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Message From The Chief-Mentor

I am glad to see the June, 2016 issue of the NSHM Journal of Management Research and Applications (NJMRA), which aims at providing the much needed platform for a meaningful exchange of knowledge and ideas between the industry and the academic fraternity. It is truly satisfying that NJMRA is shaping up as a standard journal by attracting articles of requisite quality from all parts of India. The subjects dealt with in such high quality papers cover all possible areas of management.

Such a steady progress would never have been possible without the sincere and sustained effort of the current editorial team and I compliment them wholeheartedly on this count.

Cecil Antony
Chief Mentor
NSHM Knowledge Campus

MESSAGE FROM THE FOUNDING DIRECTOR

It gives me great pleasure to find that the June, 2016 issue of the NSHM Journal of Management Research and Applications (NJMRA) is out. This journal is one of our initiatives to highlight NSHM Business School's commitment to research and innovation as an integral part of management training. To put such a quality research publication on a firm footing is no doubt a stupendous task and our current editorial team deserves kudos for accomplishing this mission. NJMRA has been meticulous about selection of the papers from a wide range of topics and is well poised to establish the much needed connect among researchers, academicians and company executives for a useful exchange of views and ideas.

I reiterate my deepest appreciation for the dedicated efforts by the current editorial team and wish them all the success in their endeavours.

Rajib Chanda
Founding Director
NSHM Knowledge Campus

Message From The Director

Welcome, once again to the NSHM Journal of Management Research and Applications. Research is the backbone of any institution, and an important contributor to the book of knowledge in any discipline. Management discipline is no exception. However, an ivory-tower approach to research and an overemphasis on methodological rigor at the cost of relevance have to be avoided at any cost. Nascent as it is, the discipline needs rigor, but cannot ignore relevance, since it is practice-driven, application oriented, and skill-based. The greatest challenge for researchers in the field of management is how to marry relevance with rigor, ensuring long-term applicability of the new knowledge.

We would again like to reiterate that rigor and relevance can go together and they are not mutually exclusive - rather they are complimentary to each other. Industry best practices enable transfer and exchange of knowledge learnt by various stakeholders with a view to enriching each other. Through research, management academics and professionals get mutually enriched when each bare the goldmine of methods and cases, respectively, to be harvested for the benefit of the field.

I sincerely hope the various authors who have contributed in this issue will enable us to learn, think and carry the frontiers of the discipline farther in our pursuit of excellence. Thanks must also go to the readers for their interest and timely feedback encouraging us to be better and better with each issue.

Dr. Naveen Das
Director
NSHM Business School, Kolkata

FROM THE DESK OF THE CHIEF EDITOR

It is a matter of great satisfaction and joy for me to present the June, 2016 issue of the NSHM Journal of Management Research and Applications (NJMRA).

While bringing out the issues of NJMRA, the current editorial team has steadfastly stuck to our cherished goal of providing a platform for publication of research articles of merit, insightful business cases, book reviews, etc. spanning different disciplines of management. The current issue features papers from such diverse areas as customer relationship management, financial services market covering specific highlights of commodity market, equity market and human resource management.

The first article of this issue is a comparative study of gold and silver in terms of their price discovery and volatility spillover in commodity market. The next article discusses long run performance of initial public offerings and seasoned equity offerings in India. There is another article on customer trust in the area of customer relationship management. The subsequent article highlights the co-creation of positive service by employers and employees.

In this issue, the book review has been conducted with respect to the following manuscript - "Business: The Emami Way by Radhe Shyam Agarwal and Radhe Shyam Goenka as narrated to Pramod Shah and Jayeeta Ganguly, HarperCollins Publishers, Year of publication: 2016".

We expect NJMRA to establish itself firmly among the academicians and the business community and act as a bridge between them - both in India and abroad. The editorial team would be glad to receive all kinds of comments and constructive suggestions for further improving the quality of the journal.

On behalf of the Editorial Team

Dr. Udayan Kumar Basu

Price Discovery and Volatility Spillover in Commodity Market: A Comparative Study of Gold and Silver

Dr. Anindita Chakraborty

Abstract

This paper examines the price discovery and volatility spillover relationship for Indian commodity markets. The study used two commodities from precious metals category i.e. gold and silver. Price discovery is confirmed for both the commodities and a greater role is played by futures markets in the price discovery process. Similarly, volatility spillover is confirmed for both the commodities. The results of the study entail that the Indian commodity market is yet to develop as an efficient risk transfer mechanism for commodity trading.

This paper examines the price discovery and volatility spillover relationship for Indian commodity markets. The study used two commodities from precious metals category i.e. gold and silver. Price discovery is confirmed for both the commodities and a greater role is played by futures markets in the price discovery process. Similarly, volatility spillover is confirmed for both the commodities. The results of the study entail that the Indian commodity market is yet to develop as an efficient risk transfer mechanism for commodity trading.

Key words

Price discovery, Granger Causality, VECM, EGARCH, Volatility, Spillover

Introduction

Trading in commodities, in both cash and derivative markets has grown considerably as an alternative investment avenue to traditional portfolios comprising equity and bonds. This replicates their use both as individual investments as well as part of the diversified portfolios for hedging and other investment funds. Individual investors have also been attracted to the significant price gains achieved in recent years, and especially so following significant declines in equity markets values in 2000 and most recently as a result of the credit and stock market instability following the Global Financial Crisis of 2007. The importance of

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commodity markets as a segment of financial market activity may be exemplified by the turnover achieved in over-the-counter (OTC) markets relative to equity market products (Batten et al., 2010).

India, a country with a population of over one billion, is essentially a commodity based economy encompassing agriculture, precious metals and base metals. The size of the physical commodity market in India is estimated to be around Rs.11 lakh crore per annum. Of late, commodities have come to be accepted as a separate asset class with a unique and distinct source of returns, along with traditional avenues like stocks, bonds and real estate. The increasing volumes on commodity exchanges such as MCX and NCDEX suggest that a commodity market in India is growing day by day.

Precious metals are popular investment destinations for both long-term buy-and-holders and short-term traders. Gold is perhaps the best-known precious metal, though silver, platinum, and palladium also fall under this umbrella. This asset class has appeal as a safe haven, as price appreciation generally occurs when global equity markets encounter volatility. Gold and silver are also used as hedges against both inflation and the U.S. dollar. Precious metals are used both as stores of value and in manufacturing applications; the degree to which demand from the manufacturing sector exists depends on the commodity (gold has very few industrial applications, while platinum is a major input in the automotive industry). There are hundreds of billions of dollars invested in precious metals, with the majority of that total attributable to gold. Options for achieving exposure to precious metals are numerous, and include exchange-traded products, futures contracts, and even physical storage. The introduction of gold and silver futures trading has allowed integration of demand and supply of market participants, i.e., gold/silver and jewellery manufacturers, exporters and importers, and investors, in organized markets.

One of the important features of commodity markets is its price volatility. This volatility propels the demand for hedging the risk in the commodity market by producers and consumers. As a result of this, derivative markets for commodity risks trading arose. Future contracts are among the most important of these instruments, and provide significant information about cash and storage markets. Price discovery, hedging, financing, liquidity, price stabilization, encouraging competition, increasing efficiency, inherent leverage, low transaction costs, and lack of short sale restrictions as well as fulfilling desires of speculators are some of the prime economic functions of the futures market (Sehgal et al. 2013).

Price discovery and risk transfer are two major contributions of futures market towards the organization of economic activity (Garbade and Silber, 1983). Price discovery in futures markets is commonly defined as the use of futures prices to determine expectations of (future) cash market prices (Schroeder and Goodwin, 1991; Working, 1948). According to Black (1976), the primary benefits from commodity futures markets are informed production, storage, and processing decisions. Thus, the price discovery performance of commodity futures markets is crucial to the use of these markets. Understanding the influence of one market on the other and the role of each market segment in price discovery is the central question in market microstructure design. It has been argued, that the lead-lag relationship between spot and futures prices series can be attributed to one or more market imperfection like differences in transaction cost, liquidity differences between two market, short-selling restriction, non-stochastic interest rate, different taxation regimes and differences in margin requirements (Srinivasan and Ibrahim, 2012).

The purpose of the present study is to examine the price discovery process and volatility spillover between the commodity spot and futures markets of gold and silver in India. The present study has significant contribution to the body of knowledge in the sense that it enables to determine which market is more efficient in processing and reflecting of new information. The study also tries to find which one spot or future prices is an efficient price discovery vehicle. The study will be immensely useful for the traders to hedge their market risk, arbitrageurs, to formulate their trading strategies based on market imperfections and portfolio managers to develop effective trading and hedging strategies in the Indian gold and silver market. The study has five sections. Starting with introduction, next section is an overview of literature review. Section three is brief elaboration of data and methodology employed for empirical analysis. Section four is presentation of results and their interpretation and finally section five concludes this study.

Review of Literature

Derivatives trading in the commodity market have been a topic of interest of research in the field of finance in last decade. Numerous studies have done to ascertain whether the price information is reflected in the spot market or in its underlying futures market under various interval of time since the introduction of futures in Indian commodity market. There have been opposing views on the impact of introduction of future trading in commodity markets on the price volatility.

In one of the earlier study Gardbade and Silber (1983) used daily spot and futures prices for four storable agricultural commodities (wheat, corn, oats and orange juice) to understand the price discovery process in storable agricultural commodities. For wheat, corn and orange juice, they found that the futures markets dominate the spot markets, but for oats the results were not clear enough. Similarly Schroeder and Goodwin (1991) considered the price discovery for livestock contracts and found that the futures markets capture the information first and then transfer it to the spot markets. Fortenberry and Zapata (1997) examined the lead-lag relationship between futures and spot markets in the US for cheddar cheese, diammonium phosphate and anhydrous ammonia by using cointegration techniques. They found the evidence that futures and spot prices of diammonium phosphate and anhydrous ammonia markets are cointegrated but not that of cheddar cheese. Tse and Xiang (2005) found that NYNEX E-mini futures contracts on gas and crude contribute more than thirty per cent of price discovery even though they account for less than one per cent of the volume of standard contracts. Silvapulle and Moosa (1999) and Karande (2006) revealed that futures prices implying the price being discovered first in that market and latter in the spot market. Both found that futures prices play a dominant role and the future prices of crude oil and castor seed lead spot prices. Primarily they observed a lead-lag relationship between the two markets which is less costly in view of the fact that transaction cost is lower and the degree of leverage attainable is higher. Fu and Qing (2006) study the price discovery process and volatility spillovers in Chinese spot-futures markets through Johansen cointegration, VECM and bivariate EGARCH model. The results show there is a long-term equilibrium relationship and significant bidirectional information flows between spot and futures markets in China, with a dominant role played by futures markets. Although innovations in one market could predict futures volatility in another market, the volatility spillovers from futures to spot are more significant than the other way round.

Pavabutr and Chaihetphon (2010) explored the price discovery process of the nascent gold futures contracts in MCX over the period 2003 to 2007. The study employs vector error correction models (VECMs) to show that futures prices of both standard and mini contracts lead spot price. The results showed that mini contracts contribute to over 30% of price discovery in gold futures trade even though they account for only 2% of trading value on the MCX. The finding also reveals that trades initiated in mini contracts are much more informative than what the size of their market share of volume suggests.

With reference to India, Thomas and Karande (2001) investigated price discovery in India's castor seed market and show that markets that trade exactly the same asset in the same time zone, do react differently to information and also a small market may lead a large market. Kumar and Sunil (2004) observed the price discovery for five commodities in Indian commodities exchanges. Daily futures and comparable ready prices have been used in the study and the ratio of standard deviations of spot and future rates have been taken for empirical testing of ability of futures markets to incorporate information well. The results showed the inability of the futures market to fully incorporate information and confirmed inefficiency of the future market. The study concluded that the Indian agricultural commodities future markets are not yet mature and efficient.

Praveen and Sudhakar (2006) analyzed price discovery between stock market and the commodity futures market. They considered Nifty futures traded on National Stock Exchange (NSE) and gold futures on Multi Commodity Exchange of India (MCX). The result empirically showed that the Nifty futures had no influence on the spot Nifty. Besides, the casual relationship test in the commodity market showed that gold futures price influenced the spot gold price, but the opposite was not true.

Srinivasan (2011) examined the price discovery process and volatility spillovers in Indian spot-futures commodity markets. The study uses four futures and spot indices of the Multi Commodity Exchange of India (MCX), representing relevant sectors like agriculture (MCXAGRI), energy (MCXENERGY), metal (MCXMETAL), and the composite index of metals, energy and agrocommodities (MCXCOMDEX). Johansen cointegration test confirmed the presence of long-term equilibrium relationships between the futures price and its underlying spot price of the commodity markets. The VECM revealed that commodity spot markets of MCXCOMDEX, MCXAGRI, MCXENERGY and MCXMETAL play a dominant role and serve as effective price discovery vehicle, implying that there is a flow of information from spot to futures commodity markets. In addition, the bivariate EGARCH model indicated that although bidirectional volatility spillover persists, the volatility spillovers from spot to the futures market are dominant in case of all MCX commodity markets.

