009, India has lost 10 places. The WEF Report attributes the poor ranking to India's "disappointing" performance in areas considered to be basic factors for competitiveness. To leverage the competitiveness of the economy, India has to consider on improving the basic factors like institutions, infrastructure, macroeconomic environment, health and primary education.

Earlier theories of development hardly considered the role of finance, in economic growth and development. However, research done by Nobel Laureates, emphasised the role of financial markets. The policy makers have become cognizant of the importance of the financial system in promoting growth as well as equality. The financial system in India has grown tremendously in volume as well as complexity. Though significant improvements have been made in areas relating to financial profitability and sustainability, the benefits have not percolated to the underprivileged and poor sections of the society. To tap the resources from this sector in terms of money as well as entrepreneurship, the concept of financial inclusion has emerged. The problem of financial exclusion is a global phenomenon, more so in India because India has a strong middle class of 250-300 millions, of which

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banking reaches to only 40% of the population. The complexity of the global economic environment encourages various aspects of growth, integrating concepts such as inclusiveness and economic sustainability. The policy makers are thus trying to leverage the excluded sector, by inclusion, so as to enhance the country's global competitiveness.

Need and Importance of the study

In the world the Indian economy is the second fastest growing economy. Credit, being a very important input of economic development, should be made available at an appropriate time, in appropriate volume and at an affordable cost to the weaker sections of the society for their well being. For a country like ours a key step towards economic growth is development of rural India as majority of the population resides in rural areas. Proper access to finance by the rural people is a key requisite to employment, entrepreneurial development, economic growth and poverty reduction which are primary tools of economic development. With approximately 68 percent of India's population, or 830 million people (2011 census) living across India's villages, only 24,000 rural people have access to banking (100 million rural households are away from the banking system).

Objectives of the study

1. To examine the major factors that affect the productivity in our economy.
2. To study the importance of financial inclusion in enhancing productivity.
3. To study the steps taken by the Government of India towards financial inclusion.
4. To study financial inclusion from an international view point.

Productivity in Indian Economy

A general consensus among economists is that financial development spurs economic growth. Economic growth in turn strengthens economic stability which eventually increases the competitiveness of the country. Economic growth as a means to enhancing the welfare of people depends both on the use of factors of production and the efficient use of resources often referred to as productivity. Recent developments indicate the growing importance of productivity, particularly for our economy. Productivity increases employment which in turn lowers poverty which enhances the economic growth.

According to C. Rangarajan, an integrated financial infrastructure stimulates and sustains economic growth. The available resources can be used productively by efficient intermediation of funds from savers to users. The greater the efficiency of the financial system in such resource generation and allocation greater is its likely contribution to economic growth. The key to an efficient financial system is a network of financial institutions that help channelize the savings of the people even as they meet the needs of the borrowers. An efficient financial system creates a virtuous cycle of higher rates of return and increasing savings resulting in higher resource generation, which is essential for sustaining higher economic growth.

The research report of the Centre for the Study of Living Standards (CLSL) has identified seven determinants of productivity growth, rate of technological progress, investment in physical assets, quality of work force, size and quality of the natural resource base, industrial structure and intersectoral shifts, macroeconomic environment and microeconomic environment.

Financial Inclusion in India

Researches (Levine and Zervos, 1993; Galor and Zeira,1993) have found significant correlation between financial development and financial deepening on economic growth. Financial deepening accelerates economic growth by expanding access of funds to those who do not have adequate finance themselves. Typically in an under-developed finance system like India, access to funds is limited to many sectors of the population. Though the Indian financial market has a very good ranking of 21 on the Global Competitiveness Index, still a vast section of the nation remains inaccessible to a structured financial system including savings, credit, insurance etc. Besides development in financial markets, tremendous changes are taking place in banking technology too. According to Reserve Bank of India annual report 2006-2007, banking sector responded quickly to new technology, resulting in the diversification of multiple services and thus increasing the share of services in the GDP from about 11% in 1991-92 to 14% in 2006-2007. But, the access to such technology was restricted to only a certain segment of the society and the rest did not even have access to the most basic banking facilities. Majority of the population is thus financially excluded. Financial exclusion not only adversely impacts individuals, families and house-holds but has repercussions on the entire community and the nation as a whole. Out of the total inhabitants of the country, only about 5% have commercial bank branch. Barely 40% of the population have bank accounts, 1% have credit and 1.5% have credit cards. It is an opportunity waiting to be tapped.(Table 1)

