

ACCEPTANCE OF E-BANKING AMONG CUSTOMERS (An Empirical Investigation in India)

K.T. Geetha¹ & V.Malarvizhi²

¹Professor and ²Assistant Professor, Department of Economics,
Avinashilingam Institute for home Science and Higher Education for Women
Coimbatore -641043, TamilNadu, India

Abstract

Financial liberalization and technology revolution have allowed the developments of new and more efficient delivery and processing channels as well as more innovative products and services in banking industry. Banking institutions are facing competition not only from each other but also from non-bank financial intermediaries as well as from alternative sources of financing. Another strategic challenge facing banking institutions today is the growing and changing needs and expectations of consumers in tandem with increased education levels and growing wealth. Consumers are becoming increasingly discerning and have become more involved in their financial decisions. This paper investigates the factors which are affecting the acceptance of e-banking services among the customers and also indicates level of concern regarding security and privacy issues in Indian context. Primary data was collected from 200 respondents through a structured questionnaire. Descriptive statistics was used to explain demographic profile of respondents and Factor and Regression analyses were used to know the factors affecting e-banking services among customer in India. The finding depicts many factors like security and privacy and awareness level increased the acceptance of e-banking services among Indian customers. The finding shows that if banks provide them necessary guidance and ensure safety of their accounts, customers are willing to adopt e-banking,

Keywords: Security, Privacy, Awareness, Customers, E-banking

INTRODUCTION

The rapid advancement in electronic distribution channels has produced tremendous changes in the financial industry in recent years, with an increasing rate of change in technology, competition among players and consumer needs (Hughes, 2001). The proliferation of, and rapid advances in, technology-based systems, especially those related to the internet, are leading to fundamental changes in how companies interact with customers (Ibrahim et al, 2006; Bauer et al., 2005; Parasuraman and Zinkhan, 2002). Internet banking has become the self-service delivery channel that allows banks to provide information and offer services to their customers with more convenience via the web services technology. The evolution of e-banking has fundamentally transformed

the way banks traditionally conduct their businesses and the ways consumers perform their banking activities (Eriksson et al., 2008; Sayar and Wolfe, 2007). Today e-banking has experienced phenomenal growth and has become one of the main avenues for banks to deliver their products and services (Amato-McCoy, 2005).

Electronic banking (e-banking), also known as Internet banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels (Daniel, 1999; Sathye, 1999). E-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain

information on financial products and services through a public or private network, including the internet. Customers access e-banking services using an intelligent electronic device, such as a personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM), kiosk, or Touch Tone telephone. Chou and Chou (2000) identified five basic services associated with online banking: view account balances and transaction histories; paying bills; transferring funds between accounts; requesting credit card advances; and ordering checks for more faster services that can be provide by domestic and foreign bank.

E-banking reaps benefits for both banks and its customers. From the banks' perspective, e-banking has enabled banks to lower operational costs through the reduction of physical facilities and staffing resources required, reduced waiting times in branches resulting in potential increase in sales performance and a larger global reach (Sarel and Mamorstein, 2003). From the customers' perspective, e-banking allows customers to perform a wide range of banking transactions electronically via the bank's website anytime and anywhere (Grabner-Kraeuter and Faullant, 2008). In addition, customers no longer are confined to the opening hours of banks, travel and waiting times are no longer necessary, and access of information regarding banking services are now easily available (Hamlet, 2000). However the success of e-banking isn't without its problems. Firstly the adoption of e-banking has not kept pace with that of internet usage (White and Nteli, 2004). This gap is attributed to the lack of trust among bank customers, particularly among internet users age 65 and older (Ilett, 2005; Perumal and Shanmugam, 2005). Secondly, customers still prefer face to face interaction (Asher, 1999) due to reasons such as fear of the online environment and lack of trust in the internet. Recent literature on e-banking showed that the formation of trust can help reduce the impact of key inhibiting factors

such as fears about using the online service among non-e-banking customers (Vatanasombut et al., 2008).

In India, ICICI bank was the first bank which offered this delivery channel, by kicking off its online services in 1996. Other private sector banks like Citibank, IndusInd Bank and HDFC and Timesbank (now part of HDFC bank) started offering internet services in 1999. State bank of India launched its services in July 2001. Other public sector banks like Bank of Baroda, Allahabad Bank, Syndicate Bank and Bank of India, also rolled its services during the same time. Banks in India currently offers "Fully Transactional Websites" to their customers. The customers would conduct a variety of transactions through internet banking facility which includes: account summary, details of historical banking transactions, funds transfer, loan applications, bill payments, cheque book request, cheque status enquiry, stop cheque request, credit card payments/ statements, facilities to contact account managers, etc. In a survey conducted by IMAI and IMRB (IMRB and IMAI, 2006) the estimated number of internet users as of September, 2006 was 37 million and the number of "active users" was pegged at around 25 million. The survey also estimates around 2.4 million E-commerce users, which included internet banking users. An estimated 4.6 million Indian internet users are availing internet banking services as of 2007(Kothari, 2007). In India, slowly but steadily, the Indian customer is moving towards Internet banking. But they are very concern about security and privacy of internet banking (Malhotra and Singh, 2009).

The purpose of this paper is to gain an understanding of the acceptance of e-banking in an Indian market where the 70 percent population reside in rural areas and 30 percent population reside in urban area of the country (Gerrard and Cunningham, 2003). This study explore acceptance of e-banking in India from the point of view of customers

and investigate how customers perceive

LITERATURE REVIEW

Following the boom of new technologies such as the internet and mobile phones in practice, e-banking has also been the focus of numerous academic papers. Adoption, perception and usage of internet banking by consumers is one of the topics heavily examined in e-banking literature. Centeno (2004) argues that speed, the convenience of remote access, 7/24 availability and price incentives are the main motivation factors for the consumers to use internet banking. Durkin, et. al. (2008) notes that the simplicity of the products offered via internet banking facilitates the adoption of internet banking by consumers. Calisir and Gumussoy (2008) compare the consumer perception of internet banking and other banking channels and report that internet banking, ATM and phone banking substitute each other. Maenpaa et.al. (2008) examine the consumer perceptions of internet banking in Finland and their findings indicate that familiarity has a moderating role in the perception. Guerrero, et.al. (2007) examine the usage of internet banking by Europeans and their results indicate that ownership of diverse financial products and services, attitude towards finances and trust in the internet as a banking channel influence clients' usage of internet banking. Confirming other papers, Sohail and Shanmugham (2003) document accessibility of internet, awareness of e-banking and resistance to change are found to be influencing Malaysian's use of internet banking. Another factor that promotes clients usage of internet banking is seller support (Nilsson, 2007).

Perceived risk was one of the major factors affecting consumer adoption, as well as customer satisfaction of online banking services (Polatoglu and Ekin, 2001). Perceived risk usually arises from uncertainty. To Howcroft, et. al., (2002) the principal characteristics that inhibit online banking adoption are security and privacy. In

electronic banking services.

Malaysia it was found that security was main barrier to e-commerce expansion. Security is perhaps the most feared problem on the internet. Banks and customers take a very high risk by dealing electronically (Mukti, 2000; Chung and Paynter, 2002). It is noted that although consumer's confidence in their bank was strong, yet their confidence in the technology was weak (Roboff and Charles, 1998). Today's consumers are increasingly more concerned about security and privacy issues (Howcroft et al., 2002).

Potential customers mentioned Internet security, online banking regulations, consumers' privacy, and bank's reputation as the most important future challenges of online banking adoption. (Aladwani, 2001). Indeed, in Aladwani's (2001) study of online banking, potential customers ranked internet security and customers' privacy as the most important future challenges that banks are facing. Perceived usefulness, perceived Web security has a strong and direct effect on acceptance of internet banking, too. A high level of perceived risk is considered to be a barrier to propagation of new innovations (Ostlund, 1974). Influenced by the imagination-capturing stories of hackers, customers may fear that an unauthorized party will gain access to their online account and serious financial implications will follow. The survey by White and Nteli (2004) found that UK consumers ranked the security of bank's website as the most important attribute of internet banking service quality. This widespread anxiety is vividly illustrated by the results of Sathye (1999), who reported that three-quarters of Australian respondents expressed security concerns with regard to electronic banking. Overall, the literature appears to be unequivocal in its finding that the level of perceived risk is negatively related to the attitude towards banking on the World Wide Web (Black et al., 2001; Rotchanakitumnuai and Spence, 2003; Singh, 2004; Lee et al., 2005 and Gerrard et al.,

2006). For this reason, this study uses perceived security as a predictor of customer acceptance.

A majority of studies highlight the fact that “security” is the biggest single concern for customers when faced with the decision to use internet banking. Security has always been an issue, but its scope has changed from mere doubts about the privacy of personal information to worries of financial loss (Sayar and Wolfe, 2007). White and Nteli (2004) find that “security” is the most important attribute for UK internet

RESEARCH GAP

The review of literature suggest that most of the studies have been done on issues related to Internet banking in countries like Australia (Sathye, 1999), Malaysia (Mukti, 2000; Chung and Paynter, 2002; Sohail and Shanmugham 2004), Singapore (Gerrard and Cunningham, 2003a, 2006b), Turkey vs. UK (Sayar and Wolfe, 2007) and Saudi Arabia

RESEARCH HYPOTHESIS

It is indeed essential to emphasize the fact that the Indian culture is different from the countries where previous research was conducted. The researchers predicted that the familiarity and economic benefits of using the Internet has a significant impact on the acceptance of online banking. If the

- ❖ Security and trust has significant impact on adoption of e-banking among customers.
- ❖ Innovativeness has significant impact on adoption of e-banking among customers.
- ❖ Familiarity has significant impact on adoption of e-banking among customers.
- ❖ Awareness has significant impact on adoption of e-banking among customers.

METHODOLOGY

Data were collected from 200 bank customers belonging to 19 commercial banks in the city of Coimbatore, India during April-June 2011. Purposive sampling method was used in the selection of the sample respondents. The survey instrument used in the study was a structured questionnaire. The questionnaire was made up the dimension which measures the acceptance of e-banking among Indian customers. The variables were measured using multiple items. All of the

RESEARCH FINDINGS

banking customers. It is followed by “responsiveness of service delivery (speed and timeliness)”, “ease of use”, “credibility of the bank”, and “product variety”. Akinci et al. (2004) find that the selection of an internet banking service provider is effected by security, reliability and privacy. Security, which involves protecting users from the risk of fraud and financial loss, has been another important issue in safe use of the internet when conducting financial transactions in Saudi Arabia (Sohail and Shaikh, 2007)

(Sohail and Shaikh, 2007). Much work has not been done in India with regard to Internet banking issues. The present study intends to know the factors affecting the acceptance of e-banking by the customers and also indicates level of concern regarding security and privacy issues in Indian context.

customers are not used to accessing the Internet frequently, and if they do not trust the Internet as a secure environment to conduct financial transactions, then it is nearly impossible for them to accept online banking. Therefore, the following hypotheses were adopted:

scale items represented in the survey instrument utilized a five point categorical rating scale. The anchors used included: a) 1= strongly disagree, b) 2= disagree, c) 3= neither agree nor disagree, d) 4= agree, e) 5= strongly agree. Factor analysis was performed to assess the validity of the constructs and regression analysis was employed to analyze the data. Statistical Package for Social Sciences (SPSS) version 16 was used as the analysis tool.

Table 1 presents the demographic characteristics of the 200 respondents. About 67 percent of the respondents are males and 33 percent respondents are females. Table 1 also shows that all respondents are adults with 39 percent of the respondents in the age group of 20-30 years, 30 percent between 30-40 years, 20 percent between 40-50, 10

percent above 50 years and one percent being less than 20 years. The highest category using online banking services are in the age group of 20-30 years. Majority of the users of e-banking services were graduates (45 percent) and were earning a monthly salary of Rs. 10,000-30,000.

Table-I
Distribution of Respondents on the Basis of Demographic Factors

Demographic Variables	Categories	No. of Respondents
Gender	Male	134 (67)
	Female	66 (33)
Age (in years)	Less than 20	2 (1)
	20-30	78 (39)
	30-40	60 (30)
	40-50	40 (20)
	Above 50	20 (10)
Qualification	Up to 12th	47 (23.5)
	Graduates	90 (45)
	Post graduates	38 (19)
	Professionals	25 (12.5)
Income (per month)	Below 10,000	41 (20.5)
	10,000-30,000	73 (36.5)
	30,000-60,000	66 (33)
	Above 60,000	20 (10)

Source: Field Survey, 2011

Internal consistency tests were conducted using Cronbach alpha tests (Cronbach, 1946) for the four multi-item measures and are presented in table 2.

Table -II
Reliability Statistics

Measures	No. of Items	Reliability for this Sample
Security and Trust	7	0.836
Awareness	5	0.856
Familiarity	4	0.789
Innovation	4	0.749

Source: Estimation based on Field Survey

The alpha values for all factors vary from 0.75 to 0.86 which are considered acceptable for this type of study (Nunnally, 1978). This reveals that the variables load properly on these four factors.

To determine the underlying structure, the correlation matrix was initially examined to determine how appropriate it was for factor analysis. The Kaiser- Meyer- Oklin (KMO) value was .764, which was higher than the recommended minimum of 0.6

(Kaiser, 1974) indicating that the sample size was adequate for applying factor analysis. In addition, the value of the test statistic for sphericity (Bartlett, 1954) on the basis of a Chi-square transformation of the determinant of the correlation matrix was large (1.632E3). Bartlett's test of sphericity was significant, supporting the factorability of the correlation matrix and the associated significance level was extremely small (0.000). For factor extraction, principal component method was used, under the restriction that the eigen value of each generated factor was more than

one. A factor analysis was conducted to develop constructs that will help to evaluate factors that will influence customer's usage of e-banking. Four factors were generated, which explained 60.08 percent of the variance. The extracted factors were then rotated using variance maximizing method (Varimax). These rotated factors with their variable constituents and factor loadings are given in table 3. These factors are labeled security and trust, innovativeness, familiarity and awareness.

Table-III
Factor Analysis for Acceptance Factors of e-banking

Measurement Items	Security & Trust	Awareness	Familiarity	Innovativeness
Safety	.820			
Reliability	.790			
Liquidity	.716			
Insurance coverage	.782			
Transparency	.815			
Security & less risk to use	.841			
Privacy is maintained	.792			
Bill payment		.748		
e- ticket		.603		
Innovative services				
One stop banking		.758		.758
Demat holdings				.832
Easy to use				
Quick transaction				
Time saving			.826	
Convenient			.765	
No need to carry cash			.815	
Order cheque book		.782		
Apply for loans		.751		
Wide area network				
Online trading				
Eigen Values	4.484	3.913	1.770	1.297
Percentage of Variance	39.983	8.43	6.177	5.49
Cumulative Variance	39.983	48.413	54.590	60.08

Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 14 iterations

The regression analysis was conducted to reveal how different factors identified through factor analysis affect the use of online banking. The respondents' intention to intensify the

acceptance of e-banking services was regressed on the four independent variables, namely security and trust, innovativeness, familiarity and awareness. The results are reported in table 4.

Table-IV
Regression Analysis on E-banking Acceptance Factors

Diffusion Factors	Regression Co-efficient	t values	Significance Level
(Constant)	2.175	65.923	.000
Security and Trust	.078	2.346	.020
Awareness	.646	19.539	.000
Familiarity	.007	.222	.825
Innovativeness	-.035	-1.051	.294
R ²	.665		
F ratio	96.946*		

* Significant at 1 percent level

The regression equation was significant at 1percent level with the F value of 96.946 and the independent variables account for 67 percent of the variance in degree of the acceptance of e-banking by the customers. Security and trust ($\beta=0.078$) and awareness ($\beta=0.646$) were significantly positively related to the acceptance of e-banking services, while familiarity and awareness did not emerge as significant factors in explaining the acceptance of e-banking services by the respondents. Koufaris and Hampton-Sosa (2004) also demonstrated that perceived security control of the site strongly influenced acceptance of online banking by customers. If the customers are less concerned about unauthorized use of or illegal access to their

personal and financial data by third parties, they will have greater influence on the willingness to use online banking, which in turn will lead to higher acceptance to it. Thus, banks should improve their web security features in order to enhance the customer's acceptance. White and Nteli (2004) find that "security" is the most important attribute for UK internet banking customers. Akinci et al. (2004) find that the selection of an internet banking service provider is effected by security, reliability and privacy. Security, which involves protecting users from the risk of fraud and financial loss, has been another important issue in safe use of the internet when conducting financial transactions in Saudi Arabia (Sohail and Shaikh, 2007).

CONCLUSION AND RECOMMENDATIONS

In a country like India, there is need for providing better and customized services to the customers. Banks must be concerned about the attitudes of customers with regard to acceptance of online banking. The importance of security and privacy for the acceptance of internet banking has been noted in many earlier studies and it was found that people have weak understanding of internet banking, although they are aware

about risk. The present study shows that customers are more reluctant to join new technologies or methods that might contain little risk. Hence, banks should design the website to address security and trust issues. The recommendations to the banks are that they have to increase the level of trust between banks' website and customers. In order to achieve this, the following strategies should be applied by banks.

- ❖ Banks should ensure that online banking is safe and secure for financial transaction like traditional banking.
- ❖ Banks should organize seminar and conference to educate the customer regarding uses of online banking as well as security and privacy of their accounts.
- ❖ Some customers are hindered by lack of computer skills. They need to be educated on basic skills required to conduct online banking.
- ❖ Banks must emphasize the convenience that online banking can provide to people, such as avoiding long queue, in order to motivate them to use it.
- ❖ Banks must emphasize the cost saving that online can provide to the people, such as reduce transaction cost by use of online banking.

REFERENCES

1. Akinci, S., Aksoy, S. and Atılgan, E. (2004), Adoption of internet banking among sophisticated consumer segments in an advanced developing country, *International Journal of Bank Marketing*, Vol.22 (3), pp. 212-32.
2. Aladwani, M. Adel (2001), Online banking: a field study of drivers, development challenges, and expectations, *International Journal of Information Management*, pp. 213-225.
3. Amato-McCoy, D. (2005), Creating virtual value, *Bank Systems and Technology*, 1(22).
4. Asher, J. (1999), Small business: Suddenly everyone wants a piece of it, *American Bankers Association. ABA Journal*, 91, (4).
5. Barnes, J.G., Howlett, D. M. (1998), Predictors of equity in relationships between financial services providers and retail customers, *International Journal of Bank Marketing*, Vol.16, pp.15-23.
6. Bauer, H.H., Hammerschmidt, M. and Falk, T. (2005), Measuring the quality of e-banking portals, *International Journal of Bank Marketing*, Vol. 23, No. 2, pp. 153-75.
7. Black, N.J., Lockett, A., Winklhofer, H. and Ennew, C. (2001), The adoption of internet financial services: a qualitative study, *International Journal of Retail & Distribution Management*, Vol.29 (8), pp. 390-398.
8. Calisir F. and Gumussoy, C. A., (2008), Internet banking versus other banking channels: Young consumers' view, *International Journal of Information Management*, Vol.28, pp. 215-221.
9. Centeno, C. (2004), Adoption of Internet services in the Acceding and Candidate Countries, lessons from the Internet banking case, *Telematics and Informatics*, Vol.21, pp. 293-315.
10. Chou, D., & Chou, A.Y. (2000), A Guide to the Internet Revolution in Banking, *Information Systems Management*, Vol.17 (2), pp. 51-57.
11. Chung, W. and Paynter, J. (2002), An Evaluation of Internet Banking in New Zealand, In *Proceedings of 35th Hawaii Conference in System Sciences (HICSS 2002)*, IEEE Society Press.
12. Daniel, E. (1999), Provision of electronic banking in the UK and Republic of Ireland, *International Journal of Bank Marketing*, Vol.17(2), pp. 72-82.
13. Durkin, M., Jennings, D., Mulholland G. and Worthington, S. (2008), Key influencers and inhibitors on adoption of the Internet for banking, *Journal of Retailing and Consumer Services*, Vol.15, pp. 348-357.
14. Eriksson, K., Kerem, K., & Nilsson, D. (2008), The adoption of commercial innovations in the former Central and Eastern European markets. The case of internet banking in Estonia', *International Journal of Bank Marketing*, Vol.26 (3), pp. 154-69.