Srinivasan and Ibrahim (2012) examine the price discovery process and volatility spillovers in Gold futures and spot markets of National Commodity Derivatives Exchange (NCDEX) by employing Johansen's Vector Error Correction Model (VECM) and the Bivariate ECM-EGARCH(1,1) model. They found that the spot market of Gold plays a dominant role and serves as effective price discovery vehicle. Further, results showed that the spillovers of certain information take place from spot market to futures market and the spot market of gold have the capability to expose the all new information through the channel of its new innovation.

Sehgal et al. (2013) examine the price discovery and volatility spill-over relationship for twelve actively traded commodities including agriculture, metal and energy and four commodity indices. Price discovery was confirmed for eight commodities and three indices with a greater role for futures markets in the price discovery process. Volatility spill-over was confirmed for only three commodities and none of the indices. This implies the Indian Commodity Market is yet to evolve an efficient risk transfer system for most commodities.

The review of literature showed that large number of studies has been conducted on agricultural commodities and every few on precious metals. With the Indian gold/silver commodity market assuming more and more importance in recent years, the debate on price discovery and volatility spillover becomes important among financial analysts, arbitrageurs, speculators and market regulators. Therefore present study attempts to examine the price discovery process and volatility spillovers in gold futures and spot markets of National Commodity Derivatives Exchange (NCDEX) by employing Johansen's Vector Error Correction Model (VECM) and the Bivariate EGARCH (1,1) model.

Data and Methodology

To test the price discovery and volatility spillovers, the samples of two precious metals (Gold and Silver) which are actively traded commodities in NCDEX for a period of 2010 to 2014 were taken. In spot as well as future prices, the last price or the closing price is considered for the study. We have taken natural logarithm of returns for our study. The time series stationarity of sample price return series has been tested using Augmented Dickey Fuller (ADF) 1981. The ADF test uses the existence of a unit root as the null hypothesis. The study next tested whether or not the spot and futures price return series are co-integrated for this Johansen's (1988) cointegration approach and Vector Error Correction Model (VECM) have been employed to investigate the price discovery process in spot and futures market of gold and silver in India. Next the Block Exogenity test is applied to analyze the short-run causal relationship between the spot prices and future price of the commodities. Further to quantify and study volatility spillover, the study use EGARCH framework.

Unit Root Test

Following the traditional three step procedure of Engle and Granger to test the direction of causality, and cointegration, the first step was to check for the order of integration through unit root tests and if the unit root is present, then stationary is achieved by the first differencing of the data. There are several available tests for testing for a unit root, in this study to examine stationarity of data the Augmented Dickey-Fuller (ADF) unit root test was applied. The complete model of ADF Unit Root Test can be written like this:

$$\Delta y_{t} = \alpha + \beta t + \gamma y_{t-1} + \delta_{1}\Delta y_{t-1} + \ldots\ldots\ldots\ldots + \delta_{p}\Delta y_{t-p+} \varepsilon_{t},$$

The ADF regression tests for the existence of unit root of $\mathbf{y}_t$ namely in the logarithm of all model variables at time **t**. The variable $\mathbf{\Delta y}_t$ expresses the first differences and ε_t is the variable that adjusts the errors of autocorrelation. Where α is a constant, β the coefficient on a time trend and p the lag order of the autoregressive process. Imposing the constraints $\alpha = 0$ and $\beta = 0$ corresponds to modeling a random walk and using the constraint $\beta = 0$ corresponds to modeling a random walk with a drift.

Johansen's Cointegration Test

The next step is to applying the VAR approach of Johansen-Juselius (1990), where we test for cointegration. The finding that many macro time series may contain a unit root has spurred the development of the theory of non-stationary time series analysis. The purpose of the cointegration test is to determine whether a group of non-stationary series is co-integrated or not. The existence of a co-integrating relationship means that a long-run equilibrium relationship exists among the co-integrating variables. Cointegration pre-supposes causality in at least one direction, and this may be determined by employing a vector error correction model (VECM). Beginning with a simple VAR model with k lags such as in equation below:

Consider a VAR of order *p*:

$$y_t = A_1 . y_{t-1} + .. + A_p . y_{t-p} + \beta . x_t + \varepsilon_t$$

where, y_t is a k-vector of non-stationary, I(1) variables, x_t is a vector of deterministic variables, and ε_t is a vector of innovations. We can rewrite the VAR as:

$$\Delta y_t = \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \cdot \Delta y_{t-i} + \beta \cdot x_t + \varepsilon_t$$

$$\text{where} \quad \Pi = \sum_{i=1}^{p} A_i - I, \quad \Gamma_i = -\sum_{j=i+1}^{p} A_j$$

Granger's representation theorem (i.e. Error correction Model) asserts that if the coefficient matrix Π has reduced rank $r<k$, then there exist $k*r$ matrices α and β each with rank r such that $\Pi=\alpha\beta'$ and$\beta' y$ is stationary I(0). r is the number of co-integrating relations (the co-integrating rank) and each column of β is the co-integrating vector. The elements of α are known as the adjustment parameters in the vector error correction model. Johansen's method is to estimate the Π matrix in an unrestricted form, then test whether we can reject the restrictions implied by the reduced rank of Π.

Vector Error Correction Model (VECM)

Finally when the result of the study confirmed that the variables were cointegrated the Vector Error Correction Model was conducted to determine the number of cointegrating equations. The principle behind these models is that there often exists a long-run equilibrium relationship between two economic variables. In the short run, however, there may be disequilibrium. With the error correction mechanism, a proportion of the disequilibrium in one period is corrected in the next period. The error correction process is thus a means to reconcile short-run and long-run behavior. It relates the change in y to the change in x and the past period's disequilibria. The Model of VEC can be written as:

$$\Delta y_{1,t} = r_1 \cdot (y_{2,t-1} - \beta \cdot y_{1,t-1}) + \varepsilon_{1,t}$$
$$\Delta y_{2,t} = r_2 \cdot (y_{2,t-1} - \beta \cdot y_{1,t-1}) + \varepsilon_{2,t}$$

The only right-hand side variable is the error correction term, ($y_{2,t-1} - \beta . y_{1,t-1}$).

If y_1 and y_2 deviated from long run equilibrium last period, then ($y2_{,t-1} - \beta . y_{1,t-1}$) ≠ 0 and

each variable adjusts to partially restore the equilibrium relation. The coefficients r_1 and r_2 measure the speed of adjustment.

Block Exogenity Wald test

In block erogeneity the causality can be evaluated by examining the joint significance of lagged coefficients of one variable in the equation of another variable. In context of the bivariate case presented above the causality can be examined by testing the following hypothesis using Wald test. Tests of this form were described by Granger (1969) and a slight variant due to Sims (1972). Causality tests seek to answer simple questions of the type, 'Do changes in y_1 cause changes in y_2?' The argument follows that if y_1 causes y_2, lags of $y_1$should be significant in the equation for y_2. If this is the case and not vice versa, it would be said that y_1'Granger causes' y_2 or that there exists unidirectional causality from y_1 to y_2. On the other hand, if y_2 causes y_1, lags of y_2 should be significant in the equation for y_1. If both sets of lags were significant, it would be said that there was 'bi-directional causality' or 'bi-directional feedback'. If y1is found to Granger-cause y_2, but not vice versa, it would be said that variable y_1 is strongly exogenous (in the equation for y_2). If neither set of lags were statistically significant in the equation for the other variable, it would be said that y_1 and y_2 are independent. The Block Exogenity test also measures the speed of adjustment of prices towards the long run equilibrium relationship. The Block Exogenity test is applied in order to analyze the short run causal relationship exists between the spot prices and future price of the commodities.

EGARCH model

The exponential GARCH or EGARCH model is most popular among the asymmetric GARCH models. This model was originally proposed by Nelson (1991). The model is based on log - transformation of conditional variance; therefore, the conditional variance always remains positive. In this study we use the following specification of the EGARCH model:

$$R_t = c + pR_{t-1} + \varepsilon_t$$

$$\varepsilon_t = Z_t \sqrt{h_t} \quad \text{where } Z_t \sim N(0,1)$$

$$\ln(h) = \alpha_0 + \alpha_1(|Z_{t-1}| - E|Z_{t-1}|) + \gamma Z_{t-1} + \beta_1 \ln(h_{t-1})$$

Here, Z_{t-1} is the standardized residual. The term $(|Z_{t-1}| - E|Z_{t-1}|)$ measures the size effect of innovations in returns on volatility; while γZ_{t-1} measures the sign effect. A negative value of γ is consistent to so- called 'leverage - effect'. The total effect of a positive shock in return is equal to one standardized unit is $(1+\gamma)$, while that of a negative shock of one standardized unit is $(1-\gamma)$. β_1 is the coefficient of autoregressive term in variance equation. The value of β_1 must be less than 1 ($\beta_1 < 1$) for stationarity of the variance.

Results and Discussions

1. Price Discovery Process

Augmented Dickey-Fuller test was employed to test the stationarity of the spot and futures

price series of gold and silver market and the results are presented in Table 1. The results disclose that both the price series of gold and silver market are found to be stationary at the first order level, and they were also integrated in the order of I(1), respectively.

Table 1: Augmented Dickey-Fuller Test Results

Variables	Intercept	Intercept & trend
I. Levels		
Spot Gold	-30.307*	-30.377*
Spot Silver	-31.511*	-31.559*
Future Gold	-31.636*	-31.673*
Future Silver	-33.457*	-33.506*
II. First Difference		
Spot Gold	-16.894*	-16.885*
Spot Silver	-20.014*	-20.002*
Future Gold	-18.035*	-18.026*
Future Silver	-19.507*	-19.498*

(*) indicates significance at 1%. Optimal lag length is determined by the Schwarz Information Criterion (SIC).

The results revealed that spot and futures prices are integrated at the same order, I(1), so cointegration techniques may be used to determine the existence of a stable long-run relationship between the prices. The results of Johansen's cointegration test are reported in Table 2 and Table 3.

Table 2: Johansen's cointegration test (Gold)

Null Hypothesis (H_0)	Alternate Hypothesis (H_a)	Eigen Value	Likelihood test ratio	0.05 Critical Value	p-value
Trace Statistics					
r=0	r =1	0.158412	287.1181*	15.49471	0.0001
r=1	r =2	0.149374	138.9709*	3.841466	0.0000
Max-eigen statistic					
r=0	r=1	0.158412	148.1471*	14.26460	0.0001
r=1	r=2	0.149374	138.9709*	3.841466	0.0000

Notes: r is the number of co-integrating vectors under the null hypothesis.
(*) denote the significance at 1%.

Trace test and Maximum Eigen value statistics signify the presence of two co-integrating vector between the spot and futures market prices at the five per cent level. The results depicted that spot and futures prices of gold market are co-integrated and there exists at most two co-integrating relationship between spot and futures prices. In other words, spot and futures prices share common long-run information. Overall, Johansen's test results support that the spot and futures prices of gold market lead in the long run.

Table 3: Johansen's cointegration test (Silver)

Null Hypothesis (H_0)	Alternate Hypothesis (H_a)	Eigen Value	Likelihood test ratio	0.05 Critical Value	p-value
Trace Statistics					
r=0	r =1	0.158537	288.9436*	15.49471	0.0001
r=1	r =2	0.149728	139.9780*	3.841466	0.0000
Max-eigen statistic					
r=0	r=1	0.158537	148.9657*	14.26460	0.0001
r=1	r=2	0.149728	139.9780*	3.841466	0.0000

Notes: r is the number of co-integrating vectors under the null hypothesis.
(*) denote the significance at 1%.

Trace test and Maximum Eigen value statistics signify the presence of two co-integrating vector between the spot and futures market prices at the five per cent level. Thus the results show that spot and futures prices of silver market are co-integrated and there exists at most two co-integrating relationship between spot and futures prices. In other words, spot and futures prices share common long-run information. Overall, Johansen's test results support that the spot and futures prices of silver market lead in the long run.

