

# JIM QUEST

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**Jaipuria Institute of Management**  
**Vasundhara, Ghaziabad**

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# JIM QUEST

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# JIM QUEST

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## From the Desk of the Chief Editor

It gives me great pleasure to welcome you to the latest issue of the JIM QUEST; a bi-annual referred research journal for disseminating the knowledge between academics and management practitioners regarding theories, methods and applications related with new perspectives in the field of management and technology.

The journal contains 14 outstanding research papers that disseminate knowledge in different spectrum of management and technology. The year 2014 started with tail risks recede in the global economy due to policy reforms taken by some developed countries. The financial market conditions have improved noticeably for the last half year or so, the real economy continues to lag. Many developed economies are caught in downward spiraling dynamics from high unemployment, weak aggregate demand compounded by fiscal austerity, high public debt burdens, and financial fragility. . The economic woes of the developed countries are spilling over to developing countries and economies in transition through weaker demand for their exports and heightened volatility in capital flows and commodity prices.

The issue has been carefully put together covering a range of Changing Global Economic Perspectives for managing sustained and inclusive growth. Being in the field of management education, it is our endeavor to further enrich our skills by integrating management education and means to discuss and disseminate knowledge, skills and ideas. . The Journal identified possible reasons that confront business sustainability which can help in creating a framework for constructing resilience and competency needed by organizations in maintaining inclusive growth. This issue is an attempt to draw various economic perspectives and analyze their relevance in the field of business management.

I take this opportunity to thank the people who made the publication of JIM QUEST possible especially the authors of papers without whose contribution the journal would not be a reality. I hope that readers will find the content of JIM QUEST informative and valuable.

**Dr. Daviender Narang**  
*Chief Editor*



# Value Added Telecom Services: Examining the Impact and Linkages

Garima Gupta\*  
Sonika Nagpal\*\*

## Abstract

*The Telecom Industry in India has reformed and grown over the years in terms of both size and structure owing to various factors such as growth and innovation in the information and communication technologies, conducive business environment and government initiatives to overcome the existing licensing, registration and regulatory mechanisms. This growth and competition has resulted in shift of operators' focus towards providing value added services as a means to create distinction of service offerings, enhance satisfaction and generate loyalty of their subscriber base. The present work provides useful insights in this regard by exploring the components of value added telecom services and investigating its linkages with other constructs. The exploratory factor analysis generated three primary components of VAS namely, 'reliability', 'comfort in use', and 'personal attention'. The findings support the strong and positive association between the constructs under study and reveal two of the VAS components to be exerting significant influence on subscribers' satisfaction and loyalty intentions. The study provides useful implications for the telecom operators and suggests the scope for future studies in this area.*

**Keywords:** Value added services, Telecom services, Satisfaction, Loyalty

## Introduction

As one of the fastest growing sector, telecom services are increasingly been recognized as an important tool for rapid growth, modernization and socio-economic development all over the world (Yadav and Dabhade, 2013). Progressive regulatory regime, growth and innovation in information and communication technologies, better connectivity and reduction in the tariff rates are some of the reasons that have accounted for this growth. The development and resultant competition has not only impacted the economy at both structural as well as economic level (Sharma and Singh, 2012), but has also led to a shift of operators' focus from providing 'plain voice and basic connectivity' to 'rich media, improved quality and value added services'.

Value added services (commonly known as VAS) are the enhanced services that do not form the part of the basic offer and are separately availed by the user. Interactive multimedia

applications, e-services, voice mail, fax mail and data services are some of the examples of such non-core services. In the last few years, the value added services have emerged as an important revenue generator for the telecom industry. As per the report of Deloitte and ASSOCHAM (2011), mobile VAS revenues constituted about 10% of revenues of Indian telecom operators in 2011 and this is expected to reach 31% by the year 2015 (The Indian Express, November 10th, 2012). With mobile penetration expected to go up to nearly 100% and mobile value added services expected to generate Rs 48,000 crore worth of revenue (Business Standard, 2013), the concept of value added services has become an effective product differentiation strategy and a powerful non-price tool in the hands of telecom operators.