15. Gerrard, P. and Cunningham, J.B. (2003), The Diffusion of internet banking among Singapore consumers, *The Journal of Bank Marketing*, Vol.21 (1), pp. 16-28.
16. Gerrard, P., Cunningham, J.B. and Devlin, J.F. (2006), Why consumers are not using internet banking: a qualitative study, *Journal of Services Marketing*, Vol.20 (3), pp. 160-168.
17. Grabner-Kräuter, S., & Faullant, R. (2008), Consumer acceptance of internet banking: the influence of internet trust, *International Journal of bank marketing*, Vol.26 (7), pp. 483-504.
18. Guerrero, M. M., Egea, J. M. O. and Gonzalez, M. V. R. (2007), Application of the latent class regression methodology to the analysis of Internet use for banking transactions in the European Union, *Journal of Business Research*, Vol.60, pp. 137-145.
19. Hamlet, C. (2000), Community banks go online, American Bankers Association. *ABA Journal*, Vol.92(3).
20. Howcroft, B., Hamilton, R. and Heder, P. (2002), Consumer attitude and the usage and adoption of home-based banking in the United Kingdom, *International Journal of Bank Marketing*, Vol.20 (3), pp. 111-121.
21. Hughes, T. (2001), Market orientation and the response of UK financial services companies to changes in Market conditions as a result e-commerce, *International Journal of Bank Marketing*, Vol.19 No.6, pp. 222-231.
22. Ibrahim, E.E., Joseph, M and Ibeh, K.I.N (2006), Customers' perception of electronic service delivery in the UK retail banking sector, *International Journal of Bank Marketing*, Vol. 24, No. 7, pp. 475-493.
23. Ilett, D., (2005), Online Bankers to Double by 2010, Retrieved on April 8, 2008,<http://www.silicon.com/financialservices/0,3800010322,39153014,00.htm>.
24. IMRB and IMAI (2006), Internet in India- 2006 (Summary Report of I-Cube, 2006), New Delhi: IMRB International (e-technology Group@IMRB).
25. Kothari,D.(2007), Banks are now just a Click or SMS away, *The Week*, Vol.25, No.48, pp. 63-76.

ON THE VOLATILITY OF SENSEX

C.Nateson¹ and D.Suganya²

¹Professor, Jansons School of Business, Kaurnmathampatti, Coimbatore, India.

²Assistant Professor, SNT GAMSAT, Madukkarai, Coimbatore, India.

ABSTRACT: The present study seeks to analyse Volatility of popular stock index SENSEX. The present study is based on the closing time series data of SENSEX covering the period from 3rd January 2000, to 30th June 2011. The year 2008 has recorded higher Volatility compared to the other years of the study. Volatility fell in the year 2009 from the high of 2008. The years after were comparatively calmer. In the year 2000, the Volatility was higher signifying enhance market activity. The overall daily Volatility for SENSEX was approximately 1.70 % while the annualized value was approximately 25%-26%. Events Reported around Daily Returns in Excess of +/-5% have also been identified.

Keywords: Unit Root Test, Box-Ljung Statistics, Kurtosis, Box-pierceQ statistics.

1. INTRODUCTION

The Stock Market is reflecting worldwide developments. In fact, it is really reflecting the developed economies as well as the Asian economies. There is a saying: Stock Markets have predicted 10 out of the last 3 recessions. With plummeting share prices making headline news, it is worth considering the impact of the Stock Market on the economy.

The financial system of a country is expected to work in a way that facilitates the channelization of resources from the surplus sectors to the deficit sectors which have a pressing need for them. This is needed with a view to ensure growth in the economy. In order to do this, an economy needs a vibrant Stock Market which would ensure safety, integrity and liquidity to the investing community which makes investments in a wide range of financial instruments. The movement of prices up or down of the Stock Markets are always in the news. It is called as "Volatility" in Stock Market parlance. This high Volatility has given sleepless nights to a lot of investors as well as market regulators. Public interest in market movements has intensified as more and more

investors have flocked to the Stock Markets to be a part of bonanza. Wide sharp price fluctuation may be unnerving for the millions of such people, who are relatively new to investing.

Studies conducted by Levine and Zervos (1998) reveal that being a part of the financial system, Stock Market plays a crucial role to the economic growth of the country. Raju M.T, Ghosh Anirban (2004) held that Volatility estimation is important for several reasons and for different people in the market. Pricing of securities is supposed to be dependent on Volatility of each asset. However, investing activity is subject to various type of risk. Dispersion of returns of an asset from its mean return is called Volatility. Stock Market Volatility is asymmetric, that is, low when prices rise and vice versa. Actually Volatility receives a great deal of concern because it can be used as a surrogate risk. A rise in the Volatility could be interpreted as a rise in risk of the concerned investment and investors may transfer funds to less risky assets.

2. LITERATURE REVIEW

French et al (1987) examined the relationship between stock prices and Volatility and reported that unexpected Stock Market returns are negatively related to the unexpected changes in Volatility. This negative relation provided indirect evidence of a positive relation between expected risk premiums and Volatility. Market Volatility may also affect consumer spending . According to Garner (1988), Stock Market crash in 1987 reduced consumer spending in the USA. Further more , Gertler and Hubbard (1989) revealed that business investment spending is also influenced by stock return Volatility. Schwert (1989) characterized the changes in Stock Market Volatility through time. The Stock Volatility increased by a factor of two or three during this period compared with the usual level of the series. There is no other series that experienced the similar behavior. The relationship between Stock Volatility and several measures of corporate profitability was also analysed.

Akgiray (1989) presented a new evidence about the time series behavior of Stock Market returns and summarized the results of applying some new time series models to daily return series. It was discovered that daily series exhibited much higher degrees of statistical dependence than that had been reported in previous studies. This finding was the result of recognizing the possibility of non-linear stochastic processes generating security prices. In addition to daily data, some of the analysis were also conducted for weekly and monthly data. Schwert (1990) in his study surveyed the academic evidence on Stock Market Volatility in an attempt to put the current policy debate, that the general level of Stock Market Volatility has been rising, in perspective. Volatility had been measured by the standard deviation of rates of return to a broad Stock Market index such as the Standard and Poor's 500.

Roy and Karmakar's study (1995) investigated on measurement of Stock Market Volatility for the period 1935 to 1992. They focused on the measurement of the average level of Volatility in the Indian Stock Market and whether it had increased in the current period. The current level of Volatility had been compared with this average measure in order to understand whether it was above or below the historical level. The study conducted by Bekaert (1995) observes that in segmented capital markets , Volatility is a critical input in the cost of capital. Volatility can also be used as a decision making criterion.

Piyush Kumar Chowan and Vasant Shukla(2000) have tried to analyse the following questions like, Has the Stock Market Volatility increased? Has the Indian Stock Market developed into a speculative bubble due to the emergence of New Economy stocks? Why is this Volatility pronounced? They tried to unearth the rationale for those weird movements. According to Poon et al (2003), Volatility has a wide sphere of influence including investment, security valuation, risk management and policy making. They also put emphasis on the importance of Volatility forecasting in various things such as options pricing, financial risk management etc. Karmakar (2006) measured the Volatility of daily stock return in the Indian Stock Market over the period of 1961 to 2005. Using GARCH model, he found strong evidence of time varying Volatility.

Parag Parikh (2009) had thrown flash that effect of the events on the markets are basically short lived, unless if it has the long-term implications. Basically, there are 3 E's that move the markets: Earnings, Emotions & Events. The first E factor is fundamental and stands for "Earnings". This factor spells out the stock price in relation to the company's earnings- which tells us in general , whether a stock is cheap or

expensive. However the second E factor, i.e. “Emotions” that moves and shakes the market in crazy way-such as we saw post-budget. These emotions were mainly greed and fear, where greed that prevented retail investors from taking advantage of a rising market and fear made them flee away from the market when they should be flocking to buy. The fundamentals of the companies do not change every day, yet the share prices move up and down daily. This volatility is due to the third ‘E’ which stands for ‘events’. Events impact emotions or sentiments in a positive or negative way. Not only the events per se, but also how these are presented but the media impact the sentiments. Based on

the presentation and interpretation of that events, people make decisions by taking short cuts without processing the information based on how quick the information is received.

Stock Market Volatility is a popular area of research due to the aforementioned facts. In the Indian context, Som Sankar Sen (2009) have successfully explored the movements of Stock Market Volatility of S&P CNX Nifty. The present study therefore, seeks to analyse Volatility of another popular stock index SENSEX.

3. DATA

The present study is based on the closing time series data of SENSEX covering the period from 3rd January 2000, to 30th June 2011. The sample consists of 2870 observation. The data have been collected form BSE website.

4. METHODOLOGY

4.1. CALCULATION OF DAILY MARKET RETURNS

Daily market returns (r_t) have been computed as follows:

$$r_t = \ln(I_t) - \ln(I_{t-1})$$

Where, \ln denotes natural logarithm

I_t is the closing index value at day ‘t’

I_{t-1} is the closing index value at day before ‘t’

The present study uses the logarithmic difference of prices of two successive periods for calculation of rate of return. The logarithmic difference is symmetric between up and down movements and is expressed in percentage terms for ease of comparability with the straightforward idea of a percentage change.

The standard deviation is also based on logarithmic units. The standard deviation of returns r_t from a sample of n observations is the square root of the average squared deviation of returns from the average return \bar{r} in the sample. Thus standard deviation S , is defined as

$$S = \sqrt{\frac{\sum_{i=1}^N (x_i - \bar{x})^2}{N-1}}$$

In the present study the standard deviation has been calculated by this method. The logarithmic standard deviation is expressed in percentage term after multiplying it by 100. Daily Volatility have been annualized by multiplying them with the square root of the number of trading days .While annualizing the returns , the multiplier used is the number of trading days.

4.2 DISTRIBUTION OF DATA

To observe the pattern of distribution of the time series , Data Skewness and Kurtosis have been calculated . Zero Skewness implies symmetry in the distribution, whereas, Kurtosis indicates the

extent to which probability is concentrated in the centre and especially at the tail of the distribution, Kurtosis measures the peakedness of a distribution relative to the normal distribution. A distribution with Equal Kurtosis as the Normal Distribution is called as ‘Mesokurtic’; a distribution with small tails is called ‘Platykurtic’ and a distribution with a large tail is called ‘Leptokurtic’.

Furthermore, to test normality of the time series data, the study applies Jarque-Bera Test in the following form:

$$JB = (n/6)(S^2 + (1/4)(K - 3)^2)$$

where n is the number of samples or degrees of freedom, S is the Skewness, and K is the Kurtosis. For a normal distribution, the values of S and K should be 0 and 3 respectively so that JB becomes equal to 0. A high value of JB is an indicator of non-normality.

4.3 AUTO CORRELATION TEST

To judge the auto correlation of the time series, data Box-pierce Q statistic in the following form has been used.

$$Q = n \sum_{k=1}^m r_k^2$$

Where n=sample size and m=lag length. Since the present study uses daily data, a lag length upto 16 has been considered. If the computed Q statistic is significant, then it indicates the presence of autocorrelation.

4.4 UNIT ROOT TEST

The time series data used in the empirical study must be stationary. Mean , variance and co-variance of a stationary time series data does not change with the time shift. If the data is non stationary, then regression results using such data would be spurious , because the usual ‘t’ test would not be applicable to test the significance of coefficients. To test the stationarity, the unit root test is applied on the time series return data. In this regard, the Phillips-Perron Unit Root Test is used. In Phillips-Perron Unit Root Test, non-parametric statistical methods are used to take care of the serial correlation in the error term (μt) of the following equation:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \mu_t$$

Where, Yt is the time series data under consideration

The test is based on the null hypothesis H0: Yt is not I(0). If the PP statistics are less than the critical value, then Yt is not stationarity.

Table 1
Descriptive statistics of the daily SENSEX

Mean	0.000437
Median	0.001207
Maximum	0.159900
Minimum	-0.118092
Std. Dev.	0.017098
Skewness	-0.186473
Kurtosis	9.137619
Jarque-Bera	4521.380
Probability	0.000000
Sum	1.254515

Sum Sq. Dev.	0.838695
Observations	2870

Descriptive statistics of the daily SENSEX return have been reported in the Table 1.

It could be seen that the returns during the study period varies between -0.118092 to 0.159900. So a wide range of fluctuation in daily returns could be witnessed. The mean return during the whole study period is 0.000437 which is very near to zero. Therefore a mean reverting process is a certain possibility.

Skewness is negative indicating a relatively long left tail compared to the right one. Kurtosis is excess of 3 indicating heavy tails and the distribution is leptokurtic. These

findings are similar to the existing literature. Mandelbrot et al (1963) observed Volatility clustering and leptokurtosis are common observation in financial time series. Moreover, a highly significant large JB statistic confirms that the return series is not normally distributed. Daily observations have been used in the present one.

Harvey (1995) points out that in many emerging markets, time series return data do not follow normal distribution. The graphical representation of the SENSEX daily returns for the selected period has been distributed in the Figure 1

Figure 1: BSE Sensex Return

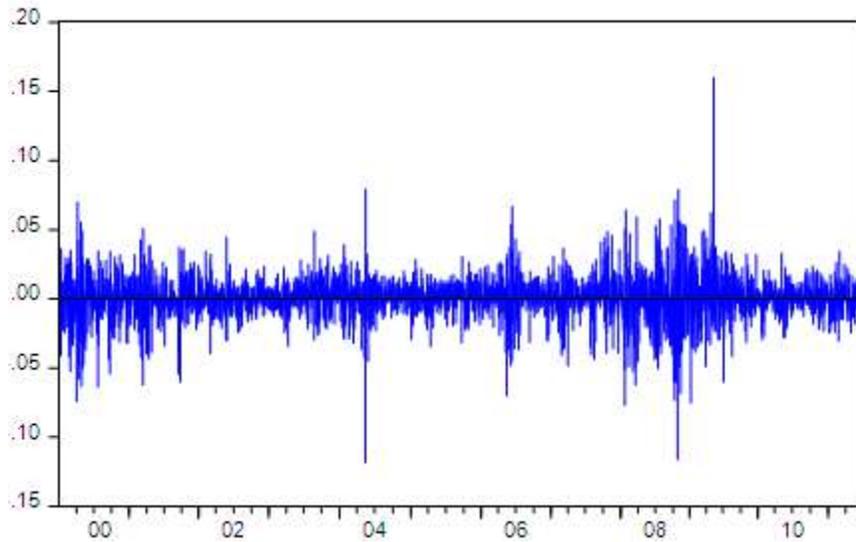


Table 2
BSE Sensex : Volatility of Daily Returns in a Year (January 2000-June 2011)

Year (1)	n* (2)	Average Daily return (%) (3)	Daily Volatility (%) (4)	Annualised return (%) (5)	Annualised Volatility (%) (6)
2000	250	(-)0.09	2.20	(-)22.5	34.78505
2001	248	(-)0.07	1.71		
2002	251	0.01	1.10	(-)17.36	26.92911
2003	253	0.21	1.18		
2004	254	0.04	1.60	2.51	17.42728
2005	251	0.14	1.08		
2006	250	0.15	1.62	53.13	18.76905
2007	249	0.15	1.54		
2008	246	(-)0.30	2.85	10.16	25.4998
2009	243	0.24	2.18		
2010	252	0.06	1.00	35.14	17.11042
2011	124	(-)0.06	1.19		
				37.5	25.61445
				37.35	24.30079
				(-)73.8	44.7005
				58.32	33.98284
				15.12	15.87451
				(-)7.44	13.25128
Overall	2871	.043	1.70	9.56**	25.78**

Number of trading days*

These figures are calculated by taking the average number of trading days in a year**

The above table shows measure of Volatility of daily returns in a year. A glance at the Table 2 shows that the year 2008 has recorded higher Volatility compared to the other years of the study. Volatility fell in the year 2009 from the high of 2008. The years

after were comparatively calmer. In the year 2000, the Volatility was higher signifying enhance market activity. The overall daily Volatility for SENSEX was approximately 1.70 % while the annualized value was approximately 25%-26%.

Table 3
BSE Sensex: Daily Returns in Excess of +5%, -5% (January 2000 –June 2011)

Rank	Year	Date and Month	Positive Change (%)	Rank	Year	Date and Month	Negative Change (%)
1	2009	18 th May	15.989	1	2004	17 th M ay	-11.809
2	2004	18 th May	15.931	2	2008	24 th Oct	-11.604
3	2008	31 st Oct	7.900	3	2008	21 st Jan	-7.695
4	2008	13 th Oct	7.158	4	2009	7 th Jan	-7.523
5	2000	7 th Apr	6.992	5	2000	4 th Apr	-7.422
6	2006	15 th Jun	6.667	6	2008	10 th Oct	-7.328
7	2008	25 th Jan	6.409	7	2006	18 th May	-7.003
8	2009	4 th May	6.217	8	2008	11 th Nov	-6.838
9	2008	25 th Mar	5.893	9	2000	24 th July	-6.366
10	2008	23 rd Jul	5.772	10	2000	2 nd May	-6.321
11	2008	28 th Oct	5.693	11	2004	14 th May	-6.298
12	2008	10 th Nov	5.580	12	2008	17 th Mar	-6.223
13	2000	26 th Apr	5.554	13	2001	13 th Mar	-6.220
14	2008	3 rd Nov	5.463	14	2008	15 th Oct	-6.051
15	2006	9 th Jun	5.388	15	2001	21 st Sep	-6.027
16	2008	4 th Dec	5.367	16	2009	6 th July	-6.008
17	2008	21 st Nov	5.347	17	2008	6 th Oct	-5.958
18	2008	19 th Sep	5.313	18	2008	17 th Oct	-5.898
19	2008	2 nd Jul	5.281	19	2000	17 th Apr	-5.799
20	2008	10 th Dec	5.239	20	2000	22 nd Sep	-5.425
21	2001	14 th Mar	5.076	21	2001	17 th Sep	-5.413
22	2008	23 rd Jan	5.036	22	2001	14 th Sep	-5.411
				23	2008	3 rd Mar	-5.260
				24	2000	29 th Feb	-5.251
				25	2008	22 nd Jan	-5.100
				26	2000	8 th May	-5.034
				27	2008	15 th July	-5.033

Table 4
Sensex: Events Reported around Daily Returns in Excess of +5%
(January 2000 –June 2011)

7 th Apr 2000	6.99	A recovery on the NASDAQ and the government's soft pedaling of FII tax issue led to the flare up in the share prices with the BSE sensex registering its third highest gain of 352.47 points since its inception.
26 th Apr 2000	5.554	A rally was finally insight as strong buying support on the back of the good fundamental returns and an upturn on the NASDAQ pushed up the 30-share Index by 261.81 points.

14 th Mar 2001	5.076	The sensex which tamed a whopping 516 points or 12.7 percent over the previous three days following political turmoil, payment crisis on bourses and Global Markets meltdown, shot up on 14 th March 2001. Almost all the sectoral indices also rose with BSE IT sector index gaining 12 percent.
18 th May 2004	7.931	Investor sentiment lifted further on events that Ms.Sonia Gandhi had refused to accept the job of Prime Minister. The Reserve Bank of India provided yet another Boost when it eased margin requirements for bank lending against shares.
9 th Jun 2006	5.388	Led by index heavyweight Reliance Industries, the stock market staged a smart rebound on Friday, ending a four-day losing streak, with the BSE Sensex recorded its biggest single-day gain since March 1992.
15 th Jun 2006	6.667	Recovery in some Asian markets gave way under a fresh bout of profit booking.
23 rd Jan 2008	5.036	SENSEX rose more than 860 points mainly due to the previous days interest rate cut in the US.
25 th Jan 2008	6.409	Sensex soared 1140 points in record-breaking rally .
25 th Mar 2008	5.893	The market spurted after the Congress-led United Progressive Alliance (UPA) Government retained power by securing trust vote in Parliament late on 22 July 2008, ending political uncertainty.
2 nd Jul 2008	5.281	Stock market which lost heavily in the last three trading sessions, bounced Back on Wednesday, mainly on buying support from domestic institutions and property traders. Positive news on the political front, strong opening of the European markets and short covering brought buyers back to badly battered market.
23 rd Jul 2008	5.772	The nearly 6 percent gain for the Sensex appeared to be more of Euphoric reaction to UPA's winning the trust vote in Parliament rather than on the basis of any underlying fundamentals.
19 th Sep 2008	5.313	Developments on the Global Front, Particularly from the Euro Region, continued to be trigger for stock markets.
13 th Oct 2008	7.158	RBI cuts interest rates ,Sensex goes up 800 points to finish 11,300 levels Diwali cheers markets, Sensex was up by 505 points.

28 th Oct 2008	5.693	Indian markets have been resilient than more others in the wake of the Global financial crisis, with the Sensex having gained more than 92.3 percent from the Diwali 2008 and 17 month high.
31 st Oct 2008	7.9	The BSE 30-share Sensex rose 1086.99 points or 12.49% to 9788.06 in the week ended Friday, 31 October 2008.
3 rd Nov 2008	5.463	Sensex surged 515 points on global rally and as well as due to the massive Liquidity support announced by the RBI.
10 th Nov 2008	5.58	Last week BSE Sensex was very volatile. Crucial support level had been 9700-10200 ,while resistance level has been from 10700-10900 in daily charts.
21 st Nov 2008	5.347	U.S. stocks plunged yet again on Friday, as a frantic flight from risk prompted by investors' deepening economic fears drove the benchmark Standard & Poor's 500 index to its lowest level, however Sensex showed a positive sign.
4 th Dec 2008	5.367	India's Sensex Gained 482 Points on Rate Cut hopes.
10 th Dec 2008	5.239	Surged over 320 points, trading was firm led by banking realty and capital goods stocks.
4 th May 2009	6.217	BSE Sensex crossed 16,000 marks. A positive government view on P-notes in a state Affidavit to the Supreme court and strong FII inflows , optimistic manufacturing data from China and the taking of fresh positions on the first day after F&O expiry, all this after a four day closure of the market served to push stocks up.
18 th May 2009	15.98	The winning streak of United Progressive Alliance (UPA) had spread to the markets with the Sensex surging above 1300 points .