The Vector Error Correction Model (VECM) results were reported in Table 4. It shows short run dynamics in the price series and price movements in the two markets. The lag length of the series was selected on the basis of Akaike's Information Criteria. The empirical results showed that in the VECM model, error correction coefficients were significant with correct signs, suggesting a bidirectional error correction in relevant in both the commodities. Error Correction Terms (ECTS) also known as mean- reverting price process, give insights into the adjustment process of spot and future prices towards long run equilibrium. For the entire period, coefficients of the ECTs are statistically significant between one to two lags, in both equations of spot and future markets as suggested by Akaike Information Criterion (AIC). This implies that once the price relationship of spot and futures market deviates away from the long-run co-integrated equilibrium, both markets will make adjustments to reestablish the equilibrium condition during the next period except with little drifts in one or two lags of the sample commodities.

Table 4: The Empirical Results of Error Terms

Silver			Gold		
CointEq1	-0.89463	-0.41374	CointEq1	-0.14845	0.432139
	(0.05706)**	(0.05335)**		(0.02689)*	(0.02606)*
	[-15.6793]	[-7.75456]		[-5.52018]	[16.5796]
D(LNSSILVER(-1))	-0.10297	0.293807	D(LNSGOLD(-1))	-0.5921	-0.27245
	(0.04754)*	(0.04446)*		(0.03650)*	(0.03538)*
	[-2.16590]	[6.60884]		[-16.2200]	[-7.70013]
D(LNSSILVER(-2))	-0.05188	0.160604	D(LNSGOLD(-2))	-0.30043	-0.15174
	(0.03380)*	(0.03160)*		(0.03266)*	(0.03166)*
	[-1.53513]	[5.08182]		[-9.19846]	[-4.79347]
D(LNFSILVER(-1))	0.364761	-0.55723	D(LNFGOLD(-1))	-0.19212	-0.03621
	(0.03765)*	(0.03521)*		(0.04884)*	(0.04734)*

	[9.68695]	[-15.8255]		[-3.93370]	[-0.76491]
D(LNFSILVER(-2))	0.170196	-0.258	D(LNFGOLD(-2))	-0.10411	0.031996
	(0.03449)*	(0.03225)*		(0.03502)*	(0.03395)*
	[4.93489]	[-8.00013]		[-2.97254]	[0.94254]
C	-8.63E-06	3.40E-05	C	-1.63E-05	-2.75E-05
	(0.00073)*	(0.00068)*		(0.00044)*	(0.00043)*
	[-0.01188]	[0.05007]		[-0.03707]	[-0.06443]

(*) significant at 5% and (**) significant at 10%

In addition, the empirical results of VEC Granger Causality/Block Exogeneity Wald test between spot and futures markets were examined to check the direction of causality. The results of VEC Granger causality test were provided in Table 5. There were bi-directional Granger lead relationships between spot and futures in both the commodities which were significant at 5% level. These empirical results are consistent with the co-integrating relationships above.

Table 5: VEC Granger Causality/Block Exogeneity Wald Tests

Dependent variable: D(LNSGOLD)				Dependent variable: D(LNSSILVER)			
Excluded	Chi-sq	df	Prob.	Excluded	Chi-sq	df	Prob.
D(LNFGOLD)	15.58769*	2	0.0004	D(LNFSILVER)	94.19889*	2	0.0000
Dependent variable: D(LNFGOLD)				**Dependent variable: D(LNFSILVER)**			
Excluded	Chi-sq	df	Prob.	Excluded	Chi-sq	df	Prob.
D(LNSGOLD)	59.58550*	2	0.0000	D(LNSSILVER)	44.01247*	2	0.0000

(*) Significant at 5%

The findings of the study substantiate a price discovery process for both the commodities and role of futures market is greater than spot market. Further the spot market makes greater adjustments to reinstate long run equilibrium relationship between future and spot market. The findings of the study are in line with previous researches and seem rational on the ground that futures exchanges in India are automated and experience high trading volumes, while spot market are physical in nature and generally not automated. Therefore, they do not experience high trading volumes; also the seasonal character of some commodities makes it less operative. This makes futures market more informational efficient and cost competitive thus ensuring their lead role in price discovery.

2. Volatility Spillover

Table 6: Results of EGARCH

Variance	silver		Variance	Gold	
	Spot	Future		Spot	Future
Constant	0.001648 (2.933070) [0.0034]*	0.000189 (0.376609) [0.7065]	Constant	0.001473 (4.626296) [0.0000]*	2.04E-07 (0.000663) [0.9995]
ABS(RESID(1)/@SQRT(GARCH(-1)	0.273187 (7.838017) [0.000]*	0.288251 (13.21695) [0.0000]*	ABS(RESID(1)/@SQRT(GARCH(-1)	0.205368 (5.816629) [0.0000]*	0.146632 (16.32634) [0.0000]*
RESID(1)/@SQRT(GARCH(-1)	0.172918 (6.431995) [0.000]*	0.008398 (0.640822) [0.5216]	RESID(1)/@SQRT(GARCH(-1)	0.146074 (6.197943) [0.0000]*	-0.054436 (-8.126760) [0.0000]*

LOG(GARCH(-1)	0.93182 (75.87213) [0.000]*	0.936838 (60.74918) [0.0000]*	LOG(GARCH(-1)	0.958446 (112.7672) [0.0000]*	1.003863 (787.2256) [0.0000]*
Volatility in silver as exogenous variable	1.011434 (0.932733) [0.351]	-1.597920 (-0.394306) [0.6934]	Volatility in gold as exogenous variable	-5.838850 (-2.463516) [0.0138]*	-15.76810 (-3.831890) [0.0001]*

(*) Significant at 5%

To analyze the volatility spillover between spot and future market for gold and silver the EGARCH model has been used (Table 6). Volatility Spillover means that if volatility comes in one market on a particular day it will affect the volatility of the other market on the next day. The direction of volatility spillover in Silver and Gold is from future to spot market because the coefficient of spot is higher than the coefficient of future market. Which means if future market increases the flow of information, volatility in the underlying spot market will go up. This entails that the volatility of the asset price will increase as the rate of information flow increases.

Conclusion

The objective of the study is to examine the price discovery process and volatility spillovers in gold and silver futures and spot markets of National Commodity Derivatives Exchange (NCDEX) by applying Johansen's Cointegration test, Vector Error Correction Model (VECM) and the EGARCH model.

The spot and future prices of both the commodities (gold and silver) are found to have long term relationship, which is supported by the existence of an error correction model called arbitrage. This error correction mechanism restores the equilibrium relationship whenever some disequilibrium takes place between the two commodity markets.

The bidirectional causality is found to exist between the spot and future market for gold and silver. In gold, the impact of spot on future is higher. In case of silver the changes in future prices leads to the changes in spot prices.

The empirical result verifies that the future market of gold and silver plays a dominant role and serves as effective price discovery vehicle. Besides the study results also showed that the spillovers of certain information take place from future market to spot market and the future market of gold and silver have the capability to depict all new information through the channel of its new innovation. The results of the study have practical implications for investors and market participants who wish to hedge their risk against the unfavorable price movements. Thus it can be concluded by saying that investors may use the spot market prices to discover new information because it is more rapid than futures prices and can adopt more effective hedging strategies to mitigate the risk. Besides this a better understanding of the inter-linkages of these markets would be useful for policy makers who manage the steadiness of the financial markets.

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Long Run Performance of Initial Public Offerings and Seasoned Equity Offerings in India

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Abstract

This study will try to estimate the long run performance of Initial Public Offerings (IPOs) and Seasoned Equity Offerings (SEOs) in India with the help of event study methodology wherein stock returns are examined around the date when new information about the performance (or prospects) of a company is announced. The long run performance would be tested by taking a study period of five years. The data regarding IPOs and SEOs has been collected from 1999 to 2005. By testing the long run performance, this study will try to throw some light on market efficiency. The long-run underperformance of IPOs and SEOs has also been documented as a global phenomenon. Very few studies have been conducted on long term performance of Indian IPOs and SEOs and tried to infer whether the markets have been efficient or not. The results in this study have shown that Indian IPO firms have underperformed the returns from size-matched firms but have been able to beat the Sensex returns. The Indian SEO firms have shown over-performance when compared to the size-matched firms as well as the Sensex.

Keywords

Initial public offerings, Seasoned equity offerings, Efficient market hypothesis, Underpricing

Introduction

The primary market is a market for sale of new securities issued by the government and corporate to raise resources. It is a place where securities are introduced as an offer to the public. This offer may be for the first time i.e. an Initial Public Offer (IPO) or an issue by an existing listed company i.e. a Seasoned Equity Offering (SEO), also known as a Follow-on

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Public Offering in India. The Indian IPO market in the pre-reforms period i.e. before 1991 was controlled by the Controller of Capital Issues (CCI) which was controlled by the Ministry of Finance. The CCI used to decide the price of the issues. It was abolished in 1992. The SEBI Act, 1992 was enacted to empower SEBI with statutory powers for protecting the interests of investors in securities, promoting the development of the securities market, and regulating the securities market. The market was allowed to allocate resources to competing uses. In the interest of investors, SEBI issued Disclosure and Investor Protection (DIP) guidelines which contain a set of requirements for issuers and intermediaries. IPO market has undergone various changes like the introduction of free pricing regime and implementation of Book Building process in 1999 (as per the recommendations of the Malegam Committee).

In November 2005, there was another shift in regulations governing the IPO process. The amendments included increasing the readability / visual impact of the contents of the abridged prospectus, deleting the repetitive disclosures etc.; making the prospectus more effective like summary, table of contents, industry review, etc.; making the pre-issue advertisement mandatory for all public issues; giving minimum details in the issue advertisements; and removing the restrictions on the number of co-managers and advisors that can be appointed for an issue.

Various changes followed in the secondary markets as well. The secondary market overcame the geographical barriers by moving to screen based trading. Trades enjoyed counter-party guarantee. The trading cycle shortened to a day and trades are currently settled within 2 working days (T+2) on rolling settlement basis. Deferral products like 'badla' were banned. Physical security certificates almost disappeared with the introduction of dematerialization. A variety of derivative products were permitted. The market presently offers futures and options on various stocks and indices on the National Stock Exchange and the Bombay Stock Exchange; on interest rate products; and on currency. Another major change introduced in the secondary markets was corporatization and demutualization of stock exchanges.

The Equity segment of the Primary market in India has come a long way in terms of raising money. The trend is visible from the table below:

Table 1: Resources raised from the Primary Market

Year	Equity (Rs crores)
1993-94	13028
1994-95	17970
1995-96	14685
1996-97	7853
1997-98	1881
1998-99	857
1999-00	4566

2000-01	3226
2001-02	1272
2002-03	1457
2003-04	18949
2004-05	24388
2005-06	27372
2006-07	32901
2007-08	79739
2008-09	14272
2009-10	54875
2010-11	57667
2011-12	12857
2012-13	15473

Source: Handbook of Statistics on the Indian Securities Market, SEBI, 2013

This study will try to estimate the long run performance of Initial Public Offerings (IPOs) and Seasoned Equity Offerings (SEOs) in India with the help of event study methodology wherein stock returns are examined around the date when new information about the performance (or prospects) of a company is announced. The long run performance would be tested by taking a study period of five years. The data regarding IPOs and SEOs will be collected from 1999 to 2005. By testing the long run performance, this study will try to throw some light on market efficiency.

Concept of Underpricing

Generally, it has been found that investors, who purchase IPO's on the offering day, experience high returns on the first trading day, indicating that these shares may have been priced at values much below their intrinsic value at the time of their offering to the public. This concept is known as underpricing.

The underpricing in the case of firms selected for the study here is found out by calculating the returns achieved as the difference between the listing price and the issue price expressed as a percent. The listing price is the closing price of the first day of listing. The formula used for calculation of returns for each firm is as follows:

$$Underpricing = \frac{(Closing\ price\ of\ the\ first\ day\ of\ listing - Issue\ price)}{Issue\ price}$$

The average returns for the 135 IPOs from 1999 to 2005 has been found to be 114.67% which is a phenomenal return and is an indicator of underpricing in the Indian markets. If we break up the underpricing year wise, it would look as following:

Table 2: Year-wise underpricing for IPOs

Year	1999	2000	2001	2002	2003	2004	2005
Underpricing	481.71%	21.72%	59.92%	9.43%	43.19%	53.91%	43.43%

The underpricing is the highest in the year 1999 when the overall market was in a bullish phase and the lowest in the year 2002 when the market was in a bear grip. Underpricing was also calculated for the seasoned equity offerings. The average underpricing is 36.01% which is much lower than underpricing of initial public offerings.

Literature Review

The underpricing in the Indian context has varied from as high as 153 percent to as low as 7 percent for various periods studied. Underpricing has been quite high in the nineties as indicated by the studies of Shah (1995), Baral & Obaidullah (1998), Krishnamurti & Kumar (2002), Madan (2003), Ghosh (2006), excepting the study done by Kakati (1999) who reported underpricing of around 37 percent. The underpricing in the new millennium has reduced to as low as 7 percent as reported by Garg et al (2008). The studies by Kumar (2007), Deb (2009), Pande & Vaidyanathan (2009) and Sahoo & Rajib (2010) have reported higher underpricing ranging from 22 to 47 percent.