Table: 1 Bank Group-wise Number of branches as on 30.6.2012

Bank Group	Rural	Urban	Semi-urban	Metropolitan	Total
Public Sector Banks	22146	17803	14223	13231	67403
Private Sector Banks	1555	4660	3580	3621	13416
Foreign Banks	7	9	61	247	324
Regional Rural Banks	12258	3094	830	148	16330
Total	35966	25566	18694	17247	97473

Table:2 Number of functioning branches of Scheduled Commercial Banks during last three years:

As on	Rural	Semi-urban	Urban	Metropolitan	Total
March 31, 2010	32525	20776	16678	15342	85321
March 31, 2011	33800	22961	17563	16293	90617
March 31, 2012	35849	25437	18624	17196	97106
June 30, 2012	35966	25566	18694	17247	97473

Source: RBI

Table:3 Number of branches of Scheduled Commercial Banks opened during last three years:

Population group	2009-10	2010-11	2011-12
Rural	974	1280	2051
Semi-urban	1704	2186	2479
Urban	1398	890	1065
Metropolitan	1116	958	908
Grand total	5192	5314	6503

Source: RBI

Table 3 shows that the number of commercial banks opened for the rural population is almost 50 percent of the total number of branches opened which shows that banking might not be reaching the rural population.

Table 4: As on 31st March,2012 population per bank

Number of villages in India as per the 2001 Census	600,000 (approx.)
Average Population per Bank Branch (APBB) as on 31.3.2012	12,921

Source: RBI

According to table 4, on an average, population per bank is only 5 percent as on 31st March 2012. As per Census 2011, only 58.7% households are availing banking services in the country. As depicted in table 1, there are 97,473 branches of Scheduled Commercial Banks (SCBs) in the country, out of which 35,966 (36.9%) bank branches are in the rural areas, 25,566 (26.2%) in semi-urban areas, constituting 63 per cent of the total numbers of branches in semi-urban and rural areas of the country. However, still a significant proportion of the households, especially in rural areas, are still outside the formal fold of the banking system.

To overcome this problem of financial exclusion, the concept of financial inclusion has come under the spotlight. The Committee on Financial Inclusion (C. Rangarajan, 2008) has defined Financial Inclusion as "the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low-income groups, at an affordable cost, in a fair and transparent manner by mainstream institutional players". In an emerging economy like India, financial inclusion becomes a question of both access to financial products and also the knowledge about their fairness and transparency (Dr K C Chakrabarty, Deputy Governor, Reserve Bank of India) . Adequate information about the nature of financial products is not available to the unbanked category. As explained by the Reserve Bank of India, financial inclusion is not merely opening of bank accounts; it includes provision of all financial services like credit, remittance and overdraft facilities to all the sectors of the population.

As said by H R Khan(RBI) in his address, Financial inclusion when promoted in a wider context of economic inclusion can uplift financial condition and improve the standard of living of the underprivileged.

- Financial inclusion will provide access to affordable financial services, thus bringing the savings of the sub-urban and rural population into the formal financial intermediation system and channelizing them into local needs.
- Improves remittance services, thus routing money back into rural areas. Meaningful deployment of capital would enhance income and therefore improve quality of life.
- Availability of financial services to the poor has positive social impact, therefore enhancing nutrition, health, education, status of women in the society, etc.
- It will make it possible for governments to make payments towards subsidies through direct cash transfers, social security transfers, National Rural Employment Guarantee Programme (NREGA) wages into the bank accounts of beneficiaries through the 'Electronic Benefit Transfer' method. This will minimize transaction costs including leakages and pilferages.

According to C.K. Prahalad's bestselling book 'Profit at the bottom of the pyramid, financial inclusion will not only lift millions of Indians at the bottom of the pyramid over the poverty line, but also can become a successful business proposition. Commercial banks will be able to access the large, untapped market with stable funds at a low cost because of inclusion. Thus banks are being encouraged by RBI to approach financial inclusion as a business opportunity and not to treat it as business obligation.

Through proper policy orientation financial inclusion, in a country like India, which is predominantly dominated by the rural and the underprivileged, may help reduce income inequality and can thus foster social, political as well as economic stability. Economic stability is one of the key factors which contribute to the competitiveness of an economy.