Table 5
Sensex: Events Reported around Daily Returns in Excess of -5%
(January 2000 –June 2011)

29 th Feb 2000	-5.251	Sensex dipped by over 294 points at close with the Budget Proposals.
4 th Apr 2000	-7.422	Sensex stocks crashed due to a Bearish NASDAQ fears of income-tax investigations against FIIs .
17 th Apr 2000	-5.799	Share prices on the BDE went into a much expected free fall under the backlash of Friday's development in the U.S markets

2 nd May 2000	-6.321	Equities went into a tailspin on Tuesday and the Sensex witnessed a wild swing of more than 393.17 points intra-day on a day of volatile trading on the BSE.
8 th May 2000	-5.034	Sensex prices went into a tailspin of Monday as FII sales triggered panic in the market. The BSE Sensex lost ground by 4.91 percent in volatile trade.
24 th Jul 2000	-6.366	Recording its worst fall in July 24, 2000, the 30-share BSE Sensitive Index (Sensex) eventually ended with a massive loss of 229.94 points
22 nd Sep 2000	-5.425	Bears triumphed on Dalal Street as bull operators were caught in a panic following meltdown in the major global markets.
13 th Mar 2001	-6.22	The Sensex touched its low of 3436 on 13 Mar 2001. Major software stocks hit their 52-week lows the same day on BSE.
14 th Sep 2001	-5.411	Sensex down on war fears. The prices plunged further following unabated selling pressure by FIIs, pulling down the benchmark intra-day to an eight year low.
17 th Sep 2001	-5.413	17% fall to 872. Stock prices, across the board completing the full eight-year circle pushed down the benchmark indices to nearly eight-year low.
21 st Sep 2001	-6.027	The nervousness in the global equity markets hit the domestic bourses once again as FIIs continued their battering in new-economy stocks on neighbouring countries by the U.S
14 th May 2004	-6.298	Sensex lost 330 points to fall to 5,070, the sentiment of the tradable list became bullish with a few counters triggering a fresh downtrend.
17 th May 2004	-11.80	The roller-coaster ride in the markets on Monday saw red splashed all over when trading was halted at about 11:20 a.m. All stocks that were part of BSE 100 were in negative territory.
18 th May 2006	-7.003	Sensex registered a fall of 826 points (6.76 per cent) to close at 11,391, following heavy selling by FIIs, retail investors and a weakness in global markets.
7 th Jan 2008	-7.523	Sensex crashed by 749.05 points.
21 st Jan 2008	-7.695	Sensex saw the biggest absolute fall in history, shedding 2062 points intra-day.
22 nd Jan 2008	-5.1	SENSEX was more than 800 points down, many investors said that they had a tough time liquidating their positions or picking up some stock as brokers could not put these trades through.

3 rd Mar2008	-5.26	Sensex witnessed second largest fall by losing 900.84 on a steep fall in the US equities dealt a severe blow to domestic stocks rattled as they were already there by the Budget announcements of the previous week.
17 th Mar 2008	-6.223	Sensex crashed by 951 points to close at 14,809 on weak cues from the overseas markets.
6 th Jul 2008	-6.008	BSE Sensex fell by 870 points on concerns over the high fiscal deficit set by the Union Budget .
15 th Jul 2008	-5.033	Sensex plunged 654.32 points or 4.91% , seemed ranged for most of the day but collapsed in late trade as Tech stocks were under pressure.
6 th Oct 2008	-5.958	Sensex fell by a massive 724 points to close below the 12000 level for the first time. In more than two years as the panic in the International markets gripped domestic Investors too.
10 th Oct 2008	-7.328	The selling pressure was so intense that the Sensex fell by more than 1000 points, recording one of the steepest declines in the last few trading days.
15 th Oct 2008	-6.051	Markets came under immense pressure following heavy FIIs selling leading to a more than five percent drop in the Sensex.
17 th Oct 2008	-5.898	SENSEX crashed below the psychological 5 figure mark of 10K, following extremely negative global financial indications in US and other countries.
24 th Oct 2008	-11.60	Investors were witness to one of the blackest days in Indian stock market history as FIIs shed a record quantity of Indian stock sending the Sensex plunging 11 percent, it drove it back three years in time.
11 th Nov 2008	-6.838	India's 15 percent decline in exports in October-the highest decline in several years and economic worries also dampened investor sentiment that made Sensex fall by 6.61 percent.

5. AUTO CORRELATION TEST

The Box-Ljung Statistic of return time series data for lag 1 and lag 16 have been reported in Table 6.

Table 6
Box-Ljung Statistic of Return Time series Data

Lag	Box-Ljung Statistic	Sig
1	14.265	.000
16	43.500	.000

From the above table, it is clear that Box-Ljung Statistics are highly significant. Hence, the return series is serially correlated.

6. UNIT ROOT TEST

The PP test result is reported in the Table 7. The Computed value of PP is -49.91230 which is far greater than the critical value of -3.432438 at 1% significant level. Therefore, it appears that the variable used in this study is stationary at its level.

Table 7
Unit Root test Results

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-49.91230	0.0001
Test critical values: 1% level	-3.432438	

7. CONCLUSION

BSE and NSE represent themselves as synonyms of Indian stock market. The history of Indian stock market is almost the same as the history of BSE. Most of the trades in the Indian Stock Markets are conducted in BSE and NSE. In this paper, volatility of return series calculated from daily time series of BSE SENSEX have been analysed. The year 2008 has recorded higher Volatility compared to the other years of the study. Volatility fell in the year 2009 from the high of 2008. The years after were comparatively calmer. In the year 2000, the Volatility was higher signifying enhance market activity. The overall daily Volatility volatility of BSE SENSEX at scrip level.

for SENSEX was approximately 1.70 % while the annualized value was approximately 25%-26%.The study reveals that the return series is mean reverting. Moreover, the return series is leptokurtic and returns are serially correlated. Furthermore, a modest attempt has been made to identify the events reported around daily returns in excess of +/- 5 %. To conclude, the movements of volatility has been explored using daily return. There may be some macroeconomic variable which could influence the market volatility and a scrip level analysis may be useful to study the

REFERENCES

- [1] Akgiray, V., (1989), "Conditional Heteroskedasticity in Time series of Stock Returns: Evidence and Forecasts", *Journal of Business*, Vol.62, No.1, pp 55-80
- [2] French K, Schwert G and Stambaugh R (1987), "Expected Stock Returns and Volatility", *Journal of Financial economics*, Vol. 19, No.1, pp.3-30.
- [3] Garner A.C., 1988, "Has Stock Market Crash Reduced Customer Spending?" *Economic Review*, Federal Reserve Bank of Kansas City, April, 3-16.
- [4] Levine, Ross, and Sarah Zervos, 1998, "Stock Market Development and Long-Run Growth", *World Bank Policy Research*, WPS No. 1582.
- [5] Mark L. Gertler & R. Glenn Hubbard, 1989. "Financial Factors in Business Fluctuations," *NBER Working Papers 2758*, National Bureau of Economic Research, Inc.
- [6] Parag Parikh (2009) "Events and Markets" *Dalal Street Investment Journal*, Aug 3-16, 2009, pp.65-72.
- [7] Piyush kumar Chowan and Vasant Shukla(2000), "A study of volatility in Indian Stock markets to understand the reasons for turbulence in the last two years- Volatility in Indian Stock Market", *Research paper*, Xavier Institute of Management, Bhubaneswar.
- [8] Raju M.T, Ghosh Anirban (2004) : "Stock Market Volatility – An International Comparison", *Journal: Research on Indian Stock Volatility*. Vol 14. Publisher: Emerald Group Publishing Limited.
- [9] Roy, M.K and Karmakar, M., (1995) "Stock Market Volatility, Roots and Results", *Vikalpa*, Vol.20, No.1, January-March, pp 7-48.
- [10] Schwert, W.G., (1989), "Why does Stock Market Volatility change over Time?" *The Journal of Finance*, Vol.XLIV, No. 5, pp 1115-53.
- [11] Schwert, W.G., (1990), "Stock Market Volatility", *Financial Analysts Journal*, May-June ,pp 23-34.
- [12] Singh, Ajit, (1997) "Financial Liberalisation, Stock Markets and Economic Development", *The Economic Journal* 107(May) pp 771-782.
- [13] The BSE Website, Available: <http://www.bseindia.com/>

BANKS IN EQUITY MARKET - A RISK ANALYSIS

K.S.Nemavathi¹ and A.Ashraf Ali²

¹*Assistant Professor, School of Business, Dr.N.G.P Institute of Technology Coimbatore, Tamilnadu.*

²*Dean, School of Management, Professional Educational Trust's Group of Institutions, Coimbatore, Tamilnadu.*

ABSTRACT

Equity market is often considered as the main engine driving the economy. In emerging countries, equity market plays a vital role in economic development. Many emerging markets, firms would need large quantum of fund to expand and be able to pursue the prevalent high growth rates. Equity market is the only liquid financial market in many emerging countries and hence its role in economic development cannot be overemphasized. In addition, all over the world, financial markets are getting less insular. The investors in developed countries are seeking investment opportunities beyond the confines of their domestic economy to enhance return and diversify risks. The investment in stock involves many risks. The investors have to carry analysis before investing in any stocks. Most of the investors are unaware about the analysis to be carried out before investing. This study involves analysis of earnings per share, price to earnings and analysis of risk through beta value, of the banks in equity market. Technical analysis helps the investor to know whether the stock is in over sold region or over bought region and to find any trend reversals. Based on these analysis investor can make buy or sell decision. The researcher concludes that the maximum return is based on the maximum risk in which the investor is going to face.

Key Words: Price Earnings Ratio, Earnings per Share, Risk, Equity Market

1. INTRODUCTION

Banking in India originated in the first decade of 18th century with The General Bank of India coming into existence in 1786. This was followed by Bank of Hindustan. Both these banks are now defunct. The oldest bank in existence in India is the State Bank of India being established as "The Bank of Bengal" in Calcutta in June 1806. A couple of decades later, foreign banks like Credit Lyonnais started their Calcutta operations in the 1850s. At that point of time, Calcutta was the most active trading port, mainly due to the trade of the British Empire, and due to which banking activity took roots there and prospered. The first fully Indian owned bank was the Allahabad Bank, which was established in 1865.

By the 1900s, the market expanded with the establishment of banks such as Punjab National Bank, in 1895 in Lahore and Bank of India, in 1906, in Mumbai -

both of which were founded under private ownership. The Reserve Bank of India formally took on the responsibility of regulating the Indian banking sector from 1935. After India's independence in 1947, the Reserve Bank was nationalized and given broader powers.

Banks in India can be categorized into non-scheduled banks and scheduled banks. Scheduled banks constitute of commercial banks and co-operative banks. There are about 67,000 branches of Scheduled banks spread across India. During the first phase of financial reforms, there was a nationalization of 14 major banks in 1969. This crucial step led to a shift from Class banking to Mass banking. Since then the growth of the banking industry in India has been a continuous process.

As far as the present scenario is concerned the banking industry is in a transition phase. The Public Sector Banks

(PSBs), which are the foundation of the Indian Banking system account for more than 78 per cent of total banking industry assets. Unfortunately they are burdened with excessive Non Performing Assets (NPAs), massive manpower and lack of modern technology.

On the other hand the Private Sector Banks in India are witnessing immense progress. They are leaders in Internet banking, mobile banking, phone banking, ATMs. On the other hand the Public Sector Banks are still facing the problem of unhappy employees. There has been a decrease of 20 percent in the employee strength of the private sector in the wake of the Voluntary Retirement Schemes (VRS). As far as foreign banks are concerned they are likely to succeed in India.

Indusland Bank was the first private bank to be set up in India. IDBI, ING Vyasa Bank, SBI Commercial and International Bank Ltd, Dhanalakshmi Bank Ltd, Karur Vysya Bank Ltd, Bank of Rajasthan Ltd etc are some Private Sector Banks. Banks from the Public Sector include Punjab National bank, Vijaya

1.1 Growth of Banking Sector in India

A burgeoning economy, financial sector reforms, rising foreign investment, favorable regulatory climate and demographic profile has led to India becoming one of the fastest growing banking markets in the world. The overall banking industry's business grew at a CAGR of about 20 per cent from US\$ 469.4 billion as of March 2002, to US\$ 1171.29 billion by March 2007.

Aggregate bank deposits of banks increased by US\$ 129.26 billion (22.1 per cent) at the end of March 2007 over the corresponding in 2006. In the current fiscal, aggregate bank deposits increased by 23.8 per cent, year-on-year, as of January 4, 2008 as against 21.5 per cent a year ago. While aggregate demand deposits increased by 15.6 per cent, aggregate time deposits increased by 25.3 per cent in the

Bank, UCO Bank, Oriental Bank, Allahabad Bank, Andhra Bank etc.

With the Indian economy moving on to a high growth trajectory, consumption levels soaring and investment riding high, the Indian banking sector is at a watershed. Further, as Indian companies globalize and people of Indian origin increase their investment in India, several Indian banks are pursuing global strategies,

The industry has been growing faster than the real economy, resulting in the ratio of assets of commercial banks to GDP increasing to 92.5 per cent at end-March 2007. The Indian banks have also been doing exceptionally well in the financial sector with the price-to-book value being second only to china, according to a report by Boston Consultancy Group.

Consequently, the degree of leverage enjoyed by the banking system, as reflected in the equity multiplier (measured as total assets divided by total equity), has increased from 15.2 per cent at the end of March 2006 to 15.8 per cent at the end of March 2007.

same period, indicating migration from small savings schemes of the Government.

Similarly, aggregate deposits of the scheduled commercial banks (SCB), after growing by 17.8 per cent and 24.6 per cent in 2005-06 and 2006-07, rose by 25.2 per cent, year-on-year, as on January 4, 2008. In fact, the absolute increase of US\$ 96.34 billion (14.6 per cent) in the current fiscal year up to January 4 2008 was higher than the US\$ 70.59 billion (13.2 per cent) increase in the same period last year.

Simultaneously, loans and advances of SCBs rose by over 30 per cent (i.e. 33.2 per cent in 2004-05, 31.8 per cent in 2005-06 and 30.6 per cent in 2006-07) in the last three financial years, underpinned by the robust macroeconomic performance. The growth has continued in the current fiscal with non-food credit by

SCBs increasing by 22.2 per cent, year-on-year, as on January 4, 2008.

Significantly, the asset quality of the banks has also improved over this period. The gross non-performing assets (NPA) as a per cent of total assets have

1.2 Private Sector

Ever since the banking operations had been opened to the private sector in 1990s, the new private banks have been increasing its role in the Indian banking industry. Against the industry average growth of about 20 per cent in the past five years, the new private sector banks registered a growth of about 35 per cent per annum, growing from US\$ 41.63 billion as of March 2002 to US\$ 186.71 billion by March 2007.

Consequently, new private banks market share has increased from about 9 per cent in 2001-02 to 16 per cent as of March

1.3 Investment Banking

The flurry of mergers and acquisition deals by Indian corporate has boosted the investment banking revenues to a record high. According to Dialogic, an international firm that tracks global M & A transactions, investment banking revenues from India crossed the US\$ 1 billion mark for the first time in 2007 to US\$ 1.069 billion.

1.4 Potential

While this growth has been very impressive, the potential banking market waiting to be tapped in India is still fairly huge. Out of 203 million Indian households, three-fourths, or 147 million, are in rural areas and 89 million are farmer households. In this segment, 51.4 per cent has no access to formal or informal sources of credit, while 73 per cent have no access to formal sources of credit.

1.5 Among the Best

Indian banks are one of the most technologically advanced with vast

declined from 4 per cent as of March 2002 to 1.46 per cent as of March 2006. Simultaneously, the capital adequacy ratio of all SCBs has improved from 11.1 per cent as of March 2002 to 12.3 per cent by March 2007.

2006-07. Foreign banks, which totaled 29 in June 2007, have also been expanding at a rapid pace. For example, India was the fastest growing market for Global banking major HSBC in 2006-07, with a growth rate of 64 per cent.

The balance sheet of private banks and foreign banks in India expanded by 38.7 per cent and 39.5 per cent during 2006-07, taking their combined share (along with private banks) in total assets of the banking sector to grow from 22.3 per cent at the end of March 2006 to 24.9 per cent by March 2007.

This is significantly higher than the US\$ 400 million investment banking revenues recorded in 2006. Also, this surge in revenues has propelled India to become the third largest market for investment banking in Asia-Pacific in 2007.

In fact, according to a report by Boston Consultancy Group, India has the second largest financially excluded households of about 135 million, which is next only to china. Also, about 60 million new households are expected to be added to India's bankable pool between 2005 and 2009. With such a large untapped market, the Indian banking industry is estimated to grow rapidly, faster than even china in the long run.

networks of branches empowered by strong banking systems, and their product

and channel distribution capabilities are on par with those of the leading banks in the world, says a survey by McKinsey. It also reveals that IT effectiveness at the top Indian banks is world class.

With the economy in overdrive and buoyancy in consumption and investment demand, nine Indian banks, led by HDFC Bank and ICICI bank, have made it to the

1.6 Road Ahead

Banks aspiring to become global must have a presence in India and other emerging markets, says a report of consultancy major Ernst & Young, as they are set to become a major source of financial sector revenue and profit growth.

As the Indian banking industry continues its rapid growth along with rise in financial services penetration in the Indian economy, the industry's profit is likely to simultaneously surge ahead. According to a report by Boston Consultancy Group, the profit pool of the Indian banking industry is estimated to

2. REVIEW OF SELECT STUDIES

Instead of going into in details in each view/theory of stock market movement, only a few studies using at least spread or any of the two basic components of spread (i.e. E/P ratio and interest rate) are discussed here. Basu (1977) examined the performance of various portfolios on the basis of their P/E ratios for 1957-71 and found that return on company stocks with low P/E ratios was significantly higher than the return on companies with relatively high P/E ratios (Keith, 1998, Page 209). Pesaran and Timmermann (1995) also used both E/P ratio and interest rates along with several other influential variables for explaining stock market movements. Lander et al (1997) also documented strong evidence that both earnings yield and interest rates matter for short-run stock market performance. They used linear combination of E/P ratio and bond yields to predict returns on S & P 500 index in a regression framework.

top 50 Asian Banks list in Asian Bankers 300 report. Simultaneously, State Bank of India has become the top loan arranger in the Asia-Pacific region in 2007, according to UK based Project Finance International (PFI). Also, India emerged as the top provider of educational loans worth US\$ 3.67 billion till September in 2007.

increase from US\$ 4.8 billion in 2005 to US\$ 20 billion in 2010 and further to US\$ 40 billion by 2015.

Simultaneously, driven by the expansion of the middle class population, increase in private banks and the burgeoning national economy, the domestic credit market of India is estimated to grow from US\$ 0.4 trillion in 2004 to US\$ 23 trillion by 2050. With such a favorable scenario, India is likely to emerge as the third largest banking hub in the world by 2040, says a price water house Coopers report.

In a recent study, Qi (1999) outlined a recursive modeling procedure to examine the predictability of S & P 500 index returns using linear regression (LR) framework and neural network (NN), a nonlinear framework. The explanatory variables considered by him are dividend yield, E/P ratio, 1-month Treasury Bills rate, 12-month Treasury bond rate, inflation rate, growth rate in industrial output and money growth. He found that the NN model outperforms LR-framework in terms of both within-sample fit as well as out-of-sample forecast accuracy. He also found that with three categories of transaction cost scenario, viz., zero cost, low cost and high cost, a switching portfolio based on recursive NN forecasts earns higher risk-adjusted returns than that of the switching strategy based on the forecasts from recursive LR-framework. Interestingly, however, both the LR-based and NN-based switching portfolios

outperform the buy-and-hold market index portfolio.

In another recent study, Qi and Madalla (1999) found empirical evidence of the influence of various economic and financial variables, viz., yields, interest rate, inflation rate, growth in industrial output, etc., on future excess return in both LR and NN frameworks.

Recently, in the Indian context, Mohanty (1997) examined the relationship of P/E ratio and earnings per share (EPS) with stock price. Using annual data he concluded that one could make excess return by forecasting the directions of movement of EPS based on publicly available information. In the Indian context, the importance of the P/E ratio in

explaining and forecasting market movements was also highlighted by Gupta et al (1998). Use of spread variable in explaining Indian stock market return is available in Samanta and Rajpathak (2001). Though, they have not investigated detail relationship between spread and return, they constructed a composite indicator by combining partial information contents of spread in addition to E/P ratio, yields and a few other economic and financial variables, for forecasting/tracking future stock market returns. The results presented in the study are quite encouraging in a sense that the composite indicator beat random-walk model in predicting future stock market return

3. METHODOLOGY

3.1 Scope of the Study

- To find out the value of equities of banks in equity market.
- To analyze the risk involved in the equities of the banks in equity market.
- To analyze the volatility of the equity shares of banks in equity market.

3.2 Objectives of the Study

- To analyze the earnings per share of the bank equities.
- To analyze the price to earnings ratio of bank equities.
- To analyze the risk in equities of banks in equity market.