In a mature telecom market, improved quality of service, subscribers' satisfaction (i.e. consumer's fulfillment response) and loyalty (both attitudinal as well as behavioural) have become important components of a company's long-term

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growth, viability or sustainability. Provision of value added services has been found to further enhance the satisfaction experience of subscribers, resulting in longer customer retention and lesser brand switching tendency. The positive linkages of value added services with overall service quality of telecom operators, subscribers' satisfaction and their post-purchase intentions in terms of loyalty has been established by a number of past researches (e.g. Kim et al, 2004; Kuo et al, 2009; Lee, 2010, Chen and Cheng, 2012, Hossain and Suchy, 2013 etc.). A survey conducted by Amdocs and a market research firm Coleman Parkes on 120 communication executives to study the trends about value added services across the Asia Pacific telecom market, also revealed a positive correlation between VAS, satisfaction and loyalty intentions of customers. The study further found it to be particularly true for Indian respondents. It is in this backdrop that the present work aims to: (a) explore the components of value added telecom services, (b) examine subscribers' perception of various value added service components and, (c) examine the linkages and impact of value added services on subscribers' satisfaction and loyalty.

### The Study

The present work has used both primary as well as secondary data sources. While the secondary data has been collected from various books, journals, and industry reports of Telecom Regulatory Authority of India, Department of Telecom and Ministry of Finance, a structured questionnaire was used to collect the primary responses of individual mobile subscribers. Quota sampling generated 128 complete responses from the subscribers of four major telecom operators namely, Airtel (37), Idea (32), BSNL (30) and Vodafone (29). The subscribers using more than one mobile connection/ operator were asked to fill the questionnaire with respect to their most preferred and used network operator among the ones they were using. Also, in order to have a better comparison of the operators, an almost equal representation of each of the selected operators was ensured while collecting the data.

The first section of the questionnaire sought information on subscribers' perception of various aspects of value added telecom services such as its features, ease in usage, attention provided by telecom operators etc. A study by Sharma and Singh (2012) formed the basis for including the items/ statements related to value added service aspect. The second section of the questionnaire dealt with subscribers' satisfaction perceptions and loyalty intentions. While three items related to subscribers' satisfaction with telecom operator services were included, the loyalty intentions were captured through two items related to subscribers' 'intention to use the same operator services in future' and 'intentions to recommend it to others'. A

five-point likert scale ranging from strongly agree (5) to strongly disagree (1) was used to obtain the subscribers' response to various statements. The reliability of the scale items was tested using cronbach alpha and the score well above the minimum prescribed value of 0.60 (Nunally, 1978) revealed good internal consistency of the items measuring the underlying constructs in the present study. The description of the scale items along with the reliability scores is presented in Table 1.

**Table 1: Scale Items and Reliability Analysis**

Scale/ Statements	No. of Items	Reliability (Cronbach Alpha)
• Value Added Services	10	.832
• Subscribers' Satisfaction	3	.892
• Loyalty Intentions	2	.821

(Source: Primary Data)

### Analysis and Discussion

#### Exploring the Components of Value Added Telecom Services

The KMO value of 0.728 and significant Barlett test of sphericity value were found acceptable for applying factor analysis. Exploratory factor analysis using principle component method with varimax rotation generated a three-factor structure. On the basis of their item composition, the three components/ factors were identified as depicting 'reliability', 'comfort in use',

**Table 2: Factor Structure and Reliability Analysis**

Rotated Component Matrix		
Component 1 (Reliability)	Component 2 (Comfort in Use)	Component 3 (Personal Attention)
<b>.785</b>	.286	.141
<b>.781</b>	.269	-.192
<b>.764</b>	-.197	.129
<b>.680</b>	.310	.224
<b>.616</b>	.091	.235
.076	<b>.863</b>	-.054
.197	<b>.679</b>	.211
.541	<b>.630</b>	.189
.429	-.142	<b>.773</b>
-.027	.406	<b>.727</b>
Reliability ( $\alpha = .824$ )	Reliability ( $\alpha = .718$ )	Reliability ( $\alpha = *$ )
Total Variance Explained = 63.54%		

Note: \* significant correlation  
(Source: Primary Data)

and 'personal attention' aspects of value added services. These factors explained a total variance of around 63 percent and were tested for reliability using cronbach alpha score (see Table 2).