Most of the studies on IPOs, worldwide, have documented their long-run underperformance of IPOs. Aggarwal and Rivoli (1990), Ritter (1991), and Loughran and Ritter (1995, 2000) reported that US IPOs significantly underperformed benchmarks during the two to five-year aftermarket period. A study by Keloharju (1993) using a sample of 80 initial public offerings in Finland between 1984 and 1989 shows long-run underperformance of the IPO firm. Levis (1993) studied IPOs in the UK and found that the 36-month cumulative abnormal returns were -22.96 percent. A study of initial public offerings in Australia provides further evidence on the poor long-run performance of the initial public offerings (Lee, Taylor, and Walter, 1996). Leleux (1993), Firth (1997), and Ljungqvist (1997), reported that IPOs underperformed comparison benchmarks in France, New Zealand, and Germany, respectively, a finding consistent with the US evidence. There is further evidence for the long-run underperformance of the initial public offerings in Germany (Stehle, Ehrhardt, and Przyborowsky, 2000). But studies done by Hwang and Jayaraman (1992) and Kim et al. (1995) show IPO stocks perform better than, or equally as, non-IPO stocks in the two to three year post-issue period in countries like Japan, Korea, Spain, and Malaysia. These findings are in contrast to the evidence in the United States.

Some seminal papers on related issues have been written by Loughran and Ritter. Ritter (1991) had studied 1526 firms that came out with IPOs in the U.S. from 1975 to 1984. He found that the firms significantly underperformed a set of comparables matched by size and industry and provided a negative return of seventeen percent in the three years following the IPOs. Loughran and Ritter (1995) studied 4753 companies in the U.S. which issued stock through IPOs and 3702 companies in the U.S. through SEOs between 1970 and 1990.

They found that the companies underperformed relative to non issuing firms for five years after the offerings. Loughran and Ritter (2000) used various methodologies for testing long term abnormal returns which employed different weighting schemes. The various methodologies should provide different estimates of abnormal returns but they found lack of robustness in the magnitude of abnormal returns to alternative methodologies. Loughran and Ritter (2004) tried to address the issue of changing underpricing from 1980s to 1999-2000 and 2001-2003. They provided three explanations viz., 'changing risk composition of the firms going public', 'analyst lust hypotheses' (i.e., hiring lead underwriters with a highly ranked analyst to cover the firm) , and 'spinning hypothesis' (i.e., offering under-priced shares to the senior executives of a third party company in exchange for future business with the investment bank). In the post-bubble period, increased regulatory scrutiny reduced spinning dramatically. This is one of several explanations why underpricing dropped back to an average of 12%. Some recent studies have also demonstrated the underperformance as well including the one by Thomadakis et al (2012) and Gregory et al (2010) in the European markets, but a few studies have shown over-performance such as the study by Chi et al (2010) in the Chinese market.

Few studies on IPOs have been done in India as well. As per the study by Madhusoodan and Thiripalraju (1997) on the initial and aftermarket returns of 1,922 companies listed on the BSE from 1992 to 1995, the returns given by the Indian firms that went for IPOs were quite high in the short-run, and in contrast to the evidence in other countries. In the long-run, the returns were positive vis-a-vis negative returns in various other countries. Madan (2003) examined underpricing and long-run performance of 1,597 Indian IPOs listed during 1989-95 on the BSE. His study also confirms that in the long-run (five years after listing), there was a drastic fall in the IPO returns. Ghosh (2005) tried to identify the factors explaining underpricing of IPOs by studying 1,842 firms that went for IPOs in India from 1993 to 2001. He found that IPOs that had less underpricing were the ones with a large issue size and those that went for seasoned offerings later. It was also reported in the study that, underpricing was less during the high volume period compared to the slump period which is contrary to the international evidence. Singh and Singh (2008) conducted a study based on a sample of 1,963 fixed price IPOs for the period July 1992 to August 2006. The results show that the reputation of lead manager and age of the company were some of the factors responsible for oversubscription in the IPOs. Garg, Arora and Singla (2008) conducted a study on the IPOs issued through the NSE from 2000-2007 to find out whether significant differences existed between the abnormal returns generated from IPO underpricing under different circumstances. They found that there exists underpricing in the short run and overpricing in the long run. Pande and Vaidyanathan (2009) studied 55 firms listed on the National Stock Exchange from March 2004 to October 2006 and they demonstrate that the degree of underpricing in the Indian stock markets has reduced over the years, from 105.6% as reported by Shah (1995) to 22.6%

Studies on SEOs have been done by various authors. Spiess and Affleck-Graves (1995) afound that firms that went for seasoned equity offerings in the United States during 1975-1989 under-performed a sample of the firms matched on the basis of similar size and from the same industry that did not issue equity. Teoh et al (1998) found that seasoned equity issuers who increased reported earnings by altering 'discretionary accounting accruals' before the offerings have lower post-issue long-run abnormal stock returns. A study by Mitchell and Stafford (2000) shows that firms, which went for SEOs, had strong

stock returns in the three years before the issue. A study by Mola and Loughran (2004) on 4,814 SEOs in the U.S. indicates that the offerings are priced at a discount of 3.0%, on average, to the closing price on the day before the issue and these discounts have risen steadily over time. Jegadeesh (2000) and Stehle et al (2000) have also report underperformance of SEOs in the long run.

Very few studies have been conducted on long term performance of Indian IPOs and tried to infer whether the markets have been efficient or not. Studies on SEOs in India have also been almost nonexistent. This is the motivation to conduct a study on IPOs and SEOs in Indian market.

Data and Methodology

We compare five-year buy-and-hold returns on IPOs and SEOs with the returns on portfolios that match them on size. Further, we would calculate the Cumulative Abnormal Returns to check the robustness of the results.

The buy-and-hold returns will be calculated using the following equation:

$$BHR_{iT} = \prod_{t=1}^{T}(1 + R_{it}) - 1$$

where BHR_{iT} is the buy and hold return for firm i, R_{it} is the return for firm i on date t, t is the date of the first post issue exchange listed closing price and T is the last trading day of the five year window. The average 5 year buy and hold return is measured as

$$\overline{ABHR_T} = \frac{1}{N}\sum_{i=1}^{N} BHR_{iT}$$

where, N is the number of firms which went for an IPO or SEO.

To understand the buy and hold returns better, we calculate Wealth Relatives (WR) as a performance measure.

$$\text{WR} = \frac{1 + average\ 5\ year\ total\ return\ on\ IPOs\ or\ SEOs}{1 + average\ 5\ year\ total\ return\ on\ matching\ firms}$$

The wealth relative of more than 1 indicates outperformance by the IPO vis-à-vis matching firms and a wealth relative of less than 1 indicates underperformance.

We also find the Cumulative Abnormal Returns by first defining abnormal return for stock in observation period t (day or month) as:

$$AR_{it} = R_{it} - R_{mt}$$

where, R_{it} is the stock i's realized return for month t and R_{mt} is its return for size matched firms.

The average abnormal or excess returns (i.e., the equally weighted average of the abnormal returns) are calculated as:

$$\overline{AAR}_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

where, N represents the number of firms that went for an IPO or SEO. The cumulative average excess or abnormal returns are calculated as below:

$$CAAR_T = \sum_{t=1}^{T} \overline{AAR}_t$$

The study is done on firms that went for IPOs and SEOs in years 1999 to 2005. The rationale behind this time period being chosen is that in 1999, book building was introduced into the Indian market and we have stopped at 2005 so that 5 year returns could be calculated till the end of 2010.

The stock price data on Indian IPOs and SEOs and the returns has been sourced from Prowess database of CMIE. The companies which have gone for SEOs were not available directly from the database, so they were segregated from the list of companies which had issued equity by finding out whether the particular company had a history of stock price or not. If it had a history of stock prices it was a case of seasoned equity offering.

The selection of the matching firms was done on the basis of size i.e. market capitalization on the Bombay Stock Exchange and we excluded firms which had issued equity in the last three years to avoid contamination in the matched firms. The firm which had the market capitalization closest (and higher) to the event firm was chosen as the matching firm.

Further, Cumulative Average Abnormal Returns (CAAR) are also calculated by matching the firms' returns with the returns from the Sensex, the most popular benchmark for the secondary markets in India.

The initial sample size consisted of 219 firms for the IPOs and 21 firms for the SEOs. A number of companies were excluded because we had chosen only those firms which traded at least once in a quarter. The number of companies finally studied for the IPOs are 135 and for SEOs are 15.

The distribution of IPOs and SEOs by year is shown in the following table:

Table 3: Distribution of IPOs

Year	Capital raised (Rs crores)	Number of IPOs
1999	1609.26	24
2000	2909.06	49
2001	301.95	9
2002	5625.29	6
2003	381.11	5
2004	6700.08	21
2005	3122.99	21
Total	**20,649.74**	**135**

The capital raised is the highest in the year 2004 and the lowest in the year 2001.

Table 4: Distribution of SEOs

Year	Capital raised (Rs crores)	Number of SEOs
1999	9.83	1
2000	25.00	1
2001	19.35	1
2002	0.00	0
2003	340.00	2
2004	5858.19	2
2005	6167.41	8
Total	**12,419.78**	**15**

The capital raised is the highest in the year 2004 and none in the year 2002.

Findings

Buy and Hold Returns for IPOs

The average 5-year Buy and Hold Return (BHR) for IPOs is 156.79% as compared to the average return of 427.33% from the size matched firms. The wealth relative for the IPOs against the matched firms is 0.487. The IPOs are generating much lower returns in comparison. This clearly demonstrates the long term underperformance of IPOs which is very much consistent with the international evidence, by and large.

The BHR for the Sensex is 131.29% implying that the IPO returns have beaten the index (the wealth relative is calculated to be 1.1).

If we segregate the returns on the basis of year of offerings we get the following distribution:

Table 5: Average BHR on IPOs versus the size matched firms based on year of offerings

Year	IPO	Size matched firms	Wealth Relative
1999	171.68%	303.07%	0.6740
2000	75.74%	332.53%	0.4063
2001	154.52%	1659.43%	0.1447
2002	1049.07%	2230.41%	0.4931
2003	570.32%	155.41%	2.6245
2004	82.51%	196.74%	0.6151
2005	50.77%	42.68%	1.0567

This above table shows the underperformance being acute in 2001 which was probably the time when the market was at its peak of that time. Year 2003 was a bad year for

Indian stock markets and so the IPOs that showed courage to come to the market that time gained slowly and gave phenomenal returns. Looking at the wealth relatives, one can conclude that underperformance can be explained partially by year of offerings.

If the year wise performance of IPOs is matched with the Sensex returns, we have the following result:

Table 6: Average BHRs on IPOs versus the Sensex based on year of offerings

Year	IPO BHR	Sensex BHR
1999	171.68%	45.98%
2000	75.74%	96.44%
2001	154.52%	259.44%
2002	1049.07%	401.45%
2003	570.32%	148.61%
2004	82.51%	152.96%
2005	50.77%	152.20%

Barring 1999, 2002 and 2003, IPOs have underperformed the Sensex. The overall over-performance of IPOs is probably due to the very high over-performance (almost three times the Sensex returns) of IPOs in all the three years mentioned.

The median returns have been calculated as 1.40% for the IPO firms as which is much lower than the median returns of 116.0% for the matched firms, again showing underperformance of IPOs. But the median returns are much lower in both the cases showing skewness.

The IPO returns have been segregated in terms of proceeds to understand the underperformance better as seen in the table below:

Table 7: Average Buy and Hold Abnormal Returns on IPOs based on gross proceeds

Proceeds	5 year BHR for IPO firms	5 year BHR for size matched firms	Wealth Relative
Above 500 crores	517.83%	742.95%	0.7329
100 to 499 crores	291.67%	654.07%	0.5194
50 to 99 crores	97.72%	161.29%	0.7567
10 to 49 crores	174.70%	453.36%	0.4964
Below 10 crores	0.33%	388.73%	0.2053

This segregation shows that there is underperformance in all categories of gross proceeds from IPOs. Also one may see that the underperformance is increasing as the proceeds are coming down as seen from the wealth proceeds except for the Rs 50 crores to Rs 99 crores category. This shows that smaller issues have more underperformance than the larger ones.