3.3 Period of the Study

The time period of the study was past four years from Jan 2008– Dec 2011.

3.4 Tools Used for the Study

3.4.1 Beta

The Beta is a measure of the systematic risk of a security that cannot be avoided through diversification. Therefore, Beta measures non-diversifiable risk. The market itself has a beta value of 1; in other words, its movement is exactly equal to itself (a 1:1 ratio).

$$Beta = \frac{n \sum xy + \sum x \sum y}{n \sum x^2 - \sum x^2}$$

Formula

3.4.2 Earnings per share

The **earnings per share** are an indicator about the value of share in the future. In order to find the value of earnings per share the following formula is used. It is calculated as:

$$= \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Outstanding Shares}}$$

3.4.3 Price Earnings Ratio

A valuation ratio of a company's current share price compared to its per-share earnings. In general, a high P/E suggests that investors are expecting higher earnings growth in the future compared to companies with a lower P/E. It is calculated as:

Market Value per Share Earnings per Share (EPS)

4. DATA ANALYSIS AND INTERPRETATION

4.1 Earnings per Share (EPS)

Earnings per share are generally considered to be the single most important variable in determining a share's price. It is also a major component of the price-to-earnings valuation ratio.

An important aspect of earnings per share that's often ignored is the capital that is required to generate the earnings (net income) in the calculation. Two companies could generate the same earnings per share number, but one could

do so with less equity (investment) - that company would be more efficient at using its capital to generate income and, all other things being equal would be a "better" company. Investors also need to be aware of earnings manipulation that will affect the quality of the earnings number. It is important not to rely on any one financial measure, but to use it in conjunction with statement analysis and other measures.

4.1.1 Comparative Analysis of Earnings per Share

The comparative analysis of earnings per share of the banks in bank nifty is given in the table 1.

Table No- 1
Comparative Analysis of Earnings per Share

YEAR	AXIS	BOB	BOI	CNB	HDFC	ICICI	IDBI	KOTAK	OBC	PNB	SBI	UBI
2008	11.70	32.00	20.27	31.99	17.44	25.43	4.62	12.92	34.99	41.28	68.53	15.03
2009	11.81	22.29	6.70	26.31	20.84	25.99	8.30	6.71	37.29	43.98	80.01	15.17
2010	16.87	21.92	13.95	31.83	27.04	27.35	7.54	3.73	21.61	44.81	81.77	12.88
2011	22.62	27.15	22.47	33.46	34.55	32.88	8.45	4.22	22.44	47.26	83.91	16.19

Table 1 shows the comparative analysis of the earnings per share of the equity shares of banks from 2008 to 2011. From the above, it is clear that the earnings per share of State Bank of India, Punjab National Bank, Axis Bank, HDFC Bank and ICICI Bank are moving in an upward trend. Other banks like Bank of Baroda, Bank of India, Canara Bank, IDBI, Oriental Bank of Commerce, and Union Bank of India, the earnings per share of these banks are found to be fluctuating. The earnings per

4.2 PRICE TO EARNINGS RATIO (P/E RATIO)

The **P/E ratio** (price-to-earnings ratio) of a stock is a measure of the price paid for a share relative to the annual income or profit earned by the firm per share. A higher P/E ratio means that investors are paying more for each unit of income. It is a valuation ratio included in other financial ratios. The reciprocal of the P/E ratio is known as the earnings yield.

share of Kotak Mahindra Bank is found to be in declining trend throughout the years which have been taken into analysis. Out of these twelve banks, the State Bank of India has the highest earnings per share than other banks and the earnings per share of Kotak Mahindra Bank has the least earnings per share. The comparative analysis of the earnings per share of the banks is also explained with the help of a chart.

For example, if stock A is trading at \$24 and the earnings per share for the most recent 12 month period is \$3, and then stock A has a P/E ratio of 24/3 or 8. Put another way, the purchaser of stock A is paying \$8 for every dollar of earnings. Companies with losses or no profit have an undefined P/E ratio, sometimes; however, a negative P/E ratio may be shown.

By comparing price and earnings per share for a company, one can analyze the market's stock valuation of a company and its shares relative to the income the company is actually generating. Investors can use the P/E ratio to compare the value of stocks: if one stock has a P/E twice that of another stock, all things being equal, it is a less attractive investment.

4.2.1 Comparative Analysis of Price-To-Earnings Ratio

The comparative analysis of earnings per share of the banks is given in the table 2.

Table -2
Comparative Analysis of Price-To-Earnings Ratio

Year	AXS	BOB	BOI	CNB	HDFC	ICICI	IDBI	KOTK	OBC	PNB	SBI	UBI
2008	21.69	9.72	16.05	7.94	29.36	18.10	24.26	63.56	6.72	9.14	9.50	7.50
2009	22.14	10.90	11.68	8.06	32.62	23.86	11.48	86.91	7.57	10.06	11.62	8.63
2010	34.20	10.97	11.75	7.42	39.10	34.16	18.29	181.71	7.68	9.59	18.51	8.65
2011	115.24	13.60	16.28	8.19	46.86	41.14	18.06	223.83	8.67	11.01	29.76	11.26

Table 2 shows the price to earnings ratio of the banks from 2008 to 2011. The price to earnings ratio of the banks such as Axis Bank, Bank of Baroda, HDFC Bank, ICICI Bank, State Bank of India, Union Bank of India, are moving in an upward trend. The price to earnings ratio of Kotak Mahindra Bank moves to a high extent, which is beyond expectation. Other banks such as Bank of India, Canara Bank, IDBI, Oriental Bank of Commerce, Punjab National Bank, the price to earnings ratio of these banks are fluctuating throughout the years taken under analysis. The comparative analysis of the price to earnings ratio of the banks is also explained with the help of a chart.

4.3 RISK ANALYSIS USING BETA VALUE

The investments in shares involve risks. A clear analysis is made to know about the risks involved in shares, to make our investments safe. Thus the risk must be analyzed before the investment is made. This can be done by analyzing the beta value of the shares. Beta measures a stock's volatility, the degree to which its price fluctuates in relation to the overall market. In other words, it gives a sense of the stock's market risk compared to the greater market. Beta is used also to compare a stock's market risk to that of

other stocks. Investment analysts use the Greek letter 'β' to represent beta.

This measure is calculated using regression analysis. A beta of 1 indicates that the security's price tends to move with the market. A beta greater than 1 indicates that the security's price tends to be more volatile than the market, and a beta less than 1 means it tends to be less volatile than the market. Many utility stocks have a beta of less than 1.

Essentially, beta expresses the fundamental tradeoff between minimizing risk and maximizing return. Let's give an

illustration. Say a company has a beta of 2. This means it is two times as volatile as the overall market. Let's say we expect the market to provide a return of 10% on an investment. We would expect the company to return 20%. On the other hand, if the market were to decline and provide a

return of -6%, investors in that company could expect a return of -12% (a loss of 12%). If a stock had a beta of 0.5, we would expect it to be half as volatile as the market: a market return of 10% would mean a 5% gain for the company. (For further reading, see Beta: Know the Risk.)

4.3.1 Comparative Analysis of Beta Values of Banks

Table No-3
Comparative Analysis of Beta Values of Banks

Banks Name	Beta value
Bank of Baroda	0.82
Bank of India	0.49
Canara Bank	0.75
HDFC Bank	2.75
ICICI Bank	2.1
IDBI Bank	0.36
Kotak Bank	1.5
Oriental Bank of Commerce	0.84
Punjab National Bank	1.44
State Bank of India	3.39
Union Bank of India	0.37

TABLE 3 shows the comparative analysis of the beta value of all the banks taken into analysis. The beta value shows the risk involved in the equity shares of the banks. It is a tool to measure the risk. By comparing the beta value of all the banks, it is found that the beta value of State Bank

of India is 3.39, which is highest than all others banks taken into analysis. The beta value of IDBI bank is 0.36, which is lowest than all other banks taken into analysis. The comparative analysis of the beta value of the banks is shown clearly in the following chart.

5. FINDINGS

To summarize, there are several probable arguments why history may not repeat itself this time around and the P/E ratio may stay well above its historical average for the foreseeable future. If these arguments prove to be correct, the stock market may continue to grow both in the near term and in the coming decade. By analyzing the above banks in Nifty it is understood that if an investor's investment should be profitable means, he should analyze the earnings per share, price to

earnings ratio, the beta value to analyze the risk, share price movements of the scrip in which he is about to invest, by analyzing all the above, the investor will get a clear knowledge that in which state the scrip is now. So the investor's investment will not be a loss to him. Surely the investor will get profitable returns. The maximum return is based on the maximum risk in which the investor is going to face.

6. CONCLUSION

Some analysts view the current high price earnings ratio of the stock market as a sign that the stock market may be headed for a downturn. This view receives some support from historical evidence that very high price-earnings ratios have usually been followed by poor stock market performance. When price-earnings ratios have been high, stock prices have usually grown slowly in the following decade. Moreover, at times such as the present when high price-earnings ratios have reduced the earnings yield on

stocks relative to interest rates, stock prices have also tended to grow slowly in the short run. Forecasts based on such evidence are subject to much uncertainty, however, because history may not repeat itself. Specifically, the possibility cannot be ruled out that this time will be different due to fundamental changes in the economy that will allow high price-earnings ratios to persist and thus stock prices to continue growing both in the near term and in the coming decade.

7. REFERENCE

1. Black, Fischer. 1986. "Noise," *Journal of Finance*, vol. 41, no. 3, pp. 529-43.
2. Campbell, John Y., and Robert J. Shiller. 1998. "Valuation Ratios and the Long-Run Stock Market Outlook," *Journal of Portfolio Management*, vol. 24, no. 2, pp. 11-26.
3. Diamond, Peter A. 1999. "What Stock Market Returns to Expect for the Future?" An Issue in Brief, Center for Retirement Research, Boston College.
4. Graham, Benjamin, and David Dodd. 1934. *Securities Analysis*. New York: McGraw-Hill.
5. Golob, John E., and David G. Bishop. 1997. "What Long-Run Returns Can Investors Expect from the Stock Market?" *Federal Reserve Bank of Kansas City, Economic Review*, Third Quarter, pp. 5-20.
6. Gordon, Robert J. Forthcoming. "Does the New Economy Measure up to the Great Inventions of the Past," *Journal of Economic Perspectives*.
7. Heaton, John, and Deborah Lucas. 1999. "Stock Prices and Fundamentals," *NBER Macro Annual*.
8. Jorgenson, Dale W., and Kevin J. Stiroh. 2000. "Raising the Speed Limit: U.S. Economic Growth in the information Age." *Macroeconomic Advisers*, May.
9. Lander, Joel, Athanasios Orphanides, and Martha Douvogiannis. 1997. "Earnings Forecasts and the Predictability of Stock Returns: Evidence from Trading the S&P," *Journal of Portfolio Management*, vol. 23, no. 4, pp. 24-35.
10. Malkiel, Burton G. 1996. *A Random Walk Down Wall Street: Including a Life-Cycle Guide to Personal Investing*, 6th ed., New York: W. W. Norton & Company Inc.
11. Nakamura, Leonard. 1999. "Intangibles: What Put the NEW in the New Economy?" *Federal Reserve Bank of Philadelphia, Business Review*, July/August, pp. 3-16.
12. Oliner, Stephen D., and Daniel E. Sichel. 2000. "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?" *Federal Reserve Board*, working paper.
13. Rea, John D., and Brian K. Reid. 1998. *Trends in the Ownership Cost of Equity Mutual Funds*. Washington, D.C.: Investment Company Institute Perspective, vol. 4, no. 3.
14. Rolph, Douglas, and Pu Shen. 1999. "Do the Spreads between the E/P Ratio and Interest Rates Contain Information on Future Equity Market?" *Federal Reserve Bank of Kansas City*, working paper.
15. Shiller, Robert J. 2000. *Irrational Exuberance*, Princeton: Princeton University Press.
16. Siegel, Jeremy J. 2000. *Wall Street Journal*, in Jonathan Clements column, "Get Going," section C1, July 18.

7.1 WEB SITES

1. <http://www.rbi.org.in>
2. <http://www.nseindia.com>
3. <http://www.jrgsecurities.com>
4. <http://www.eaindustry.nic.in>
5. <http://www.finmin.nic.in>
6. www.kc.frb.org

BUYER'S BEHAVIOUR ON GINGELLY OIL - A STUDY WITH REFERENCE TO MADURAI CITY

M.Sumathy¹ and N.Vijayalakshmi²

¹Reader and Ph.D – ²Research Scholar

School of Commerce, Bharathiar University, Coimbatore – 641 046

ABSTRACT:

This study is based on the buyer's behaviour towards gingelly oil. A psychometric response scale primarily used in questionnaires to obtain participant's preferences or degree of agreement with a statement or set of statements. Likert scales are a non-comparative scaling technique and are unidimensional (only measure a single trait) in nature. Respondents are asked to indicate their level of agreement with a given statement by way of an ordinal scale. The influence of personal characteristics and buyer's preference factors on the behaviour as well as the relationship between buyer and purchasing behaviour of gingelly oil are examined. This study shows that, overall, the consumers have positive attitude towards using of gingelly oil on their daily food.

Key words: Behaviour; Gingelly oil; Purchase Preference, Awareness; Attitude

Food is the basic need of any living beings. In the earlier days people took food items almost in raw form. Civilization taught people to prepare food by cooking and began to eat cooked food. When they realized the taste of the cooked food, they improved the methods of preparing food by using ingredients gradually. Edible oil is one of such ingredients used in cooking. People use different edible oils to prepare food. Since the time immemorial, people use gingelly oil for different purposes like cooking, bathing and as medicine. In olden days gingelly oil was extracted from the

Importance of the study

Edible oil gives necessary energy to human body. This is included in one form or other in our regular diet. The oils included in our regular food are of refined and non-refined oils. They play a very significant role in our body health. Regardless of the nature of cooking oil being used, the key factor is considered human health moderation in the use of fats in the diet. Edible oils are known sources of various vitamins (A and E), minerals, amino acids, essential fatty acids and antioxidants. While fats are necessary

sesame seed through country grinder (kal Chekku). But later on the same oil was extracted through machines. Now a day's people get gingelly oil after refined once or twice. In the present marketing scenario, gingelly oil is sold out in various forms with different technologies. So the buyers have many options to choose their choice of oil according to their taste and budget. The behaviour towards gingelly oil differs from individual to individual. Hence, the study on the behaviour on gingelly oil becomes essential to market the product.

parts of a person's diet, they should not provide more than a third of the daily food energy consumed. The Tamil vernacular term for gingelly oil is "Nalla Ennai". It means good oil because it is good for health and good in taste. It has cholesterol controlling factor. Hence it has medical value. It reduces the heat of the body. It is widely used in the preparation of Ayurvedic drugs. Therefore, the study becomes essential to know the reasons for using the gingelly oil.

Review of Literature

A study conducted by Madavan Nair (2004)¹ in his article reveals that government of India has adopted a strategy to bring down oil prices through manipulation of base price to imported oils based on which the import duty is calculated will cost less due to lesser liability for duty payment by the import trade.

Ramana and Viswanath (2005)² in their article have pointed out that the awareness level among consumers about their rights and remedies are very low, they have recommended that wide publicity and awareness campaign must be undertaken creating awareness about various malpractices followed by the trader exploitation of consumers.

V.S.Poonkothai(2007)³ in her study said that the edible oil is related to health of consumers and family thus, when there is need to buy products from the unity point of view it is important that they will have specific preference of choice. However it is also important that how the marketing of edible oil is done. This involves consumer analysis over price, quality and packaging aspect, without which they may not take proper decision.

R.Bhuvaneshwari (2010)⁴ in her study has found that the awareness among the consumers about the difference variety of edible oil brand is very low including educated and business man. It is much more less among the consumers from the employee, community therefore a wide publicity about the various cities followed by the traders is to be given through popular mass media like television and newspapers. Besides, wide awareness camps are to be conducted by the consumers' forums at least once in a month at the market places and receive the complaint directly from the consumers who have been deceived by the traders on the spot.

History of gingelly oil

Sesame traces back to the Arabic simsim, Coptic semsem and early Egyptian sement. The earliest recorded use of spice-sesame seed-comes from an Assyrian myth, which claims that the gods drank sesame wine in the night before they created the earth. Sesamum indicum, (indicum means India) is a native to the East Indies. The usage of sesame dates back to 3000 B.C. Over 5,000 years ago, the Chinese burnt the sesame oil as a light source and made suitable for their ink blocks. African slaves brought sesame seeds, also known as benne seeds, to America, where they became a popular ingredient in southern dishes. These seeds have been a source of food and oil. Sesame seed is used as the main source for oil used in cooking in the East.

Statement of the problem

In the 21st century, edible oil industry in India which is well established faces challenges in the present globalised scenario from a number of economical substitute oils and from the competitors in the world market. Though the production of edible gingelly oil has been increased, India imports more edible gingelly oil. The main constraints are that about 75% of the oil seeds depend on monsoons and diseases caused. This is due to negligible efforts on the cultivation and research on the oil seeds. Buyers' behaviour is the study of behaviour of buyers towards the edible gingelly oil. This study can explain who influences the buying decision and who actually purchases and uses the product. Gingelly oil is prepared and widely used for preparing food in Madurai city. As the gingelly oil is mostly used for cooking purpose, it is necessary to know the behaviour pattern of the buyers. This study will

¹ Madavan Nair. N. ,”Indian food industry”, Vol. 23, September-October 2004, pp-40

² Ramana and Viswanath, ”Consumer behaviour and awareness with special reference to edible oil users, Indian Journal of Marketing, Vol.XXXV, 2005, pp-35

³ V.S.Poonkothai, ”Consumers satisfaction in edible oil –A study in Gobichettipalayam town “ M.Phil dissertation submitted to Bharathiar Universtiy, 2007

⁴ R.Bhuvaneshwari, “A study on preference towards edible oil with special reference to sunflower oil in Erode district, M.Com project submitted to Bharathiar University, 2010

help both the producers and consumers to frame their strategy. Hence, the study on the behaviour of the buyers of gingelly oil has been undertaken in Madurai City.

Objective of the study

1. To trace the history and production of gingelly oil.
2. To study the various brands of ginelly oil used by the buyers.
3. To compare and contrast the behaviour of the buyers of gingelly oil with the users of other oils.
4. To examine the opinions of the respondents and their behaviour towards gingelly oil.

Hypotheses of the study

- There is no significant relationship between the age of the respondents and their opinion on gingelly oil.
- There is no significant relationship between the family structure of the respondents and their opinion on gingelly oil.
- There is no significant relationship between the education level of the respondents and their opinion on gingelly oil.
- There is no significant relationship between the occupation of the respondents and their opinion on gingelly oil.
- There is no significant relationship between beliefs and buying behaviour.

Methodology

The present study is mainly based on the primary data. The primary data were collected by conducting survey among the female buyers of gingelly oil at Madurai city. An interview schedule was prepared and used for collecting data from the

respondents among the buyers of gingelly oil. The secondary data were collected from the various books, journals, magazines newspapers and from the websites.

Sampling design

The researcher has made an attempt to find out the various factors, which influence the female buyers to buy the gingelly oil in

Madurai city. A stratified convenient sampling method is followed for selecting the respondents.

Demographic Profile of Respondents

The socio- economic status of the consumer plays a pivotal role in forming an attitude towards a product. Based on this, in this study, factors such as age, gender, education, occupation, income,

Marital Status, type of family and number of members in the family are considered and the profile of the respondents is presented in Table – 1.

TABLE - 1

Distribution of Respondents based on Demographic Factors

Demographic Factors		Frequency	Percentage
Gender	Female	200	100
	Total	200	100.0
Age	Below 20 years	24	12.0
	21-30 years	88	44.0
	31-40 years	47	23.5
	41-50years	33	16.5
	Above 50 years	8	4.0
Total		200	100.0

Education	Up to High School	53	26.5
	Higher Secondary	17	8.5
	Under Graduate	83	41.5
	PG/Professional degree	40	20.0
	Others	7	3.5
Total		200	100.0
Occupation	Private Sector	33	16.5
	Government sector	23	11.5
	Self Employed	16	8.0
	Business	16	8.0
	House wife	112	56.0
Total		200	100.0
Monthly Income	Below Rs.5000	40	20.0
	Rs.5001- Rs.10000	78	39.0
	Rs.10001- Rs. 15000	25	12.5
	Rs.15001- Rs.20000	47	23.5
	Above Rs 20000	10	5.0
Total		200	100.0
Marital Status	Married	128	64.0
	Unmarried	72	36.0
Total		200	100.0
Family Type	Joint	87	43.5
	Nuclear	113	56.5
Total		200	100.0
Number of Family Members	1 to 3	73	36.5
	4 to 6	71	35.5
	Above 6	56	28.0
Total		100	100.0

Source: Primary data

From the Table- 1 it is observed that the gender wise respondents are female only. Majority of the respondents belong to the age group of 21-30 years (i.e. 44 per cent). Majority of the respondents belong to under graduate education 41.5 per cent. 8.5 per cent of the respondents have higher secondary education. Occupations of the respondents are Private Sector (16.5 per cent) and majority of the respondents are

House wife (56 per cent). Based on income, majority of respondents are distributed Rs.5001- Rs.10000 at 39 per cent. Moreover, 64 per cent of the respondents are married. 56.5 per cent of the respondents are living in nuclear environment. It is also observed that, majority (36.5 per cent) of the respondents' family have 4 to 6 members.