### Examining Subscribers' Perception of Value Added Services' Components

A comparison of consumers' perception of selected operators was conducted with respect to the value added services offered by the telecom operators. The results (see Table 3) reveal the mean scores on various aspects related to operators' value added services to be well above 3 on a five-point scale for all the operators except BSNL, thereby indicating subscribers' favourable perception of VAS services. At a disaggregative level, the mean scores for three major aspects of VAS viz. 'reliability', 'comfort in use', and 'personal attention' identified in the present work, are found to be highest for Vodafone, followed by Airtel and Idea. Low mean values for BSNL on all three parameters are indicative of a strong need for this telecom

operator to improve upon their value added service offerings, especially with respect to 'reliability', for which the mean perception of subscribers is found to be the lowest.

A similar analysis was conducted to examine the subscribers' satisfaction and loyalty intentions for the selected telecom operators. Once again, Vodafone is found to be providing highest satisfaction (mean satisfaction= 3.759), followed by Airtel (mean satisfaction= 3.730) and Idea (mean satisfaction= 3.438). However, the results were quite interesting when examined for subscribers' loyalty intentions. The intentions to continue with the same operator and recommending it to others are found to be highest in case of Airtel (mean loyalty= 3.905), followed by Vodafone (mean loyalty= 3.862). Contrary to the findings so far, despite having the lowest mean scores for value added services as well as satisfaction, BSNL is found to be having a relatively better subscriber loyalty (mean loyalty= 3.383) in comparison to Idea (mean loyalty= 3.297).

**Table 3: Mean Scores and ANOVA**

Dimension		Airtel (n=37)	Idea (n=32)	BSNL (n=30)	Vodafone (n=29)	F-Value	Sig
Reliability	Mean	3.358	2.711	2.433	3.371	10.879	.000*
	Std Dev	(.776)	(.710)	(.623)	(1.056)		
Comfort in Use	Mean	3.387	3.427	2.667	3.448	5.694	.001*
	Std Dev	(.844)	(.877)	(.835)	(.944)		
Personal Attention	Mean	3.315	3.073	2.611	3.598	8.401	.000*
	Std Dev	(.899)	(.665)	(.722)	(.833)		
Satisfaction	Mean	3.730	3.438	3.167	3.759	3.090	.030*
	Std Dev	(.962)	(.948)	(.699)	(.872)		
Loyalty	Mean	3.905	3.297	3.383	3.862	3.420	.019*
	Std Dev	(.949)	(1.269)	(.762)	(.811)		

(Source: Primary Data)

In view of these findings, the researchers were interested in assessing the extent to which the variation in the performance of selected telecom operators on various parameters i.e. VAS, satisfaction and loyalty is significant. The results of ANOVA in this regard clearly indicate significant differences that exist amongst the four major telecom operators with respect to all the parameters under study. However, though significant, the variation with respect to subscribers' satisfaction with the four operators is relatively less pronounced as compared to differences between the operators on all other aspects.

### Examining the Linkages and Impact of Value Added Services on Subscribers' Satisfaction and Loyalty

Getting support from the findings that the operators performing better in terms of VAS also enjoy a relatively higher

satisfaction experienced by its subscriber base as well as their intentions to patronize and recommend it in future, it was felt appropriate to empirically examine the linkages between the above analyzed constructs. In line with this, the results of the correlation analysis applied in this regard clearly support a positive and significant correlation between the constructs (see Table 4). Further, though value added services are found to be significantly associated with both subscribers' satisfaction as well as loyalty, the strength of relationship between VAS and satisfaction ( $r = .600$ ) is found to be relatively stronger in comparison to that between VAS and loyalty ( $r = .578$ ). Similarly, satisfaction emerged as more strongly associated with loyalty ( $r = .672$ ). On the basis of the results, it may be inferred that if subscribers' perception of value added services is favourable, then their satisfaction and loyalty intentions would also be

favourable for the given telecom operator. Satisfaction, in other words, acts as a mediating factor between VAS and loyalty. This is well corroborated by the findings presented in Table 3 of the study. Subscribers perceiving Vodafone and Airtel to be better in terms of VAS have also reflected higher satisfaction and loyalty intentions for them in comparison to the other two telecom operators.