We can also try to decipher the underperformance based on the extent of underpricing in the following table:

Table 8: Average Buy and Hold Abnormal Returns on IPOs based on extent of underpricing

Underpricing	IPO 5 yr BHR	Size Matched firms 5 yr BHR	Wealth Relative
107.32% to 3280.50%	-26.35%	299.72%	0.184261
44.07% to 107.32%	-0.98%	170.42%	0.366154
10.11% to 44.07%	267.87%	769.96%	0.422855
-4.87% to 10.11%	266.52%	345.45%	0.822821
-66.25% to -4.87%	276.91%	551.11%	0.578872

The underpricing for IPOs was divided into quintiles and its wealth relatives were calculated. The table shows that with higher underpricing, IPOs seem to have the worst long term underperformance. As underpricing is decreasing, IPO underperformance exists but is decreasing. For overpricing we see an increase in underperformance. One may conclude that higher underpricing leads to greater underperformance.

Buy and Hold Returns for SEOs

The average 5-year Buy and Hold Return for SEOs is 208.53% which is higher than the returns generated by the size matched firms which have generated an average return of 145.92%. The wealth relative is 1.255. This shows that Indian SEOs have outperformed the matching portfolio. But this is not consistent with the results from international studies and further research needs to be carried out for the reasons thereof. One limitation of this study on SEOs is the small sample size. The median return for the SEOs is 94.12% that is lower than the median return of 120.64% for matching firms. This is a result contradictory to what shown by the mean returns. The mean return for IPOs is much higher than the median returns indicating some IPOs having very high returns. We can remove the outlier having the maximum positive returns of 1439.64%. But removing a positive outlier may not be the right thing to do and thus if we remove one extreme negative 94.19% return also, the mean comes down to 137.12%. To compare we have to also remove the extreme data points from the size matched firms as well. Their mean return thus becomes 131.87%. This shows that the SEOs have given a slightly higher return than matched firms.

The returns of the SEOs (of 208.53%) are also compared with the Sensex which has a BHR of 140.33%. This implies that the SEO returns have beaten the index returns by a wide margin.

The returns for SEOs have been segregated year wise in the following table:

Table 9: Average BHR on SEOs versus size matched firms based on year of offerings

SEO year	5 year B&H Return	Size matched B&H return	Wealth Relative
1999	-94.19%	37.44%	0.042
2000	-69.20%	8.90%	0.283
2001	1439.64%	115.56%	7.143
2002	NA	NA	NA
2003	50.88%	155.38%	0.591
2004	106.10%	100.13%	1.030
2005	192.22%	189.48%	1.009

The SEOs have given very poor returns in the year 1999 and 2000 but 2001 has been an exceptionally good year for the SEO firms. The over-performance in 2001 may be the reason for overall outperformance.

If we segregate the SEOs year wise to compare it with the Sensex returns, we get the following results:

Table 10: Average BHR on SEOs versus Sensex based on year of offerings

SEO year	5 year SEO BHR	Sensex BHR
1999	-94.19%	27.62%
2000	-69.20%	29.82%
2001	1439.64%	222.71%
2002	NA	NA
2003	50.88%	89.86%
2004	106.10%	185.89%
2005	192.22%	159.17%

Even though SEOs have overperformed the Sensex, the year-wise break-up of data shows that the SEOs have underperformed in most of the years except 2001 and 2005. The over-performance in the year 2001 is probably the reason of overall over-performance and this is similar to the result when compared to size matched firms.

The SEOs were also segregated in terms of proceeds but the categorization was slightly different from the one done for the IPO firms.

Table 11: Average Buy and Hold Abnormal Returns on SEOs based on gross proceeds

Proceeds	5 year BHR IPO	5 year BHR size matched firms	Wealth Relative
Above 500 crores	135.98%	200.82%	0.7845
100 to 499 crores	121.08%	222.23%	0.6861
Below 100 crores	329.79%	45.72%	2.9494

The firms with smaller issues overperformed and that may be the reason for the overall over-performance on the basis of Buy and Hold returns.

The underpricing for SEOs was divided into quintiles and its wealth relatives were calculated.

Table 12: Average Buy and Hold Abnormal Returns on IPOs based on extent of underpricing

Underpricing	SEO 5 yr BHR	Size Matched firms 5 yr BHR	Wealth Relative
76.00% to 116.95%	-55.36%	44.32%	0.30933
33.68% to 76.00%	240.43%	63.23%	2.08555
21.63% to 33.68%	108.76%	186.28%	0.72921
9.97% to 21.63%	163.73%	223.94%	0.81413
-40.81% to 9.97%	585.10%	211.81%	2.19717

High underpricing in case of SEOs leads to high underperformance and as underpricing decreases, underperformance reduces (except for the category of 33.68% to 76.00%). For low underpricing to overpricing, we have SEOs overperforming the matched firms. These results are confounding and contrary to the results of IPOs.

Annualized returns for IPOs and SEOs

The average 5-year compounded annual returns have been 2.37% for firms issuing stock and the size-matched firms have earned 21.70%. The average returns on IPOs are not able to beat the size matched firms. Further the returns are quite low and thus investment in IPOs is not recommended.

The similar returns calculated for seasoned equity offerings have been 12.18% as compared to 0.32% for the size matched firms. The SEOs have been better investments if you hold it for five years, but they are only slightly higher than the average return of around 9% given by the government securities from the period of 5 years from 1999 to 2005.

Cumulative Average Abnormal Returns

The following tables report the average abnormal returns (AR) and cumulative average abnormal returns (CAAR) for the 60 months after the offering date of IPOs, and the statistical significance for Abnormal Returns.

Table 13: Cumulative Abnormal Returns on IPOs

Month	AAR	CAAR	t Value	Significance*
1	-0.72%	-0.72%	-0.2135	NS
2	-7.25%	-7.97%	-2.9496	S
3	2.54%	-5.43%	1.0712	NS
4	-3.14%	-8.57%	-1.3323	NS
5	-1.88%	-10.45%	-0.8156	NS
6	-9.81%	-20.25%	-3.3827	S
7	-8.87%	-29.13%	-2.1284	S

Month	AAR	CAAR	t Value	Significance*
31	-2.73%	-47.44%	-0.8796	NS
32	-3.24%	-50.68%	-1.3180	NS
33	-1.03%	-51.71%	-0.3681	NS
34	-1.85%	-53.56%	-0.6234	NS
35	-1.34%	-54.90%	-0.6283	NS
36	-3.18%	-58.09%	-1.4700	NS
37	-4.27%	-62.36%	-1.3905	NS

7	-8.87%	-29.13%	-2.1284	S
8	-1.12%	-30.25%	-0.4864	NS
9	-3.12%	-33.37%	-1.2628	NS
10	-6.23%	-39.60%	-2.1927	S
11	0.49%	-39.11%	0.2141	NS
12	1.95%	-37.17%	0.6219	NS
13	-1.35%	-38.52%	-0.4441	NS
14	3.47%	-35.05%	1.1626	NS
15	0.23%	-34.82%	0.0910	NS
16	-1.12%	-35.94%	-0.4055	NS
17	-0.95%	-36.89%	-0.3675	NS
18	-2.47%	-39.36%	-0.9110	NS
19	1.73%	-37.63%	0.5570	NS
20	4.65%	-32.98%	1.7804	NS
21	-0.40%	-33.37%	-0.1442	NS
22	1.36%	-32.01%	0.6195	NS
23	-4.94%	-36.95%	-1.9327	NS
24	-1.52%	-38.47%	-0.5232	NS
25	2.32%	-36.15%	0.8572	NS
26	-3.28%	-39.42%	-1.1121	NS
27	-0.22%	-39.64%	-0.0870	NS
28	-3.06%	-42.70%	-1.2397	NS
29	-3.58%	-46.29%	-1.3073	NS
30	1.58%	-44.71%	0.4951	NS
37	-4.27%	-62.36%	-1.3905	NS
38	-2.60%	-64.96%	-0.8494	NS
39	-0.39%	-65.35%	-0.1053	NS
40	-1.86%	-67.21%	-0.7443	NS
41	-4.54%	-71.75%	-1.5732	NS
42	-0.33%	-72.07%	-0.1052	NS
43	-2.06%	-74.14%	-0.8039	NS
44	-0.44%	-74.58%	-0.1587	NS
45	2.09%	-72.49%	0.4428	NS
46	1.45%	-71.04%	0.6115	NS
47	-0.24%	-71.28%	-0.1008	NS
48	1.49%	-69.79%	0.5738	NS
49	1.26%	-68.53%	0.3907	NS
50	-0.60%	-69.13%	-0.2542	NS
51	4.73%	-64.40%	1.7935	NS
52	-5.87%	-70.27%	-2.3320	S
53	-1.26%	-71.53%	-0.4146	NS
54	-0.42%	-71.95%	-0.1496	NS
55	-1.72%	-73.67%	-0.7206	NS
56	-4.09%	-77.76%	-1.2876	NS
57	1.90%	-75.86%	0.8435	NS
58	5.48%	-70.38%	2.0999	S
59	-0.33%	-70.71%	-0.1706	NS
60	-6.16%	-76.88%	-2.8381	S

*On comparison with the t value of 1.977826 at 5% significance level

Note: S means statistically significant; NS means statistically not significant

The above table shows that the IPOs have underperformed the matched firms as understood from the cumulative abnormal returns (CAR) of -76.88% at the end of 60 months. The IPOs have generated statistically significant (at 5% level) negative excess returns in the month 2, 6, 7, 10, 52, and 60. This shows that initial months and the later months in the 60-month period are more prone to underperformance. The 58th month shows a statistically significant positive abnormal return which could very well be called an exception.

The following table reports the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) for the 60 months after the offering date of SEOs, and the statistical significance of the abnormal returns.

Table 14: Cumulative Average Abnormal Returns on SEOs

Month	AAR	CAAR	t value	Significance*
1	-22.29%	-22.29%	-2.6453	S
31	-2.81%	-37.65%	-0.6803	NS

2	-36.65%	-58.95%	-1.2583	NS
3	2.37%	-56.58%	0.6619	NS
4	5.98%	-50.60%	1.4129	NS
5	1.95%	-48.65%	0.2020	NS
6	-6.93%	-55.58%	-0.9112	NS
7	-1.09%	-56.66%	-0.2067	NS
8	18.18%	-38.48%	1.3813	NS
9	-3.56%	-42.05%	-0.3742	NS
10	5.18%	-36.86%	0.8451	NS
11	2.90%	-33.96%	0.5782	NS
12	-10.21%	-44.17%	-1.4089	NS
13	3.76%	-40.41%	0.7817	NS
14	-1.55%	-41.96%	-0.4236	NS
15	5.61%	-36.35%	1.2994	NS
16	-3.18%	-39.53%	-0.4162	NS
17	-1.24%	-40.77%	-0.2249	NS
18	-0.03%	-40.80%	-0.0095	NS
19	3.75%	-37.05%	0.6748	NS
20	-4.92%	-41.97%	-1.7659	NS
21	-1.80%	-43.77%	-0.3312	NS
22	-3.78%	-47.56%	-0.5012	NS
23	-1.95%	-49.51%	-0.4341	NS
24	7.22%	-42.28%	1.7206	NS
25	0.63%	-41.65%	0.2444	NS
26	9.40%	-32.26%	1.7351	NS
27	-11.43%	-43.69%	-1.5963	NS
28	2.76%	-40.93%	0.3525	NS
29	1.00%	-39.93%	0.2704	NS
30	5.09%	-34.84%	1.2873	NS
32	-6.75%	-44.39%	-0.7348	NS
33	7.77%	-36.62%	1.5318	NS
34	0.30%	-36.32%	0.1134	NS
35	-1.95%	-38.27%	-0.4775	NS
36	-3.15%	-41.42%	-0.7303	NS
37	-4.93%	-46.35%	-0.8481	NS
38	4.20%	-42.15%	1.0112	NS
39	13.93%	-28.22%	1.6989	NS
40	7.40%	-20.82%	1.7467	NS
41	4.34%	-16.48%	0.8471	NS
42	4.56%	-11.92%	0.4783	NS
43	7.47%	-4.45%	1.5637	NS
44	-0.07%	-4.52%	-0.0151	NS
45	-7.96%	-12.48%	-1.5042	NS
46	-7.01%	-19.49%	-1.1310	NS
47	2.24%	-17.25%	0.4712	NS
48	-3.16%	-20.41%	-0.4314	NS
49	1.40%	-19.02%	0.1684	NS
50	-16.29%	-35.31%	-1.5356	NS
51	7.43%	-27.88%	1.2807	NS
52	3.57%	-24.30%	0.6956	NS
53	4.50%	-19.80%	0.6873	NS
54	-7.52%	-27.32%	-1.8762	NS
55	9.61%	-17.70%	1.2844	NS
56	-5.82%	-23.52%	-0.6853	NS
57	3.30%	-20.23%	0.5609	NS
58	7.97%	-12.26%	2.2434	S
59	6.17%	-6.09%	1.3607	NS
60	15.60%	9.51%	3.3499	S

*On comparison with the t value of 2.14478668 at 5% significance level

Note: S means statistically significant; NS means statistically not significant

The above table shows that the SEOs have generated statistically significant (at 5% level) negative excess returns in the month 1 but generated statistically significant positive excess returns in the month 58 and 60.