Purchase frequency of gingelly oil by the Respondents

Generally, consumers' attitude towards a product is a prominent factor affecting their actual buying behavior. Though, purchase preference is based on several indicators, in this study, indicators viz. Frequency of Purchase, Quantity of consumption in a month, Usage among

other cooking oils, Preference of Brand, Brand names, Source of knowledge about the brand name, Package-wise classification, are taken into consideration. The distribution of the respondents based on the above variables is described in Table- 2.

TABLE - 2
Distribution of Respondents based on Purchase Preference factors

Purchase Preference Factors	Frequency	Percentage	
Frequency of Purchase	Daily	25	12.5
	Weekly	71	35.5
	Monthly	24	12.0
	Occasionally	80	40.0
	Total	200	100.0
Quantity of consumption in a month	Below 1 kg	19	9.5
	2kg	25	12.5
	3kg	88	44.0
	4kg	41	20.5
	Above 4kg	27	13.5
	Total	200	100.0
Usage among other cooking oils	More	155	77.5
	Less	21	10.5
	Equal	24	12.0
	Total	200	100
Preference of Brand	Branded	88	44.0
	Non-branded	112	56.0
	Total	200	100.0
Brand names	Anjali	7	8.0
	Ananadham	17	19.0
	Idhayam	32	37.0
	Sastha	7	8.0
	V.V.S	25	28.0
	Total	88	100.0
Source of knowledge about the brand name	Radio	10	11.0
	Television	62	71.0
	Hoarding	7	8.0
	Display in shop	9	10.0
	Total	88	100.0
Package-wise classification	Pouch	76	87.0
	Plastic can	10	11.0
	bottle	2	2.0
	Total	88	100.0
Purpose of using	Cooking only	126	63.0

	Cooking and oil bathe	51	25.5
	medicine	23	11.5
	Total	200	100.0

Source: Primary data

It is inferred from the Table –2 that, majority of two-fifth of the total respondents are purchase gingelly oil on monthly basis. More than one-third of the respondents used 4 kg and above 4 kg of gingelly oil for a month (20.5 % + 13.5%). More than three-fourth of the respondents used more gingelly oil compared other oils for cooking purpose. Out of 88 respondents who use branded gingelly oil, 8 per cent of the respondents used Anjali and Sastha brand of gingelly oil. 19 per cent of the respondents used Ananadham brand gingelly oil. 37 per cent of the respondents used Idhayam brand ginelly oil. 28 per cent of the respondents

used V.V.S brand gingelly oil. Among different brands, more than one-third of the respondents used Idhayam brand. Nearly three-fourth of the respondents who use branded gingelly oil known their brand names through television advertisement makes a remarkable impression on the buyer's decision. More than three-fourth of the respondents prefer pouch packing of gingelly oil. Additionally 63 per cent of the respondents use gingelly oil only for cooking, 25.5 per cent use gingelly oil for both cooking and oil bathe and 11.5 per cent of the respondent uses gingelly oil medicine.

TABLE - 3
Awareness of buyers' Attitude towards gingelly oil

Awareness of buyers' Attitude		Frequency	Percentage
Reading instructions on the package	Yes	79	90.0
	No	8	10.0
	Total	88	100.0
Checking the expiry date	Yes	80	91.0
	No	8	9.0
	Total	88	100.0
Availing of free gift	Yes	128	64.0
	No	72	36.0
	Total	200	100.0

Source: Primary data

It is observed from Table –3 that 90 per cent of the respondents do read the instruction given on the package and only 10 per cent do not read the instructions given in the package. More than nine-tenth of the respondents read the printed on the package of gingelly oil and about the expiry date. 64 per cent of the respondents avail gift articles while buying gingelly oil

36 per cent of the respondents do not avail any free gifts while purchasing gingelly oil.

Buyers' opinion towards gingelly oil

The questionnaire is based on the variable perception of gingelly oil of consumers. Table - 4 shows the results of the respondents regarding this variable. The mean indicates to what extent the sample group averagely agrees or does not agree with the different statement. The lower the

mean, the more the respondents disagree with the statement. The higher the mean, the more the respondents agree with the

statement. The mode indicates which answer possibility is given mostly by the sample group.

Table-4
Buyers' opinion towards gingelly oil

Statement	N	Minimum (Strongly disagree)	Maximum (Strongly agree)	Mean	Mode
Gingelly oil is traditional in nature	200	1	4	3.34	3
Gingelly oil is not available every where	200	1	4	2.82	3
Gingelly oil has medicinal value	200	1	4	3.49	3
Gingelly oil price is cheaper	200	1	4	2.12	3
Consumers use more quantity of gingelly oil comparing with other oils	200	1	4	3.07	3
Free gifts to gingelly oil will not increase sales	200	1	4	2.74	4
People buy extra quantity during festival seasons	200	1	4	3.07	3
Advertisement on branded gingelly oil does not influence the buyers behaviour	200	1	4	2.69	3
Branded gingelly oil is available in different packet	200	1	4	3.13	3
Male takes decision on buying gingelly oil	200	1	4	2.46	3

Hypotheses Results through various statistical tools

The mean attitude score was calculated to understand the nature of attitude, the khadi consumers have. Moreover, the ANOVA test reveals the

important demographic factors that influence the attitude of consumers. The results are shown in Table -5.

Table-5

Variable	Hypothesis	Test	Result	Sig. value
Age	H1: There is a relationship between age and buying	ANOVA	Reject H1 Accept H0	F = .982 P = .402/ p

	behavior. H0: There is no relationship between age and buying behavior.			> .05
Education	H1: There is a relationship between education and buying behavior. H0: There is no relationship between education and buying behavior.	ANOVA	Reject H1 Accept H0	F = 1.412 P = .241/ p >.05
Income	H1: There is a relationship between income and buying behavior. H0: There is no relationship between income and buying behavior.	ANOVA	Accept H1 Reject H0	F = 3.964 P = .009/ p < .05
Occupation	H1: There is a relationship between occupation and buying behavior. H0: There is no relationship between occupation and buying behavior.	T-test	Reject H1 Accept H0	t = -.402 p = .688/ p > .05
Beliefs	H 1: There is a relationship between beliefs and buying behavior. H0: There is no relationship between beliefs and buying behavior.	Pearson	Reject H1 Reject H0	r = .000 P = .498/ p >

Significance level $p < .05$

Suggestion

1. The price of gingelly oil is fairly high, so it is suggested that necessary steps have to be taken to control the cost of gingelly oil.
2. The buyers prefer pouch packages available in different quantity. Hence, the manufacturers design different quantities of pouch packages available of pouch packages to attract more buyers.
3. Buyers respond more when they are given gift articles while purchasing gingelly oil. It is therefore suggested that free gifts in the form of extra quantity of gingelly oil in the pouch package can attract more buyers.

Conclusion

In the present globalized scenario world people buy different types of food products containing various level of fat. The buyers have number of alternative or substitute food products. This enables the buyers to choose and buy lesser fat products. The continuous usage of oil had an impact on the health of human beings. Excessive usage of few edible oils created

fat and cholesterol in the human body. This had led to heart attack, more body weight and so on. Hence, people became conscious about their health. Gingelly oil is the major oil used in South India. People prefer to use gingelly oil which generates low fat and cholesterol scientific experiments and research indicated that

gingelly oil has lesser cholesterol and has more medical values.

Reference

1. Guttikonda and Aneja, Edible oil consumption need for change in rural India, Economic and Political weekly
2. Madavan Nair.N., "Indian food industry", Vol. 23, September-October 2004, pp-40
3. Ramana and Viswanath, "Consumer behaviour and awareness with special reference to edible oil users, Indian Journal of Marketing, Vol.XXXV, 2005, pp-35
4. R.Bhuvaneshwari, "A study on preference towards edible oil with special reference to sunflower oil in Erode district, M.Com project submitted to Bharathiar University, 2010
5. V.S. Poonkothai, "Consumers satisfaction in edible oil–A study in Gobichettipalayam town " M.Phil dissertation submitted to Bharathiar University, 2007

Living Arrangements of Widowed Elderly Women and their Differentials: A Study in an Urban Setting of Tamil Nadu, India

Neelu Singh¹

¹*Research Scholar, Dept. of Sociology & Population Studies, Bharathiar University, Coimbatore – 641 046, Tamil Nadu.*

Abstract

Living arrangements in the twilight of life is a matter of primary concern for elderly widowed women. In view of this, an attempt is made to examine the effect of background characteristics on the living arrangements of the widowed elderly women making use of the data collected from 330 elderly widowed women from Coimbatore city, Tamil Nadu with frequency and cross-tabular analyses as well as chi-square test of significance. The study found that slightly less than three-tenths of widowed women are 'old-old' (75+ years). On the other hand, three-fifths of elderly belonged to most backward / backward caste and majority (63%) of them illiterates. About two-fifths (42%) of the elderly widowed women are living with married son. The differentials of elderly living alone vs with children are mostly in expected direction and highly significant ($p < 0.001$) with an increase in the number of earning members in the family, number of children living in the same area / city as well as those who belonged to the households of high standard of living. On the other hand, the percentage of widowed elderly who live alone has shown a clear increasing pattern with an increase in occupational status and instrumental activities of daily living scale. Further, it is noticed that the elderly who are living alone is higher among those who are feeling 'unhealthy' as compared to those elderly widowed women as 'healthy'. All these percentage differentials are also turned out as significant at different levels of extent ($p < 0.001$ or $p < 0.05$). Based on these findings a few policy implications have been postulated.

INTRODUCTION

Living arrangements of the elderly women has great importance to understand their status. In a country like India, due to the lack of public institutions and social security schemes, this assumes more relevance. The living arrangements are affected by various factors such as marital status, health conditions and economic dependency of the elderly as well as cultural traditions such as kinship patterns and the social services and social supports available to the aged (Van Solinge, 1994).

During the recent period, the population of widowed women has started to increase slowly, because of the longer life expectancy of women than men an average. By and large the living

arrangement, care and support of widowed elderly women are one or major problem. Till two decades back living arrangement for the elderly was not an issue in most developing countries, including India, because the elderly was expected to be cared by the family and kin. But in the recent past, because of globalisation, westernisation and urbanisation, changes have taken place in the family structure and thereby, changes too are inevitable in the living arrangements of the elderly persons. The changes in living arrangements have been mainly triggered up in urban areas, where the levels of fertility are much lower and thereby, less number of children available for the elderly so as to co-reside with them. On

the other hand, even among the limited number of children, majority would migrate to different places for getting employment and thereby, establish families in their places of destination

OBJECTIVES

1. To understand the patterns of living arrangements of the widowed elderly women (age 60+ years) in an urban setting (Coimbatore city) of Tamil Nadu.
2. To find out the major differentials in the patterns of living arrangements (those living alone / others, viz., siblings, relatives, friends, etc. and living with married and unmarried children / grandchildren) of widowed elderly women by their socio-economic and demographic characteristics.

EARLIER LITERATURE AND THEORETICAL PREPOSITIONS

In general, living arrangements are influenced by a variety of factors such as current age, education, occupation, financial / income status, family size / health status as well as cultural factors such as kinship patterns, the values placed on living independently and/or with family members, availability of social security services, the physical features of housing, etc. Earlier research around the India, have brought out some these factors into lime light by examining with empirical data. In Indian context, some studies in the recent past have focused on patterns of living arrangements and their differentials across the background characteristics of the elderly. A study of in a south Indian village setting (Dharmalingam and Murugan, 2001) showed that except a few (7%), almost all elderly live with their children and interestingly, 73 per cent with their sons and rest 20 per cent with their daughters. On the other hand, among 233 elderly persons in Ambedkar Nagar, Delhi, Kant et al. (2004) noticed that about an overwhelming per cent of the elderly were lived with either children and/or spouse and very few (3%) lived alone. Based on the analysis of data (27824 elderly) from the National Family Health Survey (NFHS), 1992-93, Rajan and Kumar (2003) found that almost half of the elderly

leaving their parents at the places of origin. In the light of these contentions, in the present paper an attempt is made to focus on the following objectives.

lived with spouse, children and grandchildren, one-third with children and grandchildren (due to death of their spouse) and the rest as alone. Moreover, the proportion of living alone was four times higher among women than men. An analysis of data from 42nd and 52nd rounds of the National Sample Surveys (1986-87 and 1995-96) aged (60+) in India, Goyal (2004) found that about three-fourths of the male elderly were living with spouse and other members, but half of the female elderly were living with children. The proportion of living alone was higher among women than men. Sadhu and Bakshi (2004) in the study among 120 elderly women in city of Punjab found that more than one-third of elderly living with their children only closely followed by children and spouse, less than one-fifth with their spouse and 14 per cent as alone. The study among 125 widows residing in Vadodara city (Pandya and Shah, 2006) highlighted that about 70 per cent of the elderly women were staying with their children, whereas slightly more than one-tenth stayed alone and 8 per cent with their parents-in-law. A micro-level study in Puducherry among 100 elderly persons (Sujitkumar, 2009), revealed that three-fifths of the elderly were living with married children and one-fourth with

unmarried children. The proportion was higher in males among females those living with spouse and only 6 per cent were living alone, surprisingly all were women. About 14 per cent were living with spouse only, whereas one-fifth was males and 8 per cent was females.

A rural study by the same authors (Audinarayana and Kavitha, 2006) also from a village in Tamil Nadu highlighted that more than two-thirds reside with a child, 17 per cent lived with spouse only and the rest 12 per cent lived alone. While slightly more than one-fifth of the widowed elderly reside alone, more than one-third of the currently married lived with spouse only. Moreover, among those living with children, co-residence with married son(s) is the prominent pattern of living arrangement irrespective of their marital status, which is a typical characteristic of patriarchal society, i.e., the cultural norm of living with sons. Monthly family income per adult person and women's occupational status turned out as the major determinants of women living alone / with spouse. Further, there is an increase in the likelihood of co-residence among widowed women if they belonged to large houses (no. of living rooms, proxy for economic status and

privacy), had surviving son(s) and older in age.

A recent study by Muthukrishnaveni (2010) among 900 elderly from rural areas of a district in Tamil Nadu highlighted that about two-fifths were living with their son's family and less than one-tenth with daughter's family. On the other hand, about one-fourth of the elderly were living alone and one-tenth with spouse. Logistic regression analysis on living alone showed that the chances of living alone (vs others) was 1.6 times higher for elderly aged 70-79 years as compared to 60-69 years aged persons, 2.5 times higher for females as against to their male counterparts. It was also found that elderly who had served in government had three times more chances of living alone compared to those who had no work. Increase in the individual income significantly increased the chances of elderly living alone. When such analysis was carried out for those living with sons (vs others), it was noticed that the chances of living elderly living with son was less for those aged 70-79 years and those belonged higher individual monthly income (Rs 1,000 and above) as compared to those aged 60-69 years and belonged to lower income bracket (Rs. 500 or less).

Based on the earlier research, the following propositions have been put forth for empirical testing in this study.

1. Living alone / others would be lower among widowed elderly women who are young-old and belonged to scheduled castes / tribes as compared to their counterparts.
2. Higher the socio-economic background of the widowed elderly women, viz., educational status, occupational status and monthly income higher would be their tendency to live alone and vice versa.
3. The percentage of widowed elderly women living alone would be lower and/or decreasing with an increase in their number of earning members, number of children living nearby to them / within the city, number of sons and standard of living index of household as compared to their counterparts.

4. The percentage of widowed elderly women residing alone would be higher when they are healthy and categorised as lower instrumental activities of daily living (IADL) scale than those who are unhealthy and higher in IADL.

DATA AND METHODOLOGY

Data Source

Data for this study were originally collected from 778 elderly persons (60+ years) from Coimbatore city, Tamil Nadu during 2009 as part of a research project funded by the Indian Council for Social Sciences Research, New Delhi. The elderly were selected (on census basis) from 8 clusters (streets or parts of streets), which were selected on the basis of simple random sampling technique, belonging to 4 Wards (out of 72 wards) in Coimbatore

Municipal Corporation – 2 Wards each with lower and higher literacy rates among elderly population according to 2001 census. Of these, 352 elderly widowed women selected for present paper. However, the final analysis on living arrangements of widowed elderly women restricted to 330 elderly only by not including those who do not have a single born / living child at the time of survey.

Dependent Variable

In the present study, living arrangements of the widowed elderly women have been used as dependent variable, which has been categorised into two groups, viz., elderly widowed who are

living alone which includes siblings, relatives, friends, etc. and with married and unmarried children. Data relating to these aspects are provided in Table 1.

Explanatory Variables

Selected background characteristics of the elderly widowed women as well as households taken into consideration as explanatory variables (independent variables). The details related to the

independent variable are given in Table 2 (last two columns). Most of these variables are self-explanatory, except two, viz., Standard of Living Index of the households and Instrumental Activities of Daily Living (IADL). A detailed note about these two indexes is provided in Appendix.

Data Analysis

With regard to analysis of data, firstly, the patterns of living arrangements among the total sample elderly widowed women as well as among those who have children, in addition to widowed elderly' background characteristics have been analysed with the help of simple frequency tables. Such analysis is also carried out for those who do not have children so as to understand with whom such elderly are currently living. At the next stage, taking the two groups of living arrangements into

consideration, the differentials in these have been analysed across their background characteristics making use of cross-tabulations with chi-square test of significance. Details of the cross-tabulations with chi-square test of significance are used for the interpretation and discussion of the differentials of elderly widowed women living alone in comparison to those who are co-residing with children.

OBSERVATIONS AND DISCUSSION

Patterns of Living Arrangements

Information about the living arrangements of the widowed elderly is given in Table 1. Among the total sample elderly, slightly more than two-fifths (41%) are living with son's family, which is the generally expected pattern in Indian context. On the other hand, 22 per cent of elderly are living with daughter's family, may be only out of compulsion. Such women either had no son or were getting no support from the son(s). Interestingly, slightly less than one-fifth (17%) of elderly widowed women are living alone

and few of them with siblings / relatives / friends / neighbours, etc. and less than 10 per cent are living with unmarried children and with grandson / daughter. All these patterns of living arrangements are, more or less, similar among those elderly who have one or more children (Table 1). However, among those elderly who do not have children (22 respondents), obviously majority are living alone and a substantial number live with siblings / relatives / friends / neighbours.

Table -1
Pattern of Living Arrangements of the Widowed Elderly Women

Living Arrangements	All Widowed Elderly		Widowed who have Children		Widowed who do not have Children	
	%	N	%	N	%	N
Living Alone	17.0	60	14.8	49	50.0	11
With Son's Family	41.2	145	43.9	145	--	--
With Daughter's Family	20.5	72	21.8	72	--	--
With Unmarried Children	8.2	29	8.8	29	--	--
With Siblings / Relatives / Friends / Neighbours	11.6	41	9.7	32	40.9	9
With Grandson/ Daughter	1.4	5	0.9	3	9.1	2
Total	100.0	352	100.0	330	100.0	22

A Brief Description of the Widowed Elderly Women Background Characteristics

Data related to the background characteristics of the widowed elderly women is presented in Table 2 (Cols. 6-7). From panel 1 of this table, it is evident that slightly less than three-tenths of the elderly is 'old-old' (75+ years) and about one-fourth is fairly 'young-old' (60-64 years). It highlights that with an increase in the age of the widowed elderly women, their proportion gets also increased. This is expected because of the widowed women life expectation is higher in with an advancing age. With regard of caste background of the widowed elderly (panel

2), it is noted that three-fifths of them belonged to the most backward/ backward castes, one-fourth belonged to schedule castes and tribes, which are lower in socio-economic strata and rest of them belonged to forward castes.

Distribution of elderly widowed women' educational status (panel 3) reveals that a simple majority of them are illiterates. On the other hand, about one-fourth of the elderly are educated up to middle school and little more than one-tenth up to high school and above level.

As the sample elderly are from both slum and non-slum areas of the well-developed city such pattern is understandable. Data given in panel 4 suggests that slightly more than three-fifths of the elderly are either not-working or homemakers at the time of survey and thereby, not getting any independent income, but mostly widowed women help to household work and especially look-after their grandchildren. Conversely, one-sixth mentioned that they are retired from the formal jobs in which they engaged before age 58 or 60, and some of getting pension from their husband's formal job after death of her husband, but use to get some income (interest) from their savings and rent from house / business establishments, etc. Interestingly, one-fourth of the elderly reported to be working as labourers, skilled workers, business and employees some regular employment (in private establishments). While most of them earning personal income for the livelihood. When the elderly widowed women have been asked about their monthly family income (panel 5), about two-fifths reported it as Rs. 3,001-10,000 followed by Rs. 3000 and less and the rest knowledgeable that such income is much higher (Rs. 10,001 and above). Thus, majority of the elderly appeared to be from middle income brackets.