Initiatives towards financial inclusion by Reserve Bank of India and the Government

The Reserve Bank of India has initiated several measures in the path to help bank the unbanked. Sonia Gandhi, launched "swabhimaan"- the financial inclusion campaign, which aims at providing branchless banking through use of technology. Banks will provide basic services like deposits, withdrawals and remittances(Report on financial inclusion, NABARD and RBI bulletin).

- Reserve Bank of India has permitted domestic Scheduled Commercial Banks to freely open branches in Tier 3 to Tier 6 centres with population of less than 50,000 under general permission, subject to reporting.

In the North Eastern States and Sikkim, domestic Scheduled Commercial Banks can now open branches in rural, semi urban and urban centres without the need to take permission from Reserve Bank in each case, subject to reporting.

- The Know Your Customer (KYC) requirements for opening bank accounts have been relaxed and simplified for accounts with balances not exceeding Rs. 50,000/- and aggregate credits in the accounts not exceeding Rs.one lakh a year. In December, 2010 the Prevention of Money Laundering Rules have been amended and KYC norms have been revised to allow the letter carrying the UIDAI number as well as the job card issued by NREGA as 'officially valid documents' for opening small accounts. RBI has issued the notification to all Banks for opening of "Small Accounts" in January, 2011.
- Reserve Bank of India, advised all Scheduled Commercial Banks to make available a basic 'no-frills' account with 'nil' or very low minimum balances that would make such accounts accessible to vast sections of the population.
- A General Purpose Credit Card (GCC) facility up to Rs.25,000/- has been provided by the banks at their rural and semi-urban braches. The credit facility is in the nature of revolving credit entitling the holder to withdraw up to the limit sanctioned. Interest rate on the facility is completely deregulated. As on March 31, 2011, an amount of Rs.1307.76 crore is outstanding under the GCCs.
- A significant step in the direction of initiatives was the issue of guidelines in January 2006 for the engagement of Business Correspondents (BCs) by banks for providing banking and financial services in addition to the traditional 'brick and mortar' model. The scope of entities eligible to be engaged as Business Correspondents by the banks has been enlarged by RBI from time to time. In April 2010, the RBI permitted banks to engage any individuals as BC by banks. Recently RBI permitted "for profit" corporate entities to be engaged as BCs. The BC model allows banks to do 'cash in - cash out' transactions at a location much closer to the rural population, thus addressing the last mile problem. With a view to ensuring the viability of the BC model, banks have been permitted to collect reasonable service charges from the customer, in a transparent manner under a Board approved policy. This policy initiative has been hailed by market experts and analysts as a 'game changer' in our mission to spread financial inclusion in the country.
- The Reserve Bank of India has directed their sponsor banks of Regional Rural Banks (RRBs) to speedily, and fully, implement Core Banking Solution (CBS) in all RRBs and commit to firm timeline, by September 2011, by which all RRBs will become fully CBS- compliant. This is expected to give a further fillip to financial Inclusion efforts given the penetrative outreach of the RRBs in the rural areas.
- Statistics indicate that 51.4% of nearly 89.3 million Indian farm households do not have access to any credit either from institutional or non-institutional sources and only 13% of farm households avail bank loans. With the rapid growth in users and expansion in coverage of mobile phone networks in India, this platform has been recognised as an increasingly important medium to reach the unbanked. There are already over 650 million mobile subscribers; in 2009-10, rural wireless subscribers increased by 71% and rural tele-density grew by 69.2%. India seeks to highlight that mobile telephony can foster greater financial inclusion in the unbanked through the promotion of job creation strategies.
- The RBI, Axis Bank signed a Memorandum of Undertaking (MoU) with Idea Cellular, a mobile services company, whereby Idea would act as a BC for the bank and offer the bank's financial services / products such as remittance, savings, credit, micro insurance, micro SIP and micro pension through its retail outlets across the country. Thereafter, on January 12, 2011, State Bank of India, the country's largest bank and telecom giant Bharti Airtel entered into a joint venture (JV) to make available banking services to the country's unbanked population. The JV aims at leveraging SBI's exposure in the banking sector along with Airtel's 150 million strong customer base and ecosystem of over 1.5 million retailers and distributors

(Customer Service Points) across India, thereby, making the benefits of banking available to the Indian rural masses and building a more inclusive society. ICICI Bank too has entered into a similar alliance with both Vodafone and Aircel.