The CAAR for the SEO firms is a positive 9.51% over the five year period which is not an impressive figure.

CAAR in comparison with the Sensex

The excess returns by matching the issuing firms with the Sensex and the corresponding cumulative abnormal returns (CAAR) were also calculated for the 60 months. The CAAR for the IPOs was 67.72% i.e. the returns from the IPOs could beat the index. We had statistically significant (at 5% level) positive abnormal returns for the months 14, 19, 42, 48, 49 and 55 and negative returns only in month 2. An interesting thing to note is that the CAAR is negative for the first 32 months after which it started becoming positive rising up to 64.31%.

The same exercise when done with SEOs showed a CAAR of 36.18% over the five year period but the average abnormal returns (AARs) were statistically insignificant for all but one month i.e. month 60. The AARs, even though statistically insignificant, have been negative for 29 months and the CAAR became positive only in the 43rd month.

Conclusion

The overall results show that the returns given by Initial Public Offerings in India from the year 1999 to 2005 have been much lower than returns given by non issuing firms which have been matched on the basis of size. This is in line with the previous literature all over the world. The IPO returns, on the other hand, have beaten the Sensex.

The IPOs have underperformed whether we use of Buy and Hold Returns or Cumulative Abnormal Returns. This underperformance may be partially explained with the help of factors like year of offerings, size of gross proceeds and the level of underpricing. This may be an indicator of informational inefficiency of markets in India.

The returns given by Seasoned Equity Offerings in India from the year 1999 to 2005 have been much higher than given by non issuing firms which have been matched on the basis of size. We have tried to explain the over-performance with the help of similar factors used for IPOs. The results may not be conclusive as the number of firms taken for the calculations is very few. So, further research needs to be done to provide a conclusive answer regarding the over performance of SEO firms over the non issuers. SEO returns, when compared to the Sensex, have shown over-performance as well.

This study tries to shed some light on the efficiency of markets. The underperformance of IPOs and over-performance of SEOs cannot be construed to be anomalies as Fama (1998) puts it, that, apparent overreaction is as common as underreaction which is consistent with market efficiency hypothesis.

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Measuring Customer Trust

Vinita Kaura

Abstract

The objective of this paper is to study the impact of customer trust for credit products at pre-purchase, purchase and post-purchase stage on customer satisfaction. Primary data is collected from 225 bank customers in Rajasthan. Exploratory factor analysis and regression techniques are used for data analysis. This study finding indicates that customer trust at all levels help in increasing customer satisfaction.

Key words

customer trust, customer satisfaction, financial service

Introduction

After liberalization, there is stiff competition among financial service providers. Achieving customer trust is becoming the main agenda for financial services. Developing trusting relationships is challenging, due to cultural differences in the way people develop trust. Perceived risk is high in financial services; therefore, development of customer trust is required.

Common concerns identified by bank customers are non-consistency in performance, unfairness, non-transparency, lack of flexibility, security concerns through electronic transaction and confidentiality of personal account data (Aladwani, 2001; Aldas-Manzano et al., 2009; Furnell, 2004). These concerns increase the level of perceived risk, which further decreases the customer trust in banks. There are several studies conducted worldwide to assess trust. Santos and Basso (2012) studied the moderating role of client-company relationship type on the impact of service recovery judgments on clients' trust and loyalty intentions. Kesharwani and Bisht (2012) examined the impact of web site design and trust on internet banking adoption and found it significant in India. Fram and McCarthy (2011) provided an insight into the action required by trust officers to improve customer satisfaction during a time of difficult economic and regulatory conditions in the USA. Schumann et al. (2010) addressed differences in customer trust across cultures. They suggested that the overall feeling of trust in the service provider depends on customers' beliefs about service providers' ability, beneence, predictability, and integrity. Sunikka *et al.* (2010) studied the many manifestations of trust in the wealth management context in Finland. The results offered interesting and new scientific knowledge about

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perceived trust, and how it can be used in market segmentation and developing customer service. Roy and Shekhar (2010) identified the underlying dimensions of trustworthiness of financial service providers in the Indian retail banking sector and studied trustworthiness as a set of second-order factors. A study by Zhao *et al.* (2010) indicates that there is a significant relationship between trust and perceived risk and both are crucial in explaining the internet banking usage intention for Chinese customers. Yap *et al.* (2010) examined how traditional service quality and a bank's size and reputation influences trust in e-banking.

The marketing literature is replete with studies which have examined the trust in banking context, moreover in e-banking. But, hardly any research is conducted on Indian retail banking sector which has studied the impact of customer trust at different purchase stages on customer satisfaction for credit product. This study makes an attempt to address this gap. With this backdrop, the objective of this paper is to study the impact of customer trust for credit products at pre-purchase, purchase and post-purchase stage on customer satisfaction.

Literature Review

Customer trust

Several studies have discussed trust in the financial context (Balasubramanian et al., 2003; Cox, 2007; Heffernan et al., 2008). Deutsch (1960) identifies trust as an individual's confidence in the intentions and capabilities of a relationship partner and the belief that a relationship partner would behave as one hoped. Moorman et al. (1992) define trust as "a willingness to rely on an exchange partner in whom one has confidence". Trust is defined as the integrity, honesty and confidence that one party perceives in the other (Morgan & Hunt, 1994). Trust has been conceptualized as "trustor's cognitive beliefs that results from observing the trustee's action, and attributing the cause of the behaviour to the trustee's internal trust-related characteristics" (McKnight et al., 1998). Ennew and Sekhon (2007) have defined the trust as "individual's willingness to accept vulnerability on the grounds of positive expectations about the intentions or behavior of another in a situation characterized by interdependence and risk." According to Sunikka et al. (2010) trust has been defined in various disciplines each emphasizing different dimensions. Trust is considered as a two-dimensional construct (Doney & Cannon, 1997; 2010; Fullerton, 2011), three-dimensional construct (Morgan and Hunt, 1994; Roy and Shekhar, 2010), or even four-dimensional constuct (Dimitriadis and Kyrezis, 2008). Some other researchers argue that trust is cognitive and affective based trust. Cognitive-based trust is knowledge-driven (Johnson and Grayson, 2005) and grows out of rational thought as trust is demonstrated through competence (McAllister, 1995) and predictability (Dimitriadis and Kyrezis, 2008). It has been suggested that cognitive beliefs are not sufficient in situations where customers rely on the credence qualities of services, such as financial services, therefore both rational thoughts and emotions have an influence in forming the trust concept (Dimitriadis and Kyrezis, 2008; Sunikka et al., 2010). As such, affective-based trust develops through emotional means based on integrity and beneence (Johnson and Grayson, 2005; Dimitriadis and Kyrezis, 2008). Ennew and Sekhon (2007) argue that cognitive-based trust is low level, and affective trust is high level. It has also been proposed that while all elements of trust are valuable in establishing trust, different elements are likely to facilitate different forms of relationships (Mayer et al., 1995) which is empirically supported (Clark et al., 2010).

Customer trust at pre-purchase stage

In banking industry, price structure is complex and difficult to understand, therefore, transparency plays an important role in consumer decision making process. The customer makes his choice with expert advice. Information received through employees is of paramount importance in case of financial products. As advertisements cannot provide all relevant information related to banking services due to complexities inved with the nature of services offered, personal information provided by employees acts as key to make informed decision.

This study, therefore, suggests that customer trust at pre-purchase stage has a positive influence on customer satisfaction.

H1-1 : Customer trust at pre-purchase stage has a positive impact on customer satisfaction.

Customer Trust at Purchase Stage

When customer has decided to purchase a service from a particular bank then purchase stage occurs. Beneence, competence, convenience and empathy play dominant role in this stage for purchase of credit products. Now customer doesn't want to wait in queue for availing the services. Similarly, if services are being availed through technology, convenience is required in terms of transaction. Therefore, web site should be user friendly for customers. It is required to inform customers regarding the time taken for delivering service.

This study, therefore, suggests that customer trust at purchase stage has a positive influence on customer satisfaction.

H1-2 : Customer trust at purchase stage has a positive impact on customer satisfaction.

Customer Trust at Post-purchase Stage

Trust at post-purchase stage is related to service recovery. RBI Report of the Committee on Customer Service in Banks (2011) reveals that many borrowers across the country complained that they were not offered a switch over to the base rate on their floating interest rate home loan. RBI has issued guidelines advising banks to allow switch over to Base Rate if desired by the borrower without charging any fee on mutually agreed terms. The committee's interaction with customers has revealed that most of the borrowers were not aware of this circular. RBI has instructed banks to bring this circular to the notice of all the borrowers and explain to them the benefits of switching over to the Base Rate so that they can decide to continue with base rate or floating rate. Some customers find discrimination in interest rates charged by banks.

This study, therefore, suggests that customer trust at post-purchase stage has a positive influence on customer satisfaction.

H1-3 : Customer trust at post-purchase stage has a positive impact on customer satisfaction.

Research Methodology

Primary data is collected from 225 customers of bank customers in Delhi through convenience sampling. Customer satisfaction was measured using a three item scale

developed by Cronin et al. (2000). Items were: My choice to avail this service is a wise one; I did the right thing when I chose this mobile service provider for its services; and Services of this mobile service provider are exactly same what I need. Items for customer trust were developed by author. Five items for customer trust at pre-purchase stage were: I am emotionally attached with this bank; This bank has full transparency in its operations; This bank has a good brand name in market; There is no perceived risk in purchase of credit products from this bank; This bank has fairness in its operation. Three items for customer trust at purchase stage were: The hours of operation of this bank are convenient for me; employees of this bank are always welcoming; It is easy for me to contact bank employee. Three items for customer trust at post- purchase stage were: It is easy for me to obtain follow-up services; If I want to switch over to another bank, this bank doesn't create procedure hurdle; Bank informs me regarding change of any policy, applicable on my credit purchase.

Results

Factor Analysis Results

The data were subjected to factor analysis. The factor analysis was done using principal component with varimax rotation. The items with the highest loading were considered to be the representative of the respective scales. Factors of all the scales obtained from factor analysis were further subjected to statistical analysis to draw the inferences. The summary of factor analysis results for all the scales used in the research are given below.

Scale of customer trust at pre purchase stage

Factor analysis was performed for five items scale of customer trust at pre-purchase stage. A summary of factor analysis result is presented below.

Table 1: Factor analysis for customer trust at pre purchase stage

Factor1	
Customer Trust	
Variable	**Loading**
1	.92
2	.91
3	.88
4	.90
5	.88
Eigen value	3.29
Percent of Variance	82.11
Total variance explained	82.11

Scale of customer trust at purchase stage

Factor analysis was performed for three items scale of customer trust at purchase stage. A summary of factor analysis result is presented below.

Scale of customer trust at purchase stage

Table 2: Factor analysis for customer trust at purchase stage

Factor1	
customer trust at purchase stage	
Variable	Loading
1	.91
2	.82
3	.90
Eigen value	3.49
Percent of Variance	83.01
Total variance explained	83.01

Scale of customer trust at post-purchase stage

Factor analysis was performed for three items scale of customer trust at post-purchase stage. A summary of factor analysis result is presented below.

Table 3: factor analysis for customer trust at post-purchase stage

Factor1	
customer trust at post-purchase stage	
Variable	Loading
1	.95
2	.98
3	.93
Eigen value	4.13
Percent of Variance	87.11
Total variance explained	87.11

Scale of Customer satisfaction

Factor analysis performed for three items scale of customer satisfaction. A summary of factor analysis result is presented below.

Table 4: A summary of factor analysis for customer satisfaction scale

Factor1	
Customer satisfaction	
Variable	Loading
1	.93
2	.79
3	.77
Eigen value	2.10
Percent of Variance	70.06
Total variance explained	70.06

In order to examine the strength of association between predictor and criterion variables, multiple regression analysis (MRA) was performed. The relative importance

of variables in predicting customer satisfaction can be determined by comparing standardized regression coefficients (Beta co-efficient). Values of Beta are .32, .45 and .39 respectively for pre-purchase, purchase and post-purchase (Table 5). It indicates that purchase stage has more impact on customer satisfaction than pre-purchase stage and post-purchase stage. F-test helps in testing the model. F statistics value is significant at 1% significant level (Table 5). Therefore, model can be said good overall.