When it comes to earning of members in the households wherein elderly widowed live (panel 6), it can be seen that little over half of the respondents' families have one earning member and about two-fifths have 2 earning members. A few households in which elderly residing in there is no other earning member. Thus, majority of elderly families have only one person earning member (son only). Information about the standard of living index (SLI) of households (another proxy indicator of economic status), in which the elderly reside (panel 7 of Table 2 - the details

about computation of SLI is given in the Appendix) showed that the pattern in SLI of households appears to be, more or less, the same as noticed in the case of their monthly family income.

Living arrangements of elderly mostly depend upon the number of children they have, especially number of sons and also whether the children live nearer to them or not. In the case of number of children living in same city / or area (panel 8), it can be seen that, for 5 per cent of elderly there are no children living within the city / area where elderly used to live. For more than one-fourth of the elderly at least one child is residing little closer followed by four children. In the case of about one-fifth each of the elderly two or three children are living nearby and/or in the same city. All these figures clearly establish that children mostly live within the same city where elderly women reside. Because of such residential pattern of children, their mothers (elderly) are likely to get better care and support either regularly or at times of emergencies. When the sample widowed elderly women enquired about their health status (panel 9), a large per cent of them stated that they are better in their health status and the rest (one-fourth) felt that they are unhealthy. During old age majority of the elderly have difficulties in functioning day-to-day activities at the community level. Those who have difficulties to perform these activities may co-reside with their children; of course, such pattern is possible only if children too like to co-reside with their parents. Keeping this in mind, in the present study, elderly persons have asked to state about their Instrumental Activities of Daily Living (IADL) based on which a scale has been developed (for details see the Appendix). From panel 10 of Table 2, it is evident that all of them stated that they would be either at a 'low', 'high' level or comparatively at a 'moderate' level of IADL scale.

Differentials in Patterns of Living Arrangements by Widowed Elderly Women

The patterns of living arrangements of the widowed elderly women would vary across their socio-demographic and economic characteristics (for details see the Section on Earlier Research). In order to observe such differentials, the patterns of living arrangements under consideration have been categorized into two groups, viz., elderly widowed women living alone and living with children. Results based on the analysis of the differentials in living arrangements of the elderly by selected background characteristics are presented in Table 2. From this table (panel 6 & 8), it is evident that the percentage of elderly widowed women living alone as against with their children has increased

It is obvious to note that the percentage of widowed elderly women living alone tend to be significantly ($p < 0.001$) higher when are working in different job avenues as well as retired persons and pensioners than those who are not-working at the time of survey (panel 4). Another interesting fact noticed here is that the percentage of elderly who are living alone is higher among those who are categorised as higher instrumental activities of daily living scale (suffering with less disability status and/or being able to do day-to-day activities fairly in an independent manner) followed by moderate as compared to those with a lower scale. Likewise, the percentage of

consistently with an increase in the number of earning members in the family and number of children living in the same area / city. Surprisingly, by and large, socio-economic background of the families wherein elderly women residing tend to appear to be discouraging them to live alone (panel 5 & 7 of Table 2). For instance, one can see that the percentage of widowed elderly who live alone / others has exhibited a clear decreasing pattern with an increase in monthly family income and standard of living index of the households. All these patterns are noted to be associated to a highly significant extent ($p < 0.001$ in each case).

elderly widowed living alone is higher among those who are feeling 'unhealthy' as compared to those who perceived 'healthy'. These percentage of differentials are noted as significant at different levels ($p < 0.001$ and $p < 0.05$). Though the percentage of elderly who live alone has consistently noted to be lower and/or decreased among those elderly who belonged to forward castes and increase in their level of educational status; the results did not turned out as significant. Finally, the percentage of elderly widowed women, by and large, appeared to be increasing with an increase in their age, here too, the results emerged as insignificant.

Table – 2
Differentials in Living Arrangement of the Elderly by their Background Characteristics

Background Characteristics of the Elderly	Living Alone/Others		Living with Children		Total	
	%	N	%	N	%	N
1. Age (in years)						
60 – 64	22.0	18	78.0	64	24.8	82
65 – 69	26.1	23	73.9	65	26.7	88
70 – 74	27.7	18	72.3	47	19.7	65
75 +	23.2	22	76.8	73	28.8	95
χ^2 - Value; Sig. Level	0.865;		NS			
2. Caste						
Schedule Castes/ Tribes	28.4	23	71.6	58	24.5	81

Most Backward / Backward Castes	23.6	47	76.4	152	60.3	199
Forward Castes	22.0	11	78.0	39	15.2	50
χ^2 - Value; Sig. Level	0.915;		NS			
3. Educational Status						
Illiterate	27.4	57	72.6	151	63.0	208
Up to Middle School	20.5	16	79.5	62	23.6	78
High School and Above	18.2	8	81.8	36	13.3	44
χ^2 - Value; Sig. Level	2.565;		NS			
4. Occupational Status						
Not Working / Homemakers	13.5	27	86.5	173	60.6	200
Retired /Pensioners	34.6	18	65.4	34	15.8	52
Labourers	46.7	21	53.3	24	13.6	45
Skilled Workers /Business/Others	45.5	15	54.5	18	10.0	33
χ^2 - Value; Sig. Level	35.701;		p<0.001			
5. Monthly Family Income						
Rs. \leq 3000	51.5	51	48.5	48	30.0	99
Rs. 3,000 – 10,000	15.4	21	84.6	115	41.2	136
Rs. 10,001 +	9.5	9	90.5	86	28.8	95
χ^2 - Value; Sig. Level	56.619;		p<0.001			
6. Earning of Members						
0	80.8	21	19.2	5	7.9	26
1	31.8	55	68.2	118	52.4	173
2	3.8	5	96.2	126	39.7	131
χ^2 - Value; Sig. Level	79.674;		p<0.001			
7. Standard of Living Index of Households						
Low	44.4	40	55.6	50	27.3	90
Medium	21.6	32	78.4	116	44.8	148
High	9.8	9	90.2	83	27.9	92
χ^2 - Value; Sig. Level	30.751;		p<0.001			
Background Characteristics of the Elderly	Living Alone/Others		Living with Children		Total	
	%	N	%	N	%	N
8. Number of Children Living in Same City /or Area						
0	73.3	11	26.7	4	4.5	15
1	20.0	18	80.0	72	27.3	90
2	25.3	19	74.7	56	22.7	75
3	19.4	13	80.6	54	20.3	67
4	24.1	20	75.9	63	25.2	83
χ^2 - Value; Sig. Level	21.273;		p<0.001			
9. Perceived Health Status						
Healthy	21.5	53	78.5	193	74.5	246
Unhealthy	33.3	28	66.7	56	25.5	84
χ^2 - Value; Sig. Level	4.699;		p<0.05			
10. Instrumental Activities of Daily Living (IADL) Scale						

Less	15.9	18	84.1	95	34.2	113
Moderate	19.8	21	80.2	85	32.1	106
High	37.8	42	62.2	69	33.6	111
χ^2 - Value; Sig. Level	16.402;		p<0.001			
Total	24.5	81	75.5	249	100.0	330

Note: Percentages calculated for the Living Arrangements by Background Characteristics row-wise.

Percentages calculated for the Total Sample of Elderly Column-wise.

CONCLUSIONS AND IMPLICATIONS

Like in many traditional societies around the world, majority of the elderly persons in an industrialised city of Tamil Nadu are residing with married sons as well as with unmarried children. However, in future the number of elderly widowed women who are living with daughter family followed by living alone may increase, because of women do not have son or thereby the proportion of couple with sons is likely to decrease and also because of the taboo (culturally) against staying with daughter. The differentials in living arrangements of the elderly by their background characteristics suggest that number of earning members in the family, standard of living index of households and number of children living in the same area/city tend to decrease the chances of elderly widowed women to live alone. Likewise, the proportion of elderly widowed women residing alone is likely to be much higher when they are working, Unhealthy and when their instrumental activities of daily living scale are higher. Thus, most of these results support the earlier mentioned prepositions. However, such pattern in the case of number of earning members in the family, monthly family income and standard of living index

is not on the expected lines, which could be because of those elderly widowed women are welcome to reside in such families / households rather than their counterparts. In the light of the findings observed in this study, the following policy implications are put forth. First of all, the government can think of suitable social security policies and also fairly better amounts of old age pensions for the widowed elderly women who are not engaged in economic activities and/or no source of income, unhealthy and lower IADL. Such attempts may be proposed and implemented differentially depending upon the different settings like rural–urban areas, level of development of the districts and states, etc. Steps may also be taken up to impart cultural values among adult children about the need to look after the elderly in old age, making use of their wisdom and experience for better life. Such steps would motivate them to look after the elderly widowed women with respect. Finally, there is a need to encourage adults to save and/or invest in a proper fashion while they are earning income, which would be much useful during their old age when they are not earning.

Acknowledgement

The author wishes to thank to **Dr. N. Audinarayana**, Professor and Head., Dept. of Sociology and Population Studies, Bharathiar University, Coimbatore for making access the data of this paper from a Research Project, funded by Indian Council of Social Science Research (ICSSR), New Delhi.

References

1. Audinarayana N., N. Kavitha (2006). Living Arrangements of the Widowed and Currently married women in Tamil Nadu State, India. In Arvind K. Joshi (Ed.), *Older Persons in India*. New Delhi: Serials Publications, pp. 103-113.
2. Dharmalingam B., K.R. Murugan (2001). Elderly Widows and their place in the Family. *Social Welfare* 48(1): 7-11.
3. Goyal R.S. (2004). Disease and Disability Burden of Elderly Women in India. *Bold* 15(1): 19-26.
4. Kant Shashi, Puneet Mishra, Anil Goswami (2004). Morbidity among Elderly persons residing in a resettlement colony of Delhi. *Indian Journal of Preventive Social Medicine* 35(1&2): 1-9.
5. Muthukrishnaveni S. (2010). *Living Arrangements and Health Conditions of Elderly in Rural India*. New Delhi: Serials Publications.
6. Pandya Rameshwari, Priti Shah (2006). Problems of Elderly Widows of Baroda-Gujrat. In Arvind K. Joshi (Ed.), *Older Persons in India*. New Delhi: Serials Publications, pp.171-207.
7. Rajan S. Irudaya, Sanjay Kumar (2003). Living Arrangements among Elderly. *Economic and Political Weekly* 38(1): 75-80.
8. Sadhu P., R. Bakshi (2004). Impact of Social Change on Elderly Women of Urban Panjab. *Help Age India – Research & Development Journal* 10(3): 23-28.
9. Sujitkumar P.S. (2009). Socio-Economic Conditions of Elderly Population in the Puducherry Municipality: An Empirical Analysis. *Nararlok XLI*(1): 72-79.
10. Van Solinge Hanna (1994). Living Arrangements of Non-married Elderly People in the Netherlands in 1990. *Ageing and Society* 14: 219-236.

SOURCES OF INFORMATION AND PERCEPTION OF RURAL CONSUMER

-A Study with Special Reference to Coimbatore District

S.Balusamy¹ and S.Vanitha²

¹Associate Professor in Management, RVS, Faculty of Management, Kumaran Kottam Campus, Kannampalayam, Coimbatore- 641 402.

²Assistant Professor in Management, Sakthi Institute of Information and Management Studies NGM Campus Pollachi- 642 001.

Abstract

Marketing plays a pivotal role in the growth and development of a country. It significantly contributes to income generation and employment. Efficient marketing strategy enables the marketer to provide right product, to right person and at the right time. Indian rural market is much larger than that of the urban market in terms of population, number of households and by way of geographic dispersal. Increased income level among rural households, improved infrastructure and favorable government policies offer a huge potential for rural marketing. As a result, manufacturers from India as well as abroad have diversified their attention towards rural segment to tap the hitherto untapped potential. Four billion people worldwide live in rural areas while in India 74 per cent of the population reside in rural areas, spreading over 3.2 million sq. km. in about 6,38,365 villages. Rural India is characterized by half a dozen religions, 33 languages, 1,650 dialects, and diversity in castes, sub-castes, tribes, culture, and subculture.

The strength of rural marketing lies in the 'Four A s' approach namely Awareness, Availability, Affordability, and Acceptability of the consumers. Marketers make continuous effort to understand the way rural consumer behaves and then devise a course of action to respond to the same.

Most of the rural consumers possess mixer grinder, television and mobile phone. Hence the rural marketers have more scope to penetrate the market for other durables. Family members constitute as an important factor in purchase decisions. Rural consumers may not remain same in the changing market environment. Hence they have to be thoroughly studied to have better knowledge on rural marketing and work out appropriate marketing strategies for the success.

1. INTRODUCTION

Marketing plays a pivotal role in the growth and development of a country. It significantly contributes to income generation and employment. Efficient marketing strategy enables the marketer to provide right product, to right person and at the right time. Indian rural market is much larger than that of the urban market in terms of population, number of households and by way of geographic dispersal. The total number of households is expected to rise from 135 million in 2001-02 to 153 million in 2009-10¹. Increased income level among rural households, improved infrastructure and favourable government policies offer a huge potential for rural marketing. As a result, manufacturers from India as well as

abroad have diversified their attention towards rural segment to tap the hitherto untapped potential.

Four billion people worldwide live in rural areas while in India 74 per cent of the population reside in rural areas, spreading over 3.2 million sq. km. in about 6,38,365 villages. Rural India is characterised by half a dozen religions, 33 languages, 1,650 dialects, and diversity in castes, sub-castes, tribes, culture, and subculture². The number of young and educated people in rural India is increasing. Nearly 40 per cent of the young graduates are from rural areas. Two-thirds of the middle-income households are in rural India.

Among 20 millions who have signed up for rediffmail, fifty per cent are in rural India. The number of middle and higher income families in rural India is 21.7 million while in urban India it is 24.2 million. Rural lifestyle is changing. Almost every household has at least one member living and working in a city³. The strength of rural marketing lies in the 'Four A s' approach namely Awareness, Availability, Affordability, and Acceptability of the consumers. Information technology, Government policies, corporate strategies and satellite communication are the factors responsible for development of rural marketing⁴.

Rural India is undergoing a sea change as a result of multi pronged activities undertaken by government for overall development of the villages⁵. Industry analysts have projected that urban households will grow by four per cent while their rural counterparts are expected to grow by 14 per cent by 2011-12 implying that if the rural income rose by one per cent, then the spending power of consumers will increase by about Rs. 10,000 crore⁶.

According to National Council for Applied Economic Research (NCAER), rural markets are growing compared to urban markets in terms of income. Average rural income went up to 63-64 per cent by 2001-02 from 55-58 per cent in 1993-94. Also, it is projected that the total number of households with income over Rs.10 lakh will go up from four million in 2001-02 to 20 million by 2009-10, out of which 22-23 per cent are expected to be from rural India⁷. There is a clear indication of increasing prosperity in rural India. This prosperity has led to an increase in the demand for durable goods. To be successful in the rural market,

2.0 STATEMENT OF THE PROBLEM

A rural consumer may be illiterate but he is not unintelligent. He is conscious of value for money and about every rupee he spends⁹. Today, rural consumers are living

companies will have to be innovative and sensitive while devising marketing strategies. Traditional urban marketing strategies will have to be localized as per the demands of the rural market.

The Indian consumer durables market has undergone a major transformation since the liberalization process. The market size, product penetration, the variety and technology of products sold, have all experienced a quantum leap. Improved product choice and decline in retail prices, matched by increased consumer income have driven the market growth rate to dizzy heights.

Consumers differ tremendously in income, educational level, taste and age. The changing socio-cultural, political and economic orders have transformed people into sophisticated consumers. Complex competitive status, vulnerable demand forecast, varying consumer preference, existence of too many brands, changing attitude of channel intermediaries, shortening of the product lifecycle are making marketing decisions extremely difficult and risky⁸. Rural consumer behaviour is molded by the key factors, namely opinion leaders, friends and relatives, various resource persons, retailers, media, caste, religion etc., Marketers take efforts to reach out the rural market. While making a purchase decision consumer first tries to understand the need of the product, especially in rural India, where cost is still a major consideration and necessities make prime purchase. Depending upon the need, buying power and other environmental factors, decision is made to select the best alternative to consume. Marketers must make continuous effort to understand the way rural consumer behaves and then devise a course of action to respond to the same.

in knowledge era and they can gather more information regarding the products anywhere and at any time through variety of sources available to them, which

facilitate them to take rational and optimal decision in purchase. But in reality the information sources may vary from product to product and the prominent source induces them to select a product. Rural consumers are different from their urban counterparts in economical, social, psychological, physiological and literacy aspects and they are also bounded by traditions, customs and values. Further, improved standard of living and lifestyle has brought a rapid change in the buying and consumption pattern of rural consumers, in terms of imbibing new ideas, attitudes, priorities, interests and way of life¹⁰.

By the end of 2025, rural consumption is expected to be nearly three times of what it is today, creating a gigantic potential market worth over Rs. 26 trillion.

The Mckinsey report has forecast that per-

1. What are the sources of information for the purchase of durable goods?
2. What are the variables that influence the rural consumer behaviour?

3.0 OBJECTIVES OF THE STUDY

To find answers to the questions raised, the research work has been carried out with the following specific objectives:

1. To study the sources of information used by rural consumers for purchase of durable goods.
2. To identify the variables influencing the rural consumers behaviour

4.1 REVIEW OF RELATED LITERATURE

Subhas Mehta (1973) conducted a study on "Consumer durables: poor penetration in villages", found that the upper income households (those with income above Rs. 12,000 p.a.), possess a better ownership of consumer durables like scooter, furniture, electronic appliances etc. The study further found that the companies have failed to exploit the market potential in rural areas.

Gopal, K.S, and Savin, A.N. (1980) have stated in their study on "Serving rural markets social or business propositions", found that a number of organizations are now engaged in restructuring their energy to penetrate deep into the rural markets. Their study revealed that the rural consumers are increasingly

household annual spending in rural India will reach the current levels in urban India (Rs.1,16,000 per household in 2005) by 2017. The annual consumption per household in rural India is expected to reach Rs. 1,58,000 by 2025¹¹. So marketers need to have an open mind, and sensitize themselves to understand the rural consumer. Due to economical and technological development there has been an increased expectation among consumers with regard to product's price, quality, product availability, customer relationship, variety of choices, free door delivery and the like. Studies that exclusively depend on the opinion of rural consumers are limited and to fill this vacuum, the present study is taken up. It is the need of the hour for the marketers to identify and understand the dynamic needs and wants of the rural consumers. In this context there arise the following questions:

changing their lifestyles and becoming more and more like their urban counterparts. The authors have also suggested a new symbiotic marketing approach in which a group of non competing organizations can get together and arrange for distribution, which is the major challenge in rural marketing.

Rudra Saibaba, V, et al (2008), in their study on "Consumer behaviour towards two-wheelers – a comparative study on rural and urban consumers of Warangal District, Andhra Pradesh", revealed that the Indian consumers brand preference for two wheelers was based on mileage, price and maintenance cost and road conditions. While making a purchase decision, friends and spouses play a major

role. Advertising is considered to be powerful medium in the marketing of automobiles. Among the different media that are used, television was the most effective in influencing the consumers' buying decisions.

Bhagaban Das et al (2008), in their study on "Categorizing consumers buying behaviour : A factor analysis in consumer durable market", found that consumers perception on buying colour television was mostly affected by the factors, such as structural add-ons, word of

4.2 METHODOLOGY

4.2.1 Source of Data

The study is based on both primary and secondary data. Primary data have been collected through personal interview with the help of a well-structured interview

4.2.2 Sample

The universe of the study area is Coimbatore District, which is quite large. It is therefore decided to use convenience sampling for identifying the respondents. To study sources of information and

4.3.3 Framework of Analysis

Both primary and secondary data have been edited and regrouped according to the needs of the study. For interpreting

4.4.4 Hypothesis

1. Socio-economic variables do not influence preference
2. Socio-economic variables do not influence attitude

5. SCOPE AND SIGNIFICANCE OF THE STUDY

The study is concerned with the search for and use of product information, as part of purchase decision making. The study also deals with the amount of information gathered by the rural consumers at the time of search process, and how effectively they use the information in making a purchase. This study deals with the rural consumer behaviour regarding seven select consumer

6. POSSESSION OF DURABLES

The rural consumers have different occupation and income levels. They possess the durables depending upon their buying capacity, usability, necessity and status. Table 1.1 shows the durables possessed by the sample respondents.

mouth, technical features, durability and ground reality.

Amit Sharma (2009) in his study on "Durables majors try and push new models to beat slowdown", revealed that the Rs.25,000 crore consumer durables industry, which grew 12 per cent in 2008, is following a rather contrarian approach to tackle the slowdown. Introduction of newer products and models with better technology and features would help in increasing consumers' willingness to purchase.

schedule. The secondary data have been collected from Journals, Magazines, Newspapers, Books and Web Sites.

perception of rural consumers, 430 sample consumers are selected in Coimbatore District by adopting convenience sampling method.

results, statistical tools used are: (i) Descriptive Analysis (Simple Percentage), (ii) Correlation, (iii) Multiple Regression.

durables, viz., mixer grinder, washing machine, refrigerator, television, cell phone, two wheeler and four wheeler. The consumerist issues directly affect all participants in the market place and should be of great interest to students of marketing as well as to marketers. Results of the study will be definitely useful to rural consumers, marketers and Government.