- Based on the Recommendations of the, "Committee on Financial Inclusion" set up by the Government of India (GoI) under Dr. C. Rangarajan, two Funds, namely the "Financial Inclusion Fund (FIF)" for meeting the cost of developmental and promotional interventions for ensuring financial inclusion, and the "Financial Inclusion Technology Fund (FITF)", to meet the cost of technology adoption has been set up at NABARD with an overall corpus of Rs. 500 crore each. The corpus is shared by GOI, RBI and NABARD in the ratio 40:40:20.
- Financial education is the process by which financial consumers/investors improve their understanding of financial products and concepts and, through Information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being.
- Each SLBC convenor has been asked to set up a credit-counselling centre in one district as a pilot, and extend it to all other districts in due course. As on March 2011, banks have reported setting up 225 credit counselling centres in various States of the country. A model scheme on financial literacy and credit counselling centres (FLCCs) was formulated and communicated to all scheduled commercial banks and RRBs with the advice to set up the centres as distinct entities maintaining an arm's length from the bank so that the FLCC's services are available to even other banks customers in the district.
- To give an impetus to microfinance, the same was categorized under priority sector lending and lending to SHGs was brought under the weaker sections of the priority sector. Banks have been advised to provide adequate incentives to their branches for financing the SHGs.

National Financial Inclusion Plan 2010-2015

Govt. of India through RBI has advised the Banks to implement the following action plan:

- Villages with population 10000 and above to be covered by opening new Branch on or before 31 March 2012.
- New branches to be opened before 30.09.2012 in villages with population ranging from 5000-9999.
- Villages with population 2000 and above shall be covered by opening a branch or deploying BC services before 31.03.2012.
- All other villages to be provided with banking services either through branch or BC model during the period 2013-15.

The analysis of the results of National Fiancial Inclusion Plan reflects the following achievement. (Table 5)

Table 5: Progress of SCBs in Financial Inclusion Plan (excluding RRBs)

Particulars	March 2010	March 2011	March 2012	Variation March 2012 over March 2010
1	2	3	4	5
No. of BCs/BC Agents deployed	33,042	57,329	95,767	62,725
Number of banking outlets in villages with population above 2,000	27,353	54,246	82,300	54,947
Number of banking outlets in villages with population less than 2,000	26,905	45,937	65,234	38,329
Total number of banking outlets in villages	54,258	1,00,183	1,47,534	93,276
Of which				
a) Through branches	21,475	22,662	24,701	3,226
b) Through BCs	32,684	77,138	1,20,355	87,671
c) Through Other Modes	99	383	2,478	2,379
Urban Locations covered through BCs	433	3,757	5,875	5,442
No-Frill accounts				
Number (millions)	50.3	75.4	105.5	55.2
Amount (‘ billions)	42.6	57.0	93.3	50.7
Overdraft availed in No - Frill Accounts				
Number (millions)	0.1	0.5	1.5	1.4
Amount (‘ billions)	0.1	0.2	0.6	0.5
Kisan Credit Card (KCC)				
Number of Accounts (millions)	15.9	18.2	20.3	4.4
Outstanding amount (‘ billions)	940.1	1237.4	1651.5	711.4
General Purpose Credit Card (GCC)				
Number of Accounts (millions)	0.9	1.0	1.3	0.4
Outstanding amount (‘ billions)	25.8	21.9	27.3	1.6
ICT Based Accounts through BCs Number of Accounts (millions)	12.6	29.6	52.1	39.5
Number of transactions during the year (millions)	18.7	64.6	119.3	183.9

Source: RBI

International Experience in Promoting Financial Inclusion

An interesting feature which emerges from the international practice is that the more developed the society is, the greater the thrust on empowerment of the common person and low income groups. It may be worthwhile to have a look at the international experience in tackling the problem of financial exclusion so that we can learn from the international experience.

The Financial Inclusion Task Force in UK has identified three priority areas for the purpose of financial inclusion, *viz.*, access to banking, access to affordable credit and access to free face-to-face money advice (V. Leeladhar, RBI Bulletin). UK has established a Financial Inclusion Fund to promote financial inclusion and assigned responsibility to banks and credit unions in removing financial exclusion. Basic bank no frills accounts have been introduced. An enhanced legislative environment for credit unions has been established, accompanied by tighter regulations to ensure greater protection for investors. A Post Office Card Account (POCA) has been created for those who are unable or unwilling to access a basic bank account. The concept of a Savings Gateway has been piloted. This offers those on low-income employments £1 from the state for every £1 they invest, up to a maximum of £25 per month.