**Table 4: Correlation Analysis**

	VAS	Satisfaction	Loyalty
VAS	1		
Satisfaction	.600*	1	
Loyalty	.578*	.672*	1

Note: \*correlation significant at 0.01 level, 2-tailed  
(Source: Primary Data)

Having examined the association, the influence of value added telecom services on subscribers' satisfaction perceptions and loyalty intentions was gauged by regressing the latter two constructs separately on three components of value added services (see Table 5). Results are quite favourable indicating the significant impact of two value added factors namely, 'reliability' and 'personal attention' on subscribers' satisfaction and loyalty. The factor of 'comfort in use', however, did not emerge as significant in influencing either satisfaction or loyalty. It may, furthermore, be observed that the value added services are able to explain more of variation in loyalty intentions (43 per cent) than in the satisfaction perception (39 per cent).

**Table 5: Results of Regression Analysis**

Dependent Variable	Satisfaction			Loyalty		
	Standardized Beta Coefficients	t	Sig	Standardized Beta Coefficients	t	Sig
<b>Independent variables:</b>						
Reliability	.452	5.479	.000*	.510	6.399	.000*
Comfort in Use	.040	.493	.623	.102	1.303	.195
Personal Attention	.277	3.600	.000*	.338	4.529	.000*
	Adjusted R-Square= .394 F-value= 28.547, Sig= .000			Adjusted R-Square= .433 F-value= 33.347, Sig= .000		

Note: \* Significant at 0.001 level  
(Source: Primary Data)

## Conclusion, Implications and Scope for Future Research

The Indian telecom industry has witnessed tremendous growth and transformation during the past few years, resulting in improved quality of services, better access, and reduction in the tariff rates. The change and growing competition in the telecom sector has made it almost imperative for the service providers to enhance their offerings, create differentiation and provide services over and above the core service of connectivity. Value added service offerings is one such tool that has increasingly been adopted by the telecom operators to provide an enriching and satisfying experience to their subscribers, resulting into higher satisfaction and ultimately loyalty. It is in this context that the present paper explores the primary factors or components of value added telecom services and investigates their subsequent linkages with subscribers' satisfaction and loyalty intentions.

Through an exploratory factor analysis, the study identified three primary components of VAS: 'reliability', 'comfort in use' and 'personal attention' provided by the operators. A comparison of subscribers' perceptions towards these value added aspects for four major telecom operators namely, Airtel, Idea, BSNL and Vodafone included in the present work bring to the fore some interesting and useful insights. Firstly, the findings indicate a significant variation in operators with respect to their provision of various aspects of VAS. This implies that the value added services are clearly able to distinguish operators from each other. The case in point is Vodafone that emerges as a clear winner on all aspects/ components of VAS. Similarly, a relatively poor performance on all these aspects is perhaps the key reason of setting BSNL apart from other telecom operators. In light of these findings, it is pertinent to note that as markets get saturated, the value added services would also get customized on a mass scale and only the companies focusing on various aspects of VAS would be able to strategically

differentiate their services from that of competitors. The inclusion of the major VAS components in the service offerings of telecom companies may also effectively result in enhanced usage of the same.

Secondly, the results indicate that value added services are highly correlated with subscribers' satisfaction as well as subscribers' intention to continue with a given operator. The case in point is again that of BSNL that has shown low mean values for all the parameters and its subscribers are found to be least likely to continue the services in future or recommend the services of BSNL to others. On the contrary, there is every possibility that given a favourable offering from the competition, the customers of BSNL would be the first ones to switch among all four select operators. Value added services provided by the operators and subscribers' satisfaction thus emerge as key components that can be effectively employed by marketing managers of telecom companies to retain customers, enhance usage of services, and generate loyalty of their subscriber base. Due focus on the aspects significantly influencing satisfaction and loyalty could further help in reducing switching behaviour and generating a more satisfied subscriber base for companies in the competitive markets.

Thirdly, in line with the aforesaid discussion, it is suggested that the operators' focus on their brand positioning and highlight their offerings and innovative services in an effective manner. This has been successfully adopted by Vodafone and Airtel, thus enabling them to create a distinct image and value proposition in the minds of their subscriber base.

Lastly, though maintaining a steady pace of growth is not an easy task with the operators facing a number of obstacles such as lack of awareness about VAS, complexity of the handsets supporting VAS, language barriers etc, yet continuous attempts need to be made to enhance the quality of VAS, improve the required infrastructure and technology, content, and access devices. With an expected growth in telecom services in semi-urban and rural markets in future, it would be quite useful for the operators to make value added services more customer-friendly for potential subscribers in these distinct markets.

The limitations of the paper outline the scope for future research in this area. To begin with, a larger and more varied sample may be taken so as to have better generalizability of results. The study has examined only limited value added aspects and that too for select telecom operators. Future researchers may attempt to explore additional components of value added services as well as other antecedents of satisfaction and loyalty in the context of telecom services.

Further refinement of the scales used for measuring various constructs in the present study could be another useful step in this direction.

## References

1. Chen, C.F. and Cheng, L.T. (2012). *A study on mobile phone service loyalty in Taiwan. Total Quality Management & Business Excellence*, DOI:10.1080/14783363.2012.661129.
2. Deloitte and ASSOCHAM (2011). *Mobile value added services (MVAS): A vehicle to usher in inclusive growth and bridge the digital divide*. [http://www.Deloitte.com/assets/DcomIndia/Local%20Assets/Documents/Deloitte\\_ASSOCHAM\\_MVAS\\_Study.pdf](http://www.Deloitte.com/assets/DcomIndia/Local%20Assets/Documents/Deloitte_ASSOCHAM_MVAS_Study.pdf)
3. Hossain, M. and Suchy, N.J. (2013). *Influence of customer satisfaction on loyalty: A study on mobile telecommunication industry. Journal of Social Sciences*, 9 (2): 73-80.
4. Kim, M.K., Park, M.C. and Jeonga, D.H. (2004). *The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. Telecommunications Policy*, 28: 145-159.
5. Kuo, Y.F., Wu, C.M. and Deng, W.J. (2009). *The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. Computers in Human Behavior*, 25(4): 887-896.
6. Lee, H.S. (2010). *Factors influencing customer loyalty of mobile phone empirical evidence from Koreans. Journal of Internet Banking and Commerce*, 15(2): 1-14.
7. Nunnally, J. C. (1978). *Psychometric theory. 2nd ed.*, New York: McGraw-Hill.
8. Oktavianto, L.K. and Hudrasyah, H. (2013). *Strategic review of mobile-value added services opportunity based on satisfaction and loyalty criteria in Indonesia, The Indonesian Journal of Business Administration*, 2(10): 1121-1130.
9. Sharma, A. and Singh, M. (2012). *Customers' perceptual analysis of cellular operators in northern India. Journal of Services Research*, 12(1): 131-152.
10. *The Indian Express* (2012). *Mobile value add services earnings ratio to reach 31% by 2015. New Delhi, November 10th, 2012.*
11. *The Telecom Regulatory Authority of India*. <http://www.trai.gov.in>.
12. Yadav, R.K. and Dabhade, N. (2013). *Impact of service quality on customer satisfaction of mobile users: A case study of Airtel. International Journal of Innovative Research and Studies*, 2(5): 139-163.

# Investment process of Venture capital: An descriptive study of CX Partners

Garima Jaiswal Chandra\*

## Abstract

*Venture capital has evolved as an essential mediator in financial markets, making available capital to entrepreneurial firms which might otherwise have difficulty in attracting finances. The objective of this study is to investigate the investment process of VCFs through the perspective provided by the fund managers of VCFs with special reference to CX Partners. Based on the empirical investigation the study suggest that the typical investment process of VCFs consist of following seven stages (a) Deal generation; (b) Meeting with senior manager and CFO & term sheet; (c) Due diligence:- Financial ,legal, commercial; (d) Report and revised term sheet; (e)Negotiation and final tern sheet; (f) Investment & Monitoring; (g) Exit. Further, the study suggests that in both the stages CX Partners give top preference to entrepreneur characteristic / team characteristic. They always use ordinary shares as a financial instrument for funding the investee. Next in order to capture the financial soundness of the proposal, conventional method, and internal rate of return (IRR) & return on investment (ROI) are the most preferred financial criteria used by CX Partners.*

**Keywords:** venture capital, fund manager, India, entrepreneur, CX Partners

**Paper type:** Research paper

## Introduction

Business means funds. Funds can be acquired from internal sources but, usually, depend heavily on outside sources as owners have limitations about availability of funds. In order to secure funding from outside sources, proven track record of successful entrepreneurship and proper security in the form of collateral are essential. If proven track record is missing or in case of new venture or a new technocrat securing funds and that too without any collateral would be a miracle. However, it is not an easy task to raise finance no matter what your economic situation. The Indian economy at present is making its position in global economy very fast. For this global economic development, technology change and innovation is the backbone and the capital is the life blood for the development. No profit making entity can start functioning without required capital as this helps the entrepreneurs in acquiring various inputs that facilitate in profit generation. All these institutions before providing the funds, do a lot of exercise and ask for

security just to ensure the safety of funds. At this stage the entrepreneur/companies face great difficulty while venturing out to procure financial capital for newly floated enterprises as at the initial stages of business the risk is very high and the return quite uncertain. Conventional financier are hesitant to invest in such companies even though they lead to high industrial growth and economic development because it is difficult to trade off between risk and return.

This lack of finance to new entrepreneurs which are going to lead economic development even though they may very well have innovative ideas and requisite technological knowledge, de-motivate them. So the question arises that how these types of firm shall then be financed? Under the circumstances, “the concept of venture capital fund was born with a fundamental objective to provide initial capital and support in building capital base to the entrepreneurs, having a sound background of professional education, expertise and initiative to launch the business based on fast changing technology”

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An understanding of the business practices of Venture Capital Firms (VCFs) is likely to enable policy makers and regulators to create right regulatory and policy environment. However, there is a dearth of empirical studies conducted on the business practices specifically investment process of VCFs (Pandey, 1996).

The objective of this study is to investigate into the investment process of VCFs through the perspective provided by the fund managers of VCFs with special reference to CX Partners. The specific research questions addressed in this study are to ;

- (i) investigate into the investment process of venture capital funds in India;
- (ii) analyze the funding mechanism used by CX Partners in India;
- (iii) analyze the project evaluation criteria used by CX Partners in India;
- (iv) Investigate the exit strategy of CX Partners in India.

The study has been conducted in two stages. In the first stage, pretested structured mail survey of the fund managers of VCFs is conducted to investigate the investment practices of VCFs. In the next stage, the same research question has been addressed using structured open ended in-depth telephonic interview of CX Partners in India.

**Objectives:**

The objective of this study is to investigate the investment process of VCFs through the perspective provided by the fund managers of VCFs with special reference to CX Partners. Second objective is to analysis the most important evaluation criteria used by CX Partners and final objective of this study is to study the most preferred exit route of CX Partners

**Methodology:**

For addressing the research questions related to VCFs, the data was collected through pretested structured mail survey on the fund managers of VCFs in the first stage and structured open ended telephonic interview of the CX Partners fund managers in the second stage of the study.

The study through open ended telephonic interview on the fund managers of VCFs was conducted in following three steps. In the first step, the sample frame for the study was identified. The usable responses of the firsts stage of the study was the sample frame of the second stage of the study. In the next step, the letter of request was sent to the fund managers/VCFs of the firms for conducting open ended telephonic interview. Amongst those, 10 fund managers/VCFs consented for participating in the telephonic interview. However, even after five reminders, only 7 fund managers participated in the telephonic interview. Third, the telephonic interview was conducted by the researcher using open ended unstructured interview guide and was simultaneously transcribed in the interview diary by recording the key words, paragraphs. This was subsequently recorded in detail to capture the maximum content of the interview. In the fourth stage, the case study was developed based on the in depth interview conducted on the fund managers of VCFs among which CX Partners case is discussed in this research paper.

**Discussion**

**Investment Process of VCFs according to review of literature**

First the study reviewed the existing literature to investigate the VCFs funding mechanism. The summary of the results are shown in Table 1.1.

**Table 1.1: Summary of the Literature on VCFs Investment process**

Stages of venture capital investment process	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7
1	Sourcing	Deal Sourcing	Deal Sourcing	Deal Generation	Find Deal	Deal Sourcing	Proposal Received
2	Preliminary screening	Business Due Diligence	Meeting with top management	First meeting with Senior manager and CFO	Research Deal	Deal Analysis	Initial response based on thesis fit
3	Investment Committee	Financial Due Diligence	Meeting with II layer management	Term Sheet	Structure and Close Deal	Due Diligence	Due diligence & letter of Indent
4	Term Sheet	Legal Due Diligence	Due Diligence	Commercial Due diligence	Manage the investment	Deal