Table 1.1
Possession of Durables

Durables	Number of Respondents	Percentage
Mixer Grinder	423	98.37
Washing Machine	210	48.83
Refrigerator	294	68.37
TV	423	98.37
Cell Phone	426	99.06
Two Wheeler	400	93.02
Four Wheeler	162	37.67

From the Table 1.1 it is observed that, a majority i.e., 99.06 per cent respondents possess cell phones for their day to day communication. Mixer grinder and TV stand second with 98.37 per cent as well as two wheeler occupy the third place with 93.02 per cent respondents. The respondents those who have refrigerator in their house are 68.37 per cent. Washing machine is one of the durable which is possessed by the least number of

respondents i.e., 48.83 per cent, because the rural people are basically hard working in nature and prefer physical work.

Respondents have the tendency to buy four wheeler for their family commitment and business. Among the sample respondents, 37.67 per cent respondents possess four wheeler. The four wheeler has the potential market in rural places.

Reasons for the Purchase of Durables

The various reasons for the purchase of durables are necessity, prestige and entertainment. It is presented in the Table 1.2.

Table 1.2
Reasons for the Purchase of Durables

Reasons	Durables						
	Mixer Grinder	Washing Machine	Refrigerator	TV	Cell Phone	Two Wheeler	Four Wheeler
Necessity	419 (99.05)	181 (86.19)	226 (76.87)	72 (17.02)	298 (69.95)	330 (82.50)	98 (60.49)
Prestige	4 (00.95)	29 (13.81)	68 (23.13)	22 (5.20)	85 (19.95)	66 (16.50)	62 (38.27)
Entertainment	0	0	0	329 (77.78)	43 (10.10)	4 (1.00)	2 (1.24)
Total	423	210	294	423	426	400	162

It is found that, 99.05 per cent respondents purchased mixer grinder on

account of necessity and four respondents purchased for the prestige. Regarding

washing machine, 86.19 per cent have it for necessity and 13.81 per cent for prestige. Regarding refrigerator, 76.87 per cent have it for necessity and 23.13 per cent for prestige. Among the respondents who possess TV, 17.02 per cent have it for necessity while 5.20 per cent for the prestige and 77.78 per cent for entertainment. Among the respondents who use cell phone, 69.95 per cent have it for necessity while 19.95 per cent for prestige and 10.10 per cent for entertainment. Regarding two

wheeler, 82.50 per cent respondents have it for necessity while 16.50 per cent of the respondents have it for prestige. Considering four wheeler, 60.49 per cent have it for necessity while prestige is the reason for the purchase of 38.27 per cent respondents and two respondents have it for entertainment. Majority of the respondents considered necessity is the main reason for the purchase of all types of durables except television where entertainment is the main reason for its purchase.

7. DETERMINANTS OF RURAL CONSUMER BEHAVIOUR

In order to find the nature of association of variables with rural consumer preference, correlation analysis is used. First, partial correlation coefficients have been found out to finalise the variables that can be taken up for correlation analysis.

The variables considered for partial correlation are: Consumer Preference Index, Sex, Marital Status, Educational Qualification-Illiterate and School Level,

Occupation-Agriculture and Business, Annual Family Income, percentage of savings per month and Consumer Attitude Index. All the variables considered for the partial correlation are used in correlation, multiple regression, and step-wise regression. It is presented in the Table 1.3. Out of ten variables selected for correlation analysis, one variable consumer attitude has been found to be significant at five per cent level.

Table 1.3
Variables Associated with Rural Consumer Behaviour
Correlation Analysis

Variables	r	r ²
Consumer Preference	.1	0.012
Sex	.110	0.013
Marital Status	-.113	0.011
Educational Qualification - Illiterate	-.106	0.005
Educational Qualification - School Level	-.068	0.003
Occupation -Agriculture	-.059	0.001
Occupation - Business	.036	0.003
Annual Family Income	.057	0.005
Percentage of Savings per month	-.069	0.187
Consumer Attitude	.433*	0.012

* Significant at five per cent level

Table 1.3 reveals that consumer attitude and consumer preference have a positive correlation, implying that increase in consumer attitude increases level of preference. The coefficient of determination (r²) accounts for 1.2 per cent

of the variation in the level of preference. To find out the combined influence of selected variables on the level of preference of rural consumer, multiple regression tests has been employed.

Table 1.4
Determinants of Rural Consumer Behaviour
Multiple Regression Analysis

Variables	Regression Coefficient	Standard Error	T (d.f =420)
(Constant)	44.986	3.675	12.240
Sex	1.757*	.742	2.367
Marital Status	-1.462	1.005	-1.456
Educational Qualification – Illiterate	-2.603	1.385	-1.880
Educational Qualification - School Level	-.957	.750	-1.276
Occupation –Agriculture	-1.272	.844	-1.508
Occupation – Business	-1.183	.903	-1.310
Annual Family Income	.001*	.000	2.039
Percentage of Savings per month	-.083*	.039	-2.147
Attitude	.444**	.045	9.893

* Significant at five per cent level

** Significant at one per cent level

Constant	:	44.986
Std. Error of Estimate	:	3.675
$\overline{R^2}$:	0.217
R^2	:	0.233***

Table 1.4 reveals that the regression coefficient indicates that sex positively influences level of consumer preference. The value of regression coefficient clearly indicates that male member have high level of preference over durable goods.

The regression coefficient indicates that annual family income positively influenced the level of preference. The value of regression coefficient indicates that a unit of increase in annual income shall increase preference by one .001 units. Rural consumers with high family income have high level of preference over consumer durable goods. The regression analysis shows that there exist a negative

8. SUMMARY OF FINDINGS

The various findings of the study are given under the heads:

8.1 Profile of Rural Consumers

The socio-economic profile of rural consumer reveals that

- ☞ A majority of the consumers (65.58 per cent) are male.
- ☞ Most of the consumers (53.95 per cent) belong to the age group between 31 and 45 years.
- ☞ Married consumer account for 86.05 per cent.
- ☞ Consumers with school level education constitute 50.23 per cent.
- ☞ Most of the consumers (28.60 per cent) are agriculturists.
- ☞ Many consumers (55.58 per cent) are head of the family.
- ☞ Most of the consumers (57.67 per cent) are with four family members.

influence between savings and consumer preference implying that respondents who have more savings have high level of preference over consumer durables.

The regression coefficient shows that consumer attitude positively influences the level of preference for durable goods. The impact is found to be highly significant. Therefore, enhanced consumer attitude leads to higher level of preference for durable goods. The value of R^2 is found to be significant at one per cent level. This shows that the regression equation formed is a good fit. Around 23.30 per cent of variation in level of preference is due to the selected variables.

- ☞ A majority of the consumers (50.23 per cent) possess two communication facilities.
- ☞ Most of the consumers (50.23 per cent) have annual family income between Rs.1,50,001 and Rs.3,00,000.
- ☞ More number of consumers (61.40 per cent) have monthly savings up to 10 per cent of their income.

8.2 Rural Consumers Behaviour

- ☞ A majority of the consumers (99.06 per cent) have purchased cell phone. Other durables possessed by majority of the consumers are mixer grinder and TV (98.37 per cent) and two wheeler (93.02 per cent).
- ☞ A majority of the consumer (59.79 per cent) have utilised only one source of fund for purchasing durables i.e., savings or agriculture income.
- ☞ Regarding the motivation to purchase of durables, self motivation occupies the first place and family member occupies the second place.
- ☞ A majority of the consumers considered necessity as the main reason for the purchase of all types of durables expect television where entertainment is the main reason for its purchase.
- ☞ Most of the consumers have taken a week's time for the purchase decision in case of durables like mixer grinder, washing machine, TV and cell phone. A month's time is taken for purchase decision in case of refrigerator and two wheeler. Four wheeler is the only durable for which most of the consumers spent more than a month to take purchase decision.
- ☞ A Majority of the consumer have been using the durables for the past five years except TV, where it is more than five years.

Conclusion

Most of the rural consumers possess mixer grinder, television and cell phone. Hence the rural marketers have more scope to penetrate the market for other durables. Family members constitute as an important factor in purchase decisions. Rural consumers may not

remain same in the changing market environment. Hence they have to be thoroughly studied to have better knowledge on rural marketing and work out appropriate marketing strategies for the success.

REFERENCES

1. Anil Chandhok, (2007), "A Marketing Strategy to Tap Indian Rural Markets", Marketing Mastermind, The ICFAI University Press, June, Vol. VII (6), pp.23-24.
2. Arpita Srivastava, (2008), "Effective Product Positioning Strategies for the rural Market- A Winning Proposition", Marketing Mastermind, The ICFAI University Press, November, Vol. VIII (11), pp.42-47.
3. Amit Sharma "Durables majors try and push new models to beat slowdown" The Economic Times, February 12th 2009. p- 4. New Delhi.
4. Bhagaban Das, Sangeetha Mohanty, and Nikhil Chandra Shil, (2008), "Categorizing consumers buying behaviour: A Factor Analysis in Consumer Durable Market", International Journal of Business and Management, September, Vol.3, (9), pp.147-148.
5. Kavaldeep Dixit, (2007), "Rural Marketing – Issues and Strategies", Marketing Mastermind, The ICFAI University Press, August, Vol. VII (8), pp.29-31.
6. Lokhande, M.A, (2004), "Rural Marketing – A Study of Consumer Behaviour", Indian Journal of Marketing, December, Vol. XXXIV (12), p.14.
7. Mandar Naresh Dhumal, Avishkar Tayade, and Ankita Khandkar, (2008), "Marketing to Rural Consumers - Understanding and tapping the rural market potential", April, IIMK. Dspace.iimk.ac.in/bitstream/225/469/1/RM88-pdf.

8. Sivaraj B and Mohankumar T.P, (2006), “Realities of Rural Market Segmentation”, Marketing Mastermind, The ICFAI University Press, October, p.15.
9. Sarangapani A, and Mamatha T, (2008), “Rural Consumer Behaviour”, Marketing Mastermind, The ICFAI University Press, September, Vol. VIII (9), pp.60-66.
10. Venkatesh Tamlurkar, (2006), “Assessing the Market for Rural India”, Marketing Mastermind, The ICFAI University Press, September, p.13.
11. Nagaraja B, (2004), “Consumer Behaviour in Rural Areas: A Micro level Study on Buying Behaviour of Rural Consumers in Kavali Mandal”, Indian Journal of Marketing, November, Vol. XXXIV (11), p.30.
12. Selvaraj A, (2007), “Rural consumer’s Behaviour Regarding Non-Durable Goods: A Study in Erode District of Tamil Nadu”, Indian Journal of Marketing, December, Vol. XXXVII (12), pp.35-36.
13. Subhas Mehta, “Consumer Durables: Poor penetration in Villages”, The Economic Times (Bombay) 1st July 1973, p.4.
14. Gopal, K.S and Savin, A.N, “Serving Rural Markets Social or Business Propositions?”, ASCI Journal of Management, Hyderabad, Vol.10, Issue-1, September, 1980, pp. 19 - 29.
15. Rudra Saibaba, V, Rana Pratap, Vadde Suresh (2008), “Consumer Behaviour Towards Two-Wheelers – a Comparative study on Rural and Urban Consumers of Warangal District, Andhra Pradesh” Marketing Mastermind, The ICFAI University Press, April. Vol. VIII, Issue – 4, pp.63-66.
16. Bhagaban Das, Sangeeta Mohanty and Nikhi Chandra Shil (2008), in their article entitled “Categorizing Consumers Buying Behaviour: A Factor analysis in Consumer durable market”, International Journal of Business and Management” Vol.3, (9) September. Pp 147-156.

Inefficiency of Indian Real Estate indicators: A Need for Regulatory Agency & Index based on market deal

B.Muthupandian¹ and Dr. Velmurugan²

¹Doctoral Research Scholar and ²Assistant Professor, Department of Commerce, School of Management, Pondicherry University, R.V Nagar, Kalapet, Puducherry – 14.

Abstract

The real estate sector is a major employment driver in India and it contributes a significant level to the GDP. Besides, it is the main source of wealth for all section of the people. There is no transparency and efficiency in the pricing of real estate transaction in-spite-of some indices representing the price movement of the real estate sector. This is because the price is based only on the primary market transaction. It's completely excluding the secondary market transaction of the sector. This paper attempts to address this issue by proposing an online exchange for real estate transaction, for bringing in more liquidity and transparency to the sector, along with an index, based on the price traded in that exchange. These will a high relative measure to indicate and represent the price moment of the sector. This kind of regular monitoring of the real estate prices may be fruitful input for the different stake holders like buyers, seller, mediators, developers, investors, banks, housing finance companies, FIIs, private equities, analysts and others in their decision-making process.

Key words: Real Estate Index, RESIDEX, RESSEX and Real Estate Online Exchange

I. INTRODUCTION: Need for an Index

The real estate sector is a major employment driver, because of the chain of forward and backward linkages that the sector has with the other sectors of the economy, especially with the housing and commercial construction sector. About 250 ancillary industries such as cement, steel, brick, timber, building materials etc are dependent on the real estate industry, and more over the Realty business contributes a significant level to our National GDP. These factors endorse the need, initially, for residential property price index for select cities and subsequently an all India composite index by suitably combining these city level

II. PRESENT INDICES

In India, there are two major real estate indicators namely, RESIDEX and RESSEX which are calculated based of different methodologies and reflect the

a. RESIDEX

On the request of ministry of finance, the National Housing Bank conducted a pilot study to construct the

indices, to capture the relative chronological change in the real estate prices at different levels

To begin with, since housing and real estate are major areas in creation of physical and financial assets and contributing to overall National wealth, a mechanism is required track the movement of prices in the residential housing segment. Regular monitoring of the house prices can be useful inputs for the different interest groups like buyers, seller, mediators, developers, investors, banks, housing finance companies, FIIs, private equities, analysts and others in their decision-making process.

Indian real estate growths. A detailed review of these indices is presented herewith;

National Index for Real Estates Prices. The project initially was started to cover 5 cities viz. Bangalore, Bhopal, Delhi,

Kolkata and Mumbai. But in the year 2007 NHB RESIDEX has been expanded to cover ten more cities, viz, Ahmadabad, Faridabad, Chennai, Kochi, Hyderabad, Jaipur, Patna, Lucknow, Pune and Surat. At present NHB RESIDEX Covers 15 major cities of our nation. It is proposed to

1. Methodology of the index

The Technical Advisory Group (TAG) was constituted to deal with all the issues relating to methodology, collection of data and also to guide the process of construction of an appropriate index. The TAG comprises members from Ministry of Finance as chairman and a range of experts members from RBI, NSSO, CSO, Labour Bureau, NHB and other market players.

The Pilot study covered 5 cities viz. Delhi, Mumbai, Kolkata, Bangalore and Bhopal representing the various regions of the country. Basically, the actual transactions prices were considered for the study in order to arrive at an Index because,

2. Data Availability & Frequency of Updation

The year 2001 was taken as the base year for the study, in comparison with the WPI and CPI. Year to year price movement during the period 2001-2005 has been captured in the study, and subsequently updated for two more years i.e. up to 2007. Further, at the time of up-

3. Index Indication

As shown in the Chart No:1, the NHB RESIDEX overall national real estate price spiked more than 45% when compared to the 2007 real estate prices. The chart also indicates that the prices have a linear upward trend to increases in the near future. The chart #: 2, symbolize the price movement of the cities which the

B. RESSEX

Mumbai based Realty research firm Liases Foras on 18th November 2009 launched its Real Estate Sensitivity Index – RESSEX, which will provide structured data and property analysis on the country's real estate market. It aims to provide instant and continuous information on property trends and analysis in India. The

1. Methodology of the index

cover 35 cities having million plus population. There is also a proposal to expand NHB RESIDEX to 63 cities, which are covered under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), to make it a true National Real Estate Index.

to fairly reflect the market trends. The index has been constructed using the weighted average methodology with Price Relative Method (Modified Laspeyre's approach), and the primary data on housing prices is being collected from real estate agents by commissioning the services of private consultancy/research organisations of national repute. In addition, data on housing prices is also being collected from the housing finance companies and bank, which is based on housing loans contracted by these institutions.

gradation and expansion of coverage of NHB RESIDEX to 10 more cities the base year has been shifted from 2001 to 2007 and the data are published on half yearly basis. The NHB RESIDEX is now being up dated on quarterly basis from December 2010 onwards.

NHB RESIDEX covers, It shows that out of 15 cities only the 4 city viz, Hyderabad, Jaipur, Kochi, Bengaluru showed the negative price trend and the remaining 11 cities recorded a positive price trend, among which Chennai secured the first place for the positive price trend followed by Kolkata, Bhopal.

concern offers five types of indices namely, Sale, Inventory, Price, Efficiency and Business Turnover indices in the terms of index and amount. RESSEX provides dynamic data for the first time ever, in the form of an index at regional (from city to micro location) and product (1 BHK, 2 BHK etc.,) level.

Real estate price data is mostly collected through primary survey (i.e. covers 90 % of universe) by the way of Mystery Shopping techniques by the way of personal visits to the sites and it is not a mere telephonic or internet search. The data covers only primary marketable supply. It means that it represents the supply of the project by the builder/developer. But it includes only those, wings, building, units which are currently being marketed.

RESSEX represents the price movements between two year data points. They collected the first data point for Minimum Market Rate (MMR) is Jan 2004 and the second survey was carried

2. Data Availability & frequency of updation

The survey will be conduct on the month of June, September, December and March. The survey coverage stands more than 90% of the universe. Thus this is not a sample based research. RESSEX will be

3. Index Indication

Sales / Demand index indicates that Demand of the real estate properties. It is 'units sold' between two dates of surveys. The mean index value is 2.42 after the period of March 2009. The index showed the increasing trend and had grown more than 2 times, within two years. (See the Chart #: 3)

Inventory index represent the Inventory of the unsold stock between two dates of survey. It covers all new launches (new additions) as well as carried-forward inventory from the previous survey, i.e. Previous Unsold + New Additions. From June 2008 to November 2008 the inventory index doubled. Further from that period onwards the inventory index is continuously increasing in the positive trend. (See the Chart #: 3)

Price Index is the Price of the Weighted Average prices against the Unsold (Inventory). Every project's inventory is multiplied with its price and then summed up and then divided by sum total of the inventory of all the projects as shown in the formula below. i.e. $Price = (Rate1 * Inventory 1 + rate 2 * inventory2 +)/Sum\ of\ (Inventory1 + Inventory2.....)$. Before march 2009 the price index was volatile and after that there was increasing trend. (See the Chart #: 3)

Efficiency index be a symbol of the market efficiency. It is the ratio between the average sale movement per building and the rate per sq ft. The ratio suggests demand elasticity i.e. the impact on demand given the rise in the property rate. In other words, if the average sale per building is increasing with the increase in rate, the market is efficient. Conversely, reduced sales means the market has become relatively inefficient to that extent. The efficiency index is indicating the negative trend during recent time. Initially, during the period between October 2005 and May 2006 it showed more than 400 points and suddenly decreased in the subsequent year. It again reached more than 200 point on June and September 2009. (See the Chart #: 3)

Business Turnover index represents the volume of the trade or in other words business done during the period. This is calculated by multiplying the sq. ft. sold during the

out in Jan 2005; therefore Jan 05 has been considered as the base year which reflects the movement of sale and inventory between Jan04- Jan05. In addition, the Inventory, Price, Efficiency and Business Turnover as on Jan 05, have been considered as 100.

A sale is indexed against the inventory to represent offtakes. The base year for Pune, NCR, & Bengaluru is Nov 08 which represents the movement between Jun 08 to Nov 08. The first survey was carried out in Jun 08, and the base year for Chennai and Hyderabad is March 09, which represents the movement between Nov 08 – Mar 09.

updated on Quarterly basis. The period of updation would be in the month of June, September, December and March and last day of the respective month.

period with prevailing prices. In the recent period, the index showed the increasing trend, which represents that the real estate business is going in progressive trend.

III. PROPOSED INDICES

The above mentioned indicators are not effectively indicating the growth of the Indian real estate market. In general real estate markets are classified into two types namely, primary market and secondary markets. In the primary market the buyer buy the property from property Builders / developers but in the secondary market buyer buy the property from the owner of the property. If one index is more efficient, it acts as the barometer of the entire price movement of the whole market segments.

The RESSEX index is collecting the price data only from the primary market alone and this is also collected through mysterious Shopping techniques by the way of personal visits to the property Builders / developers project sites, and they are not collecting the secondary market price movements.

The RESIDEX mostly relies on the data set available in various banks who are providing the housing loan to the property

NEED FOR ONLINE REAL ESTATE EXCHANGE:

At present the price of the real estate secondary market is not more transparent, It can be made transparent when the trading is carried out through online exchanges mode, like the stock exchanges trading system. At present the physical market system (i.e. buyers and sellers of the property meeting physically) is one of the prime factors for the emergence and exchange the black money between the parties in the real estate transactions. Under the Real Estate Online Exchange System the exchange plays the middleman role. The buyer buy the

IV. CONCLUSION

Both indices are only concentrating on the real estate primary market demand alone and are not concentrating the real estate secondary market transactions. But the market has to focus on both primary and secondary segments. There is also the problem of non- availability of the

buyers, on the way they are omitting those are buying the property on their own money. In India, mostly the banks are providing housing loan on the basic of the property registration value, and mostly properties are register based on the guideline values fixed by the state governments. There are the huge difference between the guide line values and market price of the properties.