A civil rights law, namely Community Reinvestment Act (CRA) in the United States prohibits discrimination by banks against low and moderate income neighbourhoods (V. Leeladhar, RBI Bulletin). The CRA imposes an affirmative and continuing obligation on banks to serve the needs for credit and banking services of all the communities in which they are chartered. In fact, numerous studies conducted by Federal Reserve and Harvard University demonstrated that CRA lending is a win-win proposition and profitable to banks. In this context, it is als0 interesting to know the other initiative taken by a state in the United States. Apart from the CRA experiment, armed with the sanction of Banking Law, the State of New York Banking Department, with the objective of making available the low cost banking services to consumers, made mandatory that each banking institution shall offer basic banking account and in case of credit unions the basic share draft account, which is in the nature of low cost account with minimum facilities.

What can be done to leverage financial inclusion?

Even though measures which are substantive are already in place, certain additional policies and initiatives by individual banks will help in pulling out more people from financial oblivion.

- For the financial inclusion program to be successful the government should make subscription to financial services mandatory. It should also realize that simplification of procedures will encourage more people to use banking facilities.
- Banks should move beyond traditional deposit and credit products and introduce insurance, mutual funds and other innovative products to people living in financial seclusion, enabling them to earn higher returns and manage risk better.
- Financial inclusion initiatives may not have a great impact if associated social issues are not addressed simultaneously.
- A major prerequisite for financial inclusion is rural infrastructure. All stakeholders, including banks, should contribute towards uplifting the underprivileged both financially and socially. An improved rural economy will surely result in better business for banks.

Conclusion

Economic growth follows financial inclusion is what is shown through empirical evidence. The gross domestic product will definitely be increased by boosting business opportunities, which will be reflected in our national income growth. People will have safe savings along with access to allied products and services such as insurance cover, entrepreneurial loans, payment and settlement facility, etc. Reserve Bank has been emphasizing that the bankability of the poor holds a major business opportunity for the banks. Taking banking to the sections constituting "the bottom of the pyramid", may not look like a profitable one but it should always be remembered that even the relatively low margins on high volumes can be a very profitable proposition.

To sum up, financial inclusion is the road that India needs to travel toward becoming a global player. Financial access will attract global market players to our country and that will result in increasing employment and business opportunities. Inclusive growth will act as a source of empowerment and allow people to participate more effectively in the economic and social process. Universal financial inclusion has to be ensured so that the objective of inclusive growth with financial stability can be achieved. The underlying belief is that only sound and strong institutions can promote financial inclusion in a sustainable manner and, towards this end, prudent regulations have to be in place to achieve inclusion while protecting financial stability and consumer interest.

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Abstract of Ph.D Thesis

Positioning Strategies applied in Marketing Products and services with particular reference to Automobile industry

Dr Y. Ashok

1 Need for the Study

The automotive industry has been growing significantly at the global level. The Indian automobile market was estimated at Rs.13 billion in 2010 and the number of passenger cars sold exceeded one 1 million. Foreign companies have been investing in the Indian automobile market through technology transfers, joint ventures, strategic alliances, exports and financial collaborations. By 2030, the Indian car market is envisaged to occupy the 3rd largest position globally. The main encouraging factors, triggered by the Indian economic reforms, are the opportunity for new investments, promising growth of Gross Domestic Product, growing per capita income, and attractive finance schemes. The car manufacturers, both Indian and foreign, have developed image-based positioning strategies for their brands. The present doctoral study was initiated to examine the positioning strategies of car marketers at Hyderabad and Secunderabad.

2 Objectives, Hypotheses and Methodology

The objectives of the study comprised:

(1)Understanding the scope of positioning strategy in relation to customer preference and purchase decisions (2) Identifying the key factors affecting the positioning process (3)Understanding the impact of differentiation of products/services on the buying behaviour (4)Understanding the impact of positioning strategies on market share, volume of sales and (5) analyzing how positioning strategy is yielding competitive advantage.

The research hypotheses formulated were: (1)Product positioned around unique features increases the brand value of the product and (2)Brand name, fuel efficiency and price are the main factors for buying the product. Literature review was done. The study is based on primary and secondary data. A random sample of 600 customers and 20 dealers was selected, and data was collected during January-March 2009. The secondary data covered a ten-year period. The data was analysed using statistical techniques, viz., descriptive statistics, chi-square test, and factor analysis.