Table 5: Summary of multiple regression analysis results

	Unstandardized Coefficients		Standardized Coefficients	t-value	Significance
	B	Std. Error	Beta		
(Constant)	1.7	.066		1.2*	.000
Customer trust at pre-purchase stage	.261	.072	.32	4.1*	.000
Customer trust at purchase stage	.344	.079	.45	4.8*	.000
Customer trust at post-purchase stage	.301	.074	.39	3.9*	.000
R^2	.52				
F	15.89*				.000

Notes: *p<.01
Dependent Variable: Satisfaction

Conclusion

This research explicitly models the role of customer trust at pre-purchase, purchase and post-purchase stage. Findings revealed that customer trust at all levels help in increasing customer satisfaction. These results confirmed past research results. Various studies have confirmed that trust contribute towards customer satisfaction. Study conducted by Lenka et al. (2009) indicates that trust increases customer satisfaction.

This research will enhance the knowledge towards the role of customer trust in decision making process. Further studies are required to understand relative importance of pre-purchase trust, purchase trust and post-purchase trust in assessing customer loyalty and cross-buying intentions. This study is restricted to Rajasthan only and sample size is also small. Therefore, results can not be generalised. In this study, demographic variables are considered as constant. In future researches impact of demographic variables should also be considered.

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Positive Service Climate - A Co-creation by Employers and Employees

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Profile of Author

Dr. Ajith P is a practitioner turned academic with nearly 15 years of experience (8 years in industry and 7 years in academics). He started his professional career in 1995 with Lupin Ltd. and was also associated with Sanofi India Ltd., Cadila Healthcare Ltd (CHL) and BPL Medical. He was rewarded for Excellent Performance as Management Trainee in 2002 by CHL. During his industry tenure, he worked in B2B, B2C, Urban and Rural contexts and was posted in several states of India. His fields of special interest include; Services Marketing, Sales and Distribution Management, Rural Marketing, Consumer Behaviour, Retail Management, CRM, and Healthcare Marketing. His past academic association includes MG University (2002), ICFAI University (2005), Lancaster University (2009), Bharatiya Vidya Bhavan (2011) and IIM Rohtak (2011-12). He is a Fellow of the MDI, Gurgaon and Life Member of All India Management Association (AIMA - The national apex body of management profession). He has done a certificate course in Value Education and has general interest is the areas of business ethics, entrepreneurship, innovation and leadership.

Abstract

This paper describes the critical role of positive service climate (PSC) in achieving service excellence by 21st century organizations. Service climate is readily perceived by all who are a part of the organization (employees) as well as by all those who get it touch with it (prospects and customers). Thus shaping a positive service climate is a prime responsibility of the leadership team of any organization. The paper argues that the creation of positive climate is a co-creation by employers (top management) and employees. The service climate dimensions which can be contributed by each of them are also delineated.

Key Words

Positive Service Climate, Employers, Employees, Co-creation, Service Excellence

Introduction

Delivering and sustaining service excellence can be essentially the key competitive advantage for many organizations (Albrecht and Zemke, 2001). A compelling issue confronting service organizations is improving customer's service experiences by identifying and maintaining positive service climates (Schneider, & Bowen, 2009).

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Organizations have to create and maintain a positive service climate (PSC) so that employees deliver excellent service (Schneider, 1990; Schneider & Bowen, 1995).

Frontline employees are often the only people speaking to customers and generating the greatest impact to customers' interaction with the business. Their motivation, sense of empowerment, comfort with products and their levels of training determine the quality of the experience they produce. Human resource managers can help businesses to find out who is producing happy customers, and which employees need more training in order to feel empowered to cross-sell and up sell. The need to understand the impact of employee engagement on customer satisfaction is more important in the case of frontline employees. In order to reduce employee turnover, improve relationship management, increase performance and reduce costs, businesses must identify trends that link the quality of service provided with training, motivation and experience of such key employees (Ram et al., 2011).

The objectives of this exploratory research paper include; (1) Explore the role of positive service climate in customer satisfaction, (2) Elaborate on how service climate is co-created by employees and customers, (3) Discuss the leaders role in co-creating positive service climate to achieve service excellence. To achieve the above objectives, the available literature and secondary data from various sources were reviewed.

Service Climate

Service climate refers to employee perceptions of the organizational policies, practices, procedures, and behaviors that get rewarded, supported, and expected with regard to customer service (Schneider and Bowen, 1995; Jong et al., 2004). Service climate is built on foundations of caring for both internal and external customers. It is the message employees get about how important service is in their organization. According to Solnet (2006), service climate is the employee's view about management practices across a range of disciplines including human resources, leadership and marketing. If employees perceive that they are rewarded for delivering quality service, their organization's service climate will be positive. The employee perception that customer service is important to management will also contribute to a positive service climate.

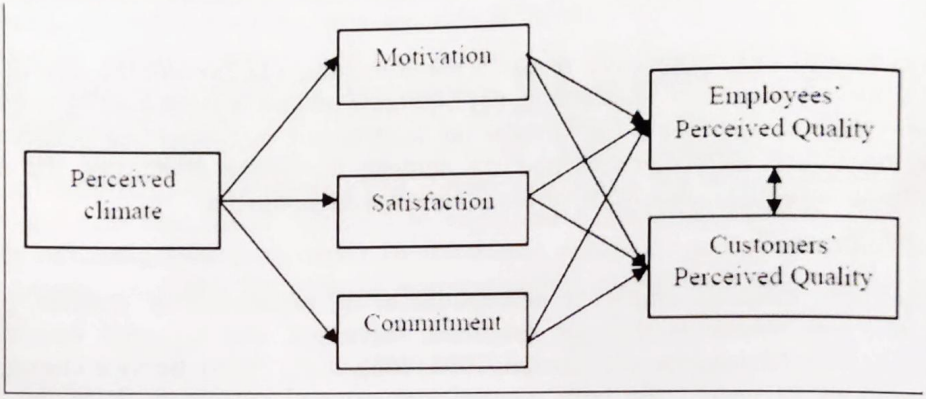
Common aspects of climate can be quantified by answering questions such as: What are our corporate and sales goals? Do people go the extra mile to get results? How are they recognized for superior effort? Service climate is a collective and shared phenomenon. It is built on foundations of caring for both internal and external customers. Service climate is built in the light of organizational practices focused on customer service (Schneider et al., 1998). The way boundary service workers perceive their organizations' service climate is related to the service quality perceived by those organizations' customers (Schneider, Bowen, 1995).

At the work-unit level, engagement by employees contributes to improvement in service climate. When employees working in work units perceive that the availability of organizational resources (training, autonomy, technology etc.) remove obstacles at work, they feel more engaged in work, which in turn is related to a better climate for service. Working in an organization that facilitates work for the customers exerts a powerful influence on collective engagement (i.e., the members of the work unit feel more vigorous and persistent, dedicated and absorbed in their tasks). This in turn has a very positive

impact on shared service climate perceptions (Salanova et al., 2005).

The relation between the service climate and customer loyalty seems to be reciprocal, since it was found that the greater is the service climate, the higher is the customer loyalty, (partially mediated by performance) and the higher is the customer loyalty, the greater is the service climate (Schneider et al., 1998). Llorens Montes *et al.* (2003) suggests that employee and customer perceptions of service quality are related (see **Figure 1**). It also explains the influence of employees' perceived climate on their motivation, satisfaction and commitment. This means that, if employees are demotivated, dissatisfied or not very committed due to the bad climate, these circumstances will be perceived by customers and will result in defective service quality.

Figure 1: Service quality perceptions and its antecedents



Source: Llorens Montes et al (2003)

Service Culture Audit

Retailers association of India (RAI) conducted a study during November 2013 and February 2014 to identify the best retail employers or great retail workplaces in India. More than 50 retail organizations were studied across India. Every retailer was benchmarked on two factors- the employee's point of view and the HR's point of view. The employee's point of view was captured via Trust Index based on an employee survey. The HR's point of view was captured as Culture Audit from HR representatives of the retail firm. The parameters used to measure are given in **Table 1.**

Table 1: Great Place to Work - Positive service climate

Trust Index (Employees) [Employee Perspective]	Culture Audit (HR Representatives) [Management perspective]
Credibility	Inspiring
Respect	Speaking
Fairness	Listening
Pride	Thanking
Camaraderie	Developing
	Caring
	Celebrating
	Sharing
	Hiring

Source- Storai, Vol. 5(4), May-June 2014

The study found the top ten retailers which follow the best practices to ensure a positive service climate. In the decreasing order, the firms are; Lifestyle, Titan, Shoppers Stop, United Colors of Benetton, Future Retail, Metro, Marks & Spencer, Puma, Dominos and Levi's.

Co-creation of service climate

Burke, Borucki, and Hurley (1992) showed that employees 'perceptions of their work environment could be modeled in terms of two factors namely; concern for employees and concern for customers. Unlike corporate culture, climate can change quickly. It is influenced most by executive's actions. Senior managers who build a high-performance climate can outperform their competitors, especially in tough economic times when employees may find it difficult to stay motivated. To co-create PSC in the organization, the employer and employee need to play their role very well (see **Table 2**). The six dimensions of positive service climate are clarity, standards, commitment, responsibility, recognition, and teamwork (Atkinson, 2009).

Dimensions to be taken care by the employer are;

- **Clarity** - Are employees clear about and aligned on key aspects of the organization's strategy?
- **Standards** - Do employer assist the employees in setting high (yet realistic) performance standards?
- **Recognition** - Do employer monitor excellent performances and reward the performer?

Dimensions to be taken care by the employees are;

- **Commitment** - Are employees fully dedicated to achieving their goals?
- **Responsibility** - Do employees take personal initiative in achieving their goals?
- **Teamwork** - Do employees work smoothly with one another as well as with employees of partner firms?

Table 2: Co-creating service climate

Role of Employer	Role of Employee
Clarity	Commitment
Standards	Responsibility
Recognition	Teamwork

Source: Atkinson, 2009

Employee engagement and service climate

Engaging employees is one of the top five most important challenges for management, according to a survey of 656 CEOs from countries around the world (Wah, 1999). Employee engagement is the degree to which individuals are personally committed to helping an organization by doing a better job than what is required to hold the job. Kahn (1990) defines employee engagement as —the harnessing of organization member's selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances.

• The cognitive aspect of employee engagement concerns employee's beliefs about the organization, its leaders and working conditions.

• The emotional aspect concerns how employees feel about each of those three factors and whether they have positive or negative attitudes toward the organization and its leaders.

• The physical aspect of employee engagement concerns the physical energies exerted by individuals to accomplish their roles.

Thus, according to Kahn (1990), engagement means to be psychologically as well as physically present when occupying and performing an organizational role.

Leader's role in shaping positive climate

Leaders need to reassure and provide constancy, clarity and support to followers. This may require leaders absorbing the emotional outpourings of followers, while appearing to remain in control of their own emotions. Leader's moods affect the emotions of the people around them. The reason for that lies in the open-loop nature of the limbic system. A closed-loop system is self regulating, where as an open-loop system depends on external sources to manage itself. In other words we rely on connections with other people to determine our moods .The limbic system's open loop design lets other people change our emotions and hence people 'catch' feelings from one another .Of practical importance to leaders is the knowledge that of all emotions ,laughter is the most contagious. Humor hastens the spread of an upbeat climate in the organization. The limbic brain is a much slower learner than the neocortex (Paninchukunnath, 2008).

Emotional leadership development is more dependent on limbic brain and thus learning new ways of managing emotions takes longer and in general, success is dependent on lots of practice and repetition. Neuroanatomists have shown that the pathways that connect the emotional processing system of fear, the amygdala, with the thinking brain, the neocortex, are not symmetrical. The connections from the cortex to the amygdala are considerably weaker than those from the amygdala to the cortex. This may explain why, once an emotion is aroused, it is so hard for us to turn it off at will. The insights we gain from exploring the brain can give us new ways of thinking about psychology. Research on the neural underpinnings of emotion and cognition has shown that the amygdala sends projections to almost every part of the brain, including regions responsible for high-level cognition, but the number of projections back to the amygdala from cognitive regions is small. This insight may help explain why emotion can sometimes overpower cognition. It's much easier for an emotion to control a thought than for a thought to control an emotion. The leaders in the organization has to be emotionally intelligent to express and promote positive emotions like laughter, joy, happiness, wonder, interest and there by ensure PSC within the organization.

Benefits of a positive service climate

There are many benefits of positive service climate. It can lead to positive customer experience about the service delivered; higher rates of customer retention; lower cost of sales; fewer errors are made, so there is less need for recovery and rework; a decreased need to compete on price; improved levels of cash flow and decreased variance in cash flow; higher corporate bond ratings making the cost of borrowing money cheaper; and also,

increased market value (Schneider et. al, 1998; Schneider and Barbera, 2011).