The secondary market operations are happening through face to face transactions and there are no proper accounts for this kind of transactions. This kind of poor availability of price information facilitates the real estate secondary market to be most corrupted market. Huge amount of black money is parked into this market. Hence there is a dire need to take the secondary market transaction into account for calculating the growth of the real estate sector. Only then, the index would more efficiently reflect the pulse of the real estate market.

property from the exchange, same way the seller is also sell their property into the exchange and hence the buyer and sellers are unknown each other. The payment will only pass through the bank account transfers.

This kind of market restructuring (i.e. online exchange) will disclose all the price information of the various deals taking place over the exchanges. It will give absolutely believable and reliable sources of secondary real estate market price information and will highly restructure the market transactions.

secondary real estate market prices. Banks and the Government registration department have some of the price data, which is also not reliable. Due to getting some benefits like escaping from the Registration Tax and the Long Term Capital Gain tax, the buyer and seller of

the property registered their property by under valuing the property. Based on the registration value the banks are providing the loan. Therefore the price information of the hold by the bank and the Government registration department are not reliable.

Hence, the need of the hour is creating a new regulation agency to regulate the real estate transactions, and to permit the online real estate exchange for

Reference:

1. http://www.nhb.org.in/Residex/About_Residex.php
2. <http://www.nhb.org.in/Residex/Data&Graphs.php>
3. <http://ressex.blog.com/2011/07/02/nrrc/>
4. <http://www.ressex.com/>
5. http://www.ressex.com/approach_assessment.asp

doing the all property transaction i.e. Primary as well as the Secondary market transactions' via online. Market price deal in those online exchanges should be taken into account for constructing the Real Estate Sector Index, to represent and act as barometer of the Real Estate sector. These innovative steps will move forward the real estate sector with more liquidity and transparency.

Chart #: 1: NHB RESIDEX (2007 – 2011)

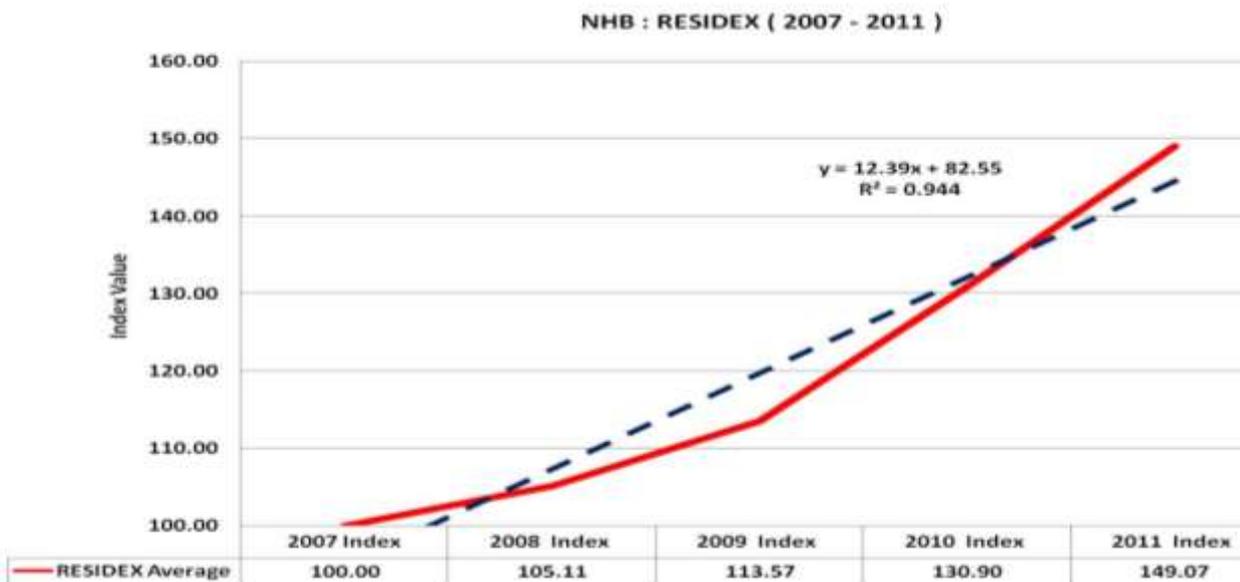


Chart #: 2 : NHB RESIDEX city wise (2007 – 2011)

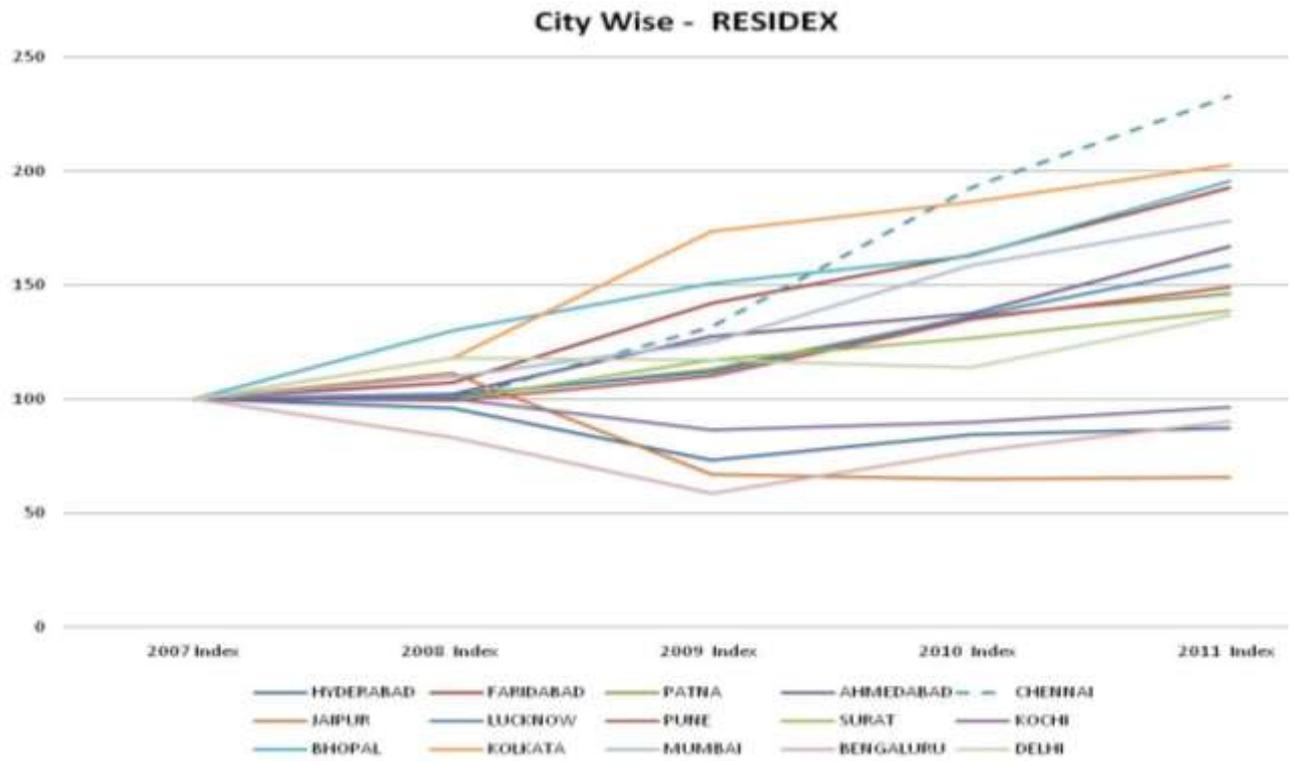
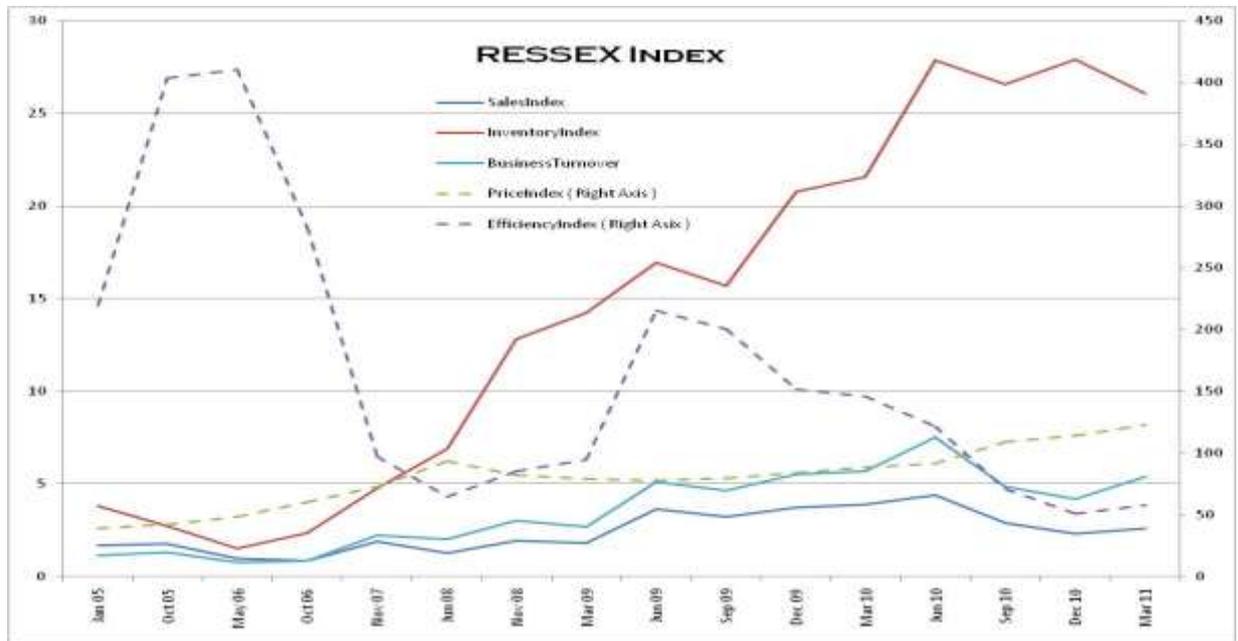


Chart #: 3 -- RESSEX (2005 – 2011)



THE IMPACT OF ENTERPRISE SYSTEMS IN MANAGEMENT DECISION MAKING

C. Muthuvelayutham¹ and T.Sugantha lakshmi²

¹Associate Professor, Directorate of On-Line and Distance Education and ²Assistant professor, School of Management Sciences, Anna University of Technology, Coimbatore. India.

Abstract

An Enterprise Resource Planning (ERP) system is composed of a basic transactional system and a management control system. Sammon et al. (2003) describes these 2 components of ERP systems as the solution to “operational” integration problems and “informational” requirements of managers. Thus, the extreme standardisation of business process inherent in ERP systems creates huge volumes of data without providing a clue for how to exploit it and may therefore not be beneficial from a decision-making point of view. In this paper, decision-making theory and models are reviewed, focusing on how an ERP implementation might impact on these constructs. This paper is an analysis about centralisation of decision making in an organisation and its impact on performance at a local level.

Keywords: ERP, ERP implementation, Decision support system, Decision making

Decision Making Models

Many researches in decision making focused on the difficulty of defining a rational model for an ever-changing process that also allows for the unreasonable or contextual factors that make up the innumerable decisions made by management in organisations. In Simon's (1972) theory for decision-making, he posits that a business tried to make a decision that was "good enough". He called his theory "bounded rationality" and invented a name to

describe it: "satisficing", a composition of the words satisfy and suffice

It is difficult to find whether management decisions can be structured into distinct phases (eg. intelligence, design and choice from Simon, 1977), or whether the complexity of factors influencing an individual decision will mean that there can be no pre-determined outcome

During an ERP implementation, we can expect many impacts at all levels in the decision domain:

- The roles and responsibilities of an actor need to be changed because of the re-assigning in the new template processes. At a minimum, their contribution may have to change towards less autonomy and less control.
- The decision process may have changed in that there will be new or modified sources of information and / or different steps to the process
- The decision itself may change as the system may have incorporated some of the conditions and exception traps which were previously dealt with manually. This may be perceived as less freedom or additional constraints by the decision maker.

Now the key concept of organisational learning is to question whether a decision is subject to encoding. Following the implementation of an ERP system, information that was tracked manually or not at all will now have to be recorded unambiguously in the system in order for automatic triggers to be activated allowing transactions to move on to the next stage in the process.

Aspects of decision making

Langley (1995) identifies 3 aspects of decision-making which render it a difficult subject for empirical research:

- Many decisions do not imply distinct identifiable choices, and are difficult to pin down, in time or in place
- Decision making processes do not necessarily proceed as a linear sequence of steps, rather they are driven by the emotion, imagination and memories of the decision makers, punctuated by sudden crystallisations of thought
- It is difficult to isolate decision processes, as decisions typically become intertwined with other decisions.

Gorry (1971) argues that the spreading out of information systems into higher management functions has resulted in blown up quality on information, at the expense of an emphasis on decision making models and their components – i.e.: constraints, goals and other parameters. He also explores the relationship that managers have with information and models design helps in reducing complexity to understandable dimensions.

Managerial models for decision - making

Interestingly, the implementation of an ERP system will only serve to aggravate this lack of managerial models for decision-making.

- Firstly, each ERP package uses operational models as underlying frameworks and these models can differ in terms of how they operate. Both Oracle and SAP are based on the principle of “work orders”, for example, which correspond to unique production jobs which consume inventory as they progress. However the manner in which they tie back to sales orders is different from one package to the other. Understanding and being able to communicate this new process blueprint and how it differs from the old way of working is a huge challenge for managers going through an ERP implementation.
- Secondly, managers may not initially understand the reasoning behind some of the configuration options embodied in the business template as implemented by the ERP project team. Only few project team members are interested in knowing the logic behind the configuration decisions that are made during the implementation stage, and furthermore, once implemented, users will usually be against from any course of action which implies changes to these decisions. This may reduce the scope of a managers decision domain.
- Thirdly, there is a wealth of information important for decision-making, which lies outside the traditional ERP boundaries (Stefanou, 2001). For example, information from external sources, such as published statistics, market data, and experts’ opinions are not easily accommodated within the ERP environment. Legacy systems may contain years of historic data that can be crucial in determining trends and patterns.

Managers require decision-making models to help them to interpret the complexity of the real world. ERP systems provide a huge volume of information to managers, but in so cases, adding more information may create a greater complexity to decision making at the management control level.

Moreover, the ERP vendors are more concerned with the notions of “best practice” and “zero modifications”, and not for the individual managers’

perception and processes. Equally the tight timescales for their implementation allows little boundary for questioning the corporate template. Hence managers

are expected to take on models that are not their own, with parameters they had little influence on, and deal with the corresponding increase in information volume.

Little's (1970) observations would seem to bear this out:

"People tend to reject what they don't understand. The manager carries responsibility for outcomes. He prefers simple analysis to grasp, even though it may have a qualitative structure, broad assumptions, and only a little relevant data, to a complex model whose assumptions may be partially hidden or couched in jargon and whose parameters may be the result of obscure statistical manipulation."

Pfeiffer (1992) discusses the selective use of information in management to rationalise decision processes, and how, under conditions of uncertainty, individuals would prefer to use data and decision-making processes "with which they are comfortable".

The organisation, must adopt a broader perspective like integrating mechanisms in increasing its information processing capabilities (Galbraith, 1974). The integrated mechanism in ERP systems allow routine and predictable tasks to be automated. This would equate with Winter's (1985) notion of routines or high volume mechanistic decision

Conclusion

Management decision making can be said to be made up of a combination of structured information "handling", and the application of knowledge based on information and experience that is unstructured. The application of highly integrated systems such as ERP to business activities is further evidence of the "evolutionary nature of the line separating structured

making, which implies the use of some sort of system.

The choices inherent in implementing and configuring ERP processes do, in effect, eliminate or suppress the choices to be made by process users (employees), thereby reducing the responsibility on employees to make decisions for day to day routine work. Taking procurement as an example, if Purchase Order approval levels are parameterised within an ERP such that certain PO's with amounts that fall within acceptable limits can be approved automatically (i.e. don't require manager sign-off), as long as they are from a recognised list of items from an agreed set of corporate suppliers (the only ones available in the system), then the decision making has been reduced to a mechanistic level. This will improve the efficiency of the procurement process by allowing faster PO approval for those "standard" items, and should yield monetary benefits as well, in terms of volume discounts from suppliers.

To perceive uncertainty in MIS is as "threatening rather than inevitable", and, rather than exploiting information for its "educative" (Gorry, 1971) potential, information systems professionals tend to design models that mask reality with "assumed certainties".

from unstructured decisions" (Gorry & Scott Morton, 1971).

We now know that it is very much expensive to build a system. Implementing ERP systems has not prevented 40% of companies in the world with revenues. The total market for ERP software has been estimated at \$1 trillion by the year 2010 (Bingi et al. 1999).

In spite of this strong push to implement ERP among today's business organizations, there is a lack of understanding of the real post-implementation benefits of these integrated systems, and more insidiously, little knowledge among adopters of the longer-term organizational impacts (positive or negative) that may result.

Research on ERP experience in industry suggests that the single most important factor in their successful implementation is the organisation itself, that is, the readiness of employees to embrace change. This is comprehensible, given that the alignment of resources to the new ERP enshrined business processes means that roles, responsibilities and

Fundamental research questions is

What models are used in the post-ERP organisation to identify and prioritise the problems which managers focus on?

ERP projects in research literature have been treated like large IS projects, using many of the analytical tools from traditional information systems research. Our approach to research in this area is to acknowledge that the biggest impact

therefore job descriptions will be impacted at the operational level

Researchers should strive to understand the longer-term effects of the impact of ERP systems on management decision-making. In evaluating the impact, the critical criteria will be the standardisation of processes and the centralisation of responsibility for decision-making.

Furthermore, as responsibility for decision-making tends to be more centralised in the post-ERP world, managers may find themselves with a perception of having less control over their decision domains, and with less autonomy to take new or different approaches to the resolution of issues

to the company has been on people and their jobs, and that these effects are better defined in terms of organizational change. Using constructs adapted from the study of organisations rather than the study of information systems will give researchers the lens to view ERP implementation impacts in the context of the bigger picture of organizational driving forces.

References

1. Bingi, P., Sharma, M. and Godla, J. (1999) Critical Issues Affecting an ERP Implementation, *Information Systems Management*, Summer, 7-14.
2. Dearden, J. (1972) MIS is a mirage, *Harvard Business Review*, Jan/Feb, Vol. 50 Issue 1, p90
3. Esteves, J. and Pastor, J. (2001) Enterprise Resource Planning Systems Research: an Annotated Bibliography, *Communications of AIS*, Vol. 7, No. 8, August
4. Gorry, G. and Scott Morton, M. (1971) A Framework for Management Information Systems, *Sloan Management Review*, Fall, pp 55-70
5. Gorry, G. (1971) The Development of Managerial Models, *Sloan Management Review*, Winter, pp 1-16 Holland, CP, Light, B and Gibson, N, 1999, A Critical Success Factors Model for Enterprise Resource Planning Implementation, *Proceedings of the 7th European Conference on Information Systems*, Copenhagen Business School, pp 273-287.
6. Little J. (1970) Models and Managers: The Concept of a Decision Calculus", *Management Science*, Vol. 16, No. 6, April, pp B466-B485

7. Pfeiffer , Jeffrey (1992) *Managing with Power, Politics an Influence in Organisations*, Harvard Business School Press, Boston, MA
8. Sammon, D., Adam, F. and Carton, F. (2003), “The Realities of Benefit Realisation in the Monolithic Enterprise Systems Era- Considerations for the Future”, in *Proceedings of the 10th European Conference on Information Technology Evaluation*, Madrid, Spain, September 25th-26th.
9. Sammon, D., Adam, F. and Carton, F. (2004), *Understanding the ERP post-implementation discourse*, in *proceedings of the 6th International Conference on Enterprise Information Systems*, April, Porto, Portugal
10. Simon, H. (1972) *Theories of Bounded Rationality*, in *Decision and Organisation*, C.B. McGuire & Radner (Eds), North Holland, Amsterdam, 161-148
11. Simon, H. (1977) *The new Science of Management Decision*, (3rd ed), Prentice Hall, Englewood Cliffs, NJ.
12. Staehr, L. Shanks, G. and Seddon, P. (2004), *Understanding the Business Consequences of ERP Systems* , in Adam and Sammon (Eds) *The Enterprise Resource Planning Decade: Lessons Learned And Issues For The Future*, IPG, Hershey: PA.
13. Stefanou, C.J. (2001) *Organisational Key Success Factors for Implementing SCM / ERP Systems to Support Decision Making*, *Journal of Decision Systems*, Volume 10, No. 1/2001 pp49-64
14. Zuboff, S. (1988), *In the Age of the Smart Machine: The Future of Work and Power*, Heinemann Professional Publishing, Oxford.