3 Findings of the Study

Among the respondents 84% are male. A majority (47%) of the car owners are aged 31-45 years, followed by those aged 46-60 years (28%); 85% are married. Majority (50%) of the respondents have a family size of four members; 87% are graduates/post-graduates; 30% are in private service, 25% are engaged in business and 22% in Govt. service; 28% are in the group of Rs.2-4 lakhs per annum, 25% have income upto Rs. 2 lakhs and 20% have income exceeding Rs.8 lakhs.

The study is made for three segments of cars viz., small (priced upto Rs.4 lakhs), mid-size (Rs.4-6 lakhs) and luxury (above Rs.6 lakhs). Out of the sample, 52% own small cars, 35% mid-size and 13% luxury.

The highest market share is held by Maruti Suzuki (55%), followed by Hyundai (18%), and Tata, Ford, Honda and others accounted for the rest. This holds for small and mid-size segments. In the luxury segment, Toyota has the highest market share (38%), followed by Ford (28%), Honda (22%), and others.

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Regarding longevity of usage, majority come in 1 to 3 years period (41%), followed by less than one year (24%) and for 3 to 5 years (18%). In small, mid-size large segments, majority (39%, 40% and 53% respectively) are owning between 1-3 years. Friends are the main source of information for 36% of respondents and advertisements for 33%. This holds for each of the segments in terms of ranking. The family members play a major role in making a purchase decision for 49% of respondents, followed by influence of friends and relatives (38%). This order holds for each of the segments. Regarding purchase, majority (57%) used credit facility. Among the credit purchases 86% are through bank and 14% through dealer. This pattern holds for each segment. Most of the respondents are satisfied or highly satisfied with the performance of their car and after-sales-service (98% and 86% respectively). This position holds segment-wise also. The other aspects studied included opinion about change of brand/car, willingness to recommend their present brand to others to which the respondents are favourably inclined in general.

The chi square test results showed that (1) Income and the payment mode are independent (2)Longevity of usage and after-sales-service are independent (3)Income and inclination for change of brand are independent (4) Occupation and recommendation to others are dependent (5) Income and car brand are dependent (6) Gender and longevity of usage are independent (6) Age and longevity of usage of cars are dependent (7) Qualification and information sources are independent (8) Occupation and information sources are independent (9) Longevity of usage and performance are dependent (10) Brand and performance are dependent (11) Longevity of usage and inclination for change of brand are dependent (12) Source of brand information and inclination for change of brand are independent (13) Educational qualification and recommendation to others are dependent (14) Car brand and recommendation to others are independent.

In the case of dealers, 78% are in the business for more than five years. Monthly sales are over 150 cars for 60% of dealers. Most of the dealers (70%) are satisfied with the margin of commission offered by the company. They conduct various promotional activities to create awareness, motivate and attract the customers. These include auto shows, road shows, residential shows, corporate events, corporate discounts, financial schemes, and posters. Almost all the dealers perceive the ‘brand name’, ‘quality’ and ‘service’ as their Unique Selling Proposition.

The study analysed 20 variables affecting the buying behaviour of respondents. Use of factor analysis has revealed that price, fuel efficiency, brand name and power steering are the major influencing factors in the purchase decision of the customers. This holds for mid-size cars as well. For small car segment, price, fuel efficiency and brand name turned out to be the key factors. For luxury car segment the key factors are price, fuel efficiency, brand name and maintenance.

An analysis of the image-based positioning strategies revealed significant variation across the companies, such as ‘Let’s go’ (Maruti Udyog’s Alto), ‘The people’s car’ (Tata Motors-Nano), ‘Environment friendly car’ (Hyundai-Santro Eco), ‘Big car luxury at a small car price’ (Chevrolet-Spark) and ‘Super luxury car’ (Mercedes-Benz).

Based on the study, certain suggestions are made. Indian car manufacturers must grab the opportunity of growing demand. The manufacturers could focus on small-car segment for middle and upper middle class, with low price and fuel efficiency cars to improve their brand image. Customers in the age group of 31-45 years and income group of Rs.2 - 4 lakhs per annum provide a strong market-base. The dealers should come up with attractive finance options. The auto makers should strengthen their research and development efforts to improve designs, meet customer standards and achieve growing sales and domestic and international level. Government could render requisite support.

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