Supportive behavior needed to create positive service climate.

The supportive behavior needed to create a positive service climate can be grouped into three areas;

a) HR Support – Employee-centered HR practices, such as training programs, performance appraisals, and systems for rewarding good performance. Focused on improving employees' job performance and retention.

b) Management Support – The extent to which employees perceive that managers encourage and reinforce the delivery of high-quality customer service. Includes: setting service-related goals, providing recognition and rewards to employees for providing good service, and removing obstacles that prevent employees from effectively serving customers. It is of utmost importance that the management of the firms should focus on keeping its employees happy and focus on developing the skills of the employees to provide them with opportunities to perform better in their work.

c) Job Support – Includes work related and technical systems, the extent to which the company provides the relevant tools and equipments to support employees in delivery of good customer service.

If HR managers and executives viewed their companies' delivery of service to customers as an "experience," they would likely do more to create a service climate for their employees. They could do this by ensuring that; (1) people hired have the orientation and training necessary to do the difficult interpersonal work that service requires. (2) People have the appropriate resources (e.g., tools, technology) to deliver high quality to customers. (3) Customer-facing employees receive the same excellent customer service internally from those supporting them as they are expected to deliver to customers. (4) Performance management and appraisal systems focus on recognition and reward systems that emphasize service quality and customer satisfaction. (5) Goals for customer satisfaction are set along with the actions stated that are necessary to achieve them. (6) Managers and leaders of service workers have the attributes necessary to serve as role models for those they manage, and are held accountable for doing so.

Conclusion

The service climate is a critical aspect to ensure internal and external customer satisfaction. Shaping a positive service climate is a joint responsibility of employers and employees. The six dimensions of positive service climate are clarity, standards, recognition, commitment, responsibility, and teamwork. The first three has to be ensured by the employer and the last three has to be ensured by employees. The leaders in the organization has to be emotionally intelligent to express and promote positive emotions like laughter, joy, happiness, wonder, interest etc. to create similar emotions among the employees and there by a very PSC in the organization. Employees look for a credible leader who respects them and is fair in all transactions and interactions. This will lead to pride among employees and camaraderie among team members. Business leaders need to hire the right employees and then inspire, speak, listen, thank, develop and care for employees. Success should be shared and celebrated from time to time. To co-create PSC in the organization, the employer and employee need to play their role very well. The leaders need to measure the service

climate of the organization from time to time as it can vary more frequently than organizational culture.

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Book Review : Business: The Emami Way By Radhe Shyam Agarwal and Radhe Shyam Goenka as narrated to Pramod Shah and Jayeeta Ganguly, 2016, HarperCollins Publishers, Noida, 217 pages.

Dr. Supriya Biswas

If one thinks of hair oil that cools the head, the tag lines that jump in the mind are 'Thanda Thanda Cool Cool', 'Tension jayega pension leney' and the brand that gets instantly recognized is 'Navaratna Oil'. All the more because the endorsers are the eminent screen personalities of Bollywood – Amitabh Bachchan, Shah Rukh Khan and Govinda. The creator of this brand is: Emami, a FMCG company born out of the city of Kolkata. Besides 'Navaratna Oil', many of its brands, namely, 'Fair and Handsome', 'Boroplus', 'Zandu Balm' command popularity among the Indian consumers. Over and above, they have already accomplished their strong presence in some of the overseas countries. It took a lot of time, sustained effort and meticulous planning to develop such brand equity. Emami entrepreneurs' craftsmanship of the strategy behind successful positioning of these brands is what they call – Business: The Emami Way. Penned by the founders of Emami, Radhe Shyam Agarwal and Radhe Shyam Goenka, the book is a compilation of their experience of architecting this large conglomerate with an annual revenue of INR 2623 crore powered by an impressive PAT figure over INR 350 crore during FY 15-16.

Comprising of fourteen chapters, the book narrates the entrepreneurs' views and experience in the format of journalistic interview. Most chapters conclude with a summary under the heading 'At-a-Glance' and a 'Leaf from my Life's Book' sharing vignettes of their personalized approach towards business.

The book starts with the chapter 'The Basics of Business' describing the backdrop of their involvement with this business. In the basics, they have advised - what questions the entrepreneur should ask before starting a business, what are the important things that they should consider when designing and planning the business? In this chapter the interesting quote by the author is five 'pillars' of business: health, family, wealth, spirituality and society' and proper harmony and balance between these pillars ensures success. An important word of caution to budding entrepreneur: always stay within the law and never stoop to dishonesty and cheating consumers.

The subsequent chapter of 'Leadership Qualities and You' has described the parameters of leadership with typical anecdotes, examples. There are discussions on how to prevent or check (business) failure. The authors have reiterated that profit making as a sole motive may lead to higher chances of failure.

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While discussing 'Building Your Willpower', the authors quoted American football coach Vince Lombardi – 'The difference between a successful person and others is not a lack of strength, not a lack of knowledge, but rather a lack of will'. The ability to persevere is born from will. Willpower and perseverance coupled with definiteness of purpose is a very potent formula for success and it will work only with proper plan that the entrepreneur must keep in mind.

The chapter of 'Faith and discipline' best is explained through the success story of Emami where two friends (Radhe Shyam Agarwal and Radhe Shyam Goenka) since childhood who not only had faith in their own individual abilities but also in one another so much that it gave them the courage to take the plunge and take the road less travelled.

While discussing on 'Managing your money', the authors broached different aspects of cost, for example, useful and wasteful costs, hidden and movement costs, cost control system, how to build cost consciousness into employees. Apart from these, they have covered salient points on the financial ratios that should be monitored most closely in business, for example, gross margin, EBITDA margin, debt equity ratio etc. This chapter also provides a general guidance about what steps should be taken to avoid deviations between the budgeted figure and actual expense.

In the section of 'Identifying your own consumers', the authors suggest that entrepreneurs must keep in mind in their marketing plan important social transformations, for example, joint families are getting fragmented into nuclear families, each member can buy product of his or her own choice, women today have become a formidable force in the urban consumer market. Respecting customers' trust is very important and this can be achieved through goodwill by remaining honest, devoted and sincere towards the consumers.

'Marketing and branding' is one of the chapters treated exhaustively. I feel this chapter should have started with the print ads of Emami products. The authors have discussed how they have put into practice the concept of 'Innovision' in Emami. Their formula of 5 Ps stand for product, packaging, price, promotion and place and there has been elaborate discussions on each component of their 5 Ps. One can note their emphasis on the role of packaging. While talking about the popularity of 'Zandu balm', the authors referred the song of Dabangg 'Munni Badnam Hui' after which the Zandu Balm sales increased by 44%. Emami TVCs being memorable, a brief overview of co-ordination with the advertising agency in this section would have enriched the strategic aspects of marketing communications.

Under the section titled 'Need for Innovation', the authors has referred to the example of Navaratna cool oil sachet allowing consumers to test and getting used to the product typically for those who do not need a complete bottle for consumption.

The authors are categorical about the difference between HRM and HRD and clarified through the list of activities of these two functional groups. The authors' deliberations on HR management and development have been well corroborated with allegorical tales that cross the mind. Particularly in their answer to the question: How should HRM deal with offences in an organization? Overall, the authors have placed enormous importance on the HR functions and certainly without an excellent team, it is impossible to build an excellent organization.

Family owned business is the concluding chapter of this book ending with the revelation of the secret of their bond where the authors stressed on the collective strength of 'we' and

having imparted the knowledge to their children.

Apart from being a general readers' delight, the contents of the book provide guidance aspiring entrepreneurs about how to start and run a business. Reference of stories as a when required, has made very chapter of the book interesting to read. On the whole, t book has epitomized the entrepreneurs' pragmatic and prudent approach to differe business functions of Emami notwithstanding with a greater emphasis on the marketi dimension. For business school students, the book should be treated as an importa reference to their curriculum, particularly for those opting for marketing.

About The Journal And Call For Papers

Mission

NSHM Business School is publishing NSHM Journal of Management Research and Applications (NJMRA). The objective of NJMRA is to present current research and ideas in the field of management in a lucid format accessible to both the academia and industry. The journal is also expected to act as a platform for industry professionals to share their best practices.

NJMRA invites original research-based papers, articles, book reviews and management cases on topics of current concern in the areas of management, development economics and related social sciences. It looks for conceptually sound and methodologically robust articles that harness and extend knowledge in all domains of management through empirical work or by building on existing concepts, and draws out the implication of the research for practitioners. The section on practices on the other hand is expected to extend the knowledge of the academic researchers in this discipline. Consequently, we expect the articles to have the potential to advance both management theory and practice through the bilateral exchange and synthesis of ideas and information.

Frequency

The journal will be published twice a year in the months of June and December.

Content Mix

In view of the broad spectrum of readership, NJMRA invites contributions to any of the various sections of the journal:

- Research Papers
- Conceptual
- Empirical
- Practice
- Perspectives
- Book Reviews
- Case Studies

Here are some of the suggested themes on which contributions are welcome

General Management, Corporate Strategy, Policy and Governance; Finance, Control and Corporate Laws; Public Policy; IT and Systems; Marketing; OB/HR; Technology, Production and Operations; Economics, Sociology and other Social Sciences

Articles that consist of literature surveys or discussion on practices in industry and reviews of books that have been published within one to two years of the receipt of the review will be also considered. Industrialists, CEOs, entrepreneurs and corporate professionals may submit articles on management practices which enable them to share their experiences in exploring new and under researched areas in management.

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NJMRA is a refereed journal. All manuscripts submitted for publication would be screened by the editorial board for relevance to the journal. They would then be put through 'double blind review process' that may normally take four months. Manuscripts accepted for publication will have to be edited to suit the Journal's format. The Editorial Board of NJMRA reserves the right to shortlist a paper/article for a particular section of the Journal depending on its suitability. Wherever possible, reviewer's feedback will be provided.

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Overall contribution of the paper to the field of management, originality of the content, adequacy of the literature review, conceptual or methodological rigor, logical and technical soundness, organization of the content, writing quality, implication of the research references.

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Articles/Papers should not exceed 10,000 words, and book review should be neatly typed MS Word document on one-side of A4 size paper with double spacing in Times New Roman, 12-point font size justified text.

Cover page should provide the title of the paper, name(s), and designation and contact details of the author, along with a short biography of the author within 100 words.

An abstract (150-200 words) should be included in the beginning of the paper followed by key words. The number of keywords should be restricted to a maximum of ten.

All sections and subsections are to be numbered. Example: 1, 1.1, 1.2, etc

All tables, charts, graphs, diagrams should be in black and white and not in color. The images should be of high resolution and in black and white only. Number and complexity of such exhibits should be as low as possible. All charts and graphs should be drawn legibly

and figures should be indicated in suitable and appropriate scale. All charts, graphs, images, etc. should also be numbered and referred to in the body of the text.

Footnotes to the text should be avoided. If required, they should be numbered consecutively and presented as endnotes.

The primary heading should be in capitalized form (Uppercase), and boldface. The sub-headings should be in title-case capitalization (first letter of each word in capital) and in bold

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United States Agency for International Development (USAID), (2008): Private Health Insurance in India: Promise & Reality.

World Bank Report (1994): Averting Old Age Crisis

B. For Articles in Books (Edited Volumes)

Manimala, M.J. (1999): Entrepreneurial Politics and Strategies – The Innovator's Choice, New Delhi: Sage Publications, pp. 114-123.

C. For Working Papers and Thesis

Balasubramanian, N. (1997): Equity Returns in India: An Empirical Study of the Experience of the Nineties, Working Paper No. 5/1997, UTI-IIMB, Centre for Markets Education & Research, Indian Institute of Management, Bangalore.

D. For Websites

Gerwig, K. and Carlson, R. (2001): AT&T & Comcast: Dividing Their Business to Conquer, Current Analysis,
http://www.currentanalysis.com/CurrentComplete/Eventview.cfm?reportid=6744&nav=1

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If the market exists it would help the victims to get assured good quality treatment at low cost through either risk-pooling (Arrow, 1963) or income-pooling (Nyman, 2003).

One unique thing of private health insurance (PHI) in Canada is the coverage of prescription drugs outside of hospitals that is not provided by public coverage (Glied, 2001; Colombo and Tapay, 2004).

This regulation needed well defined and informative materials regarding the future prospect of the insurance products at the time of sale, claims procedure, proper functioning of policyholders services and so on (USAID, 2008).

11. In case of more than two authors only the first author surname must appear followed by et al as shown below :

This indicates the presence of substitution relation in richer countries between private and public provisioning of healthcare related services; if quality of public service is not up to the mark relatively more affluent people may opt out (Sekhri et al. 2005).

12. If a contribution is accepted for the sections – Conceptual/Empirical Research

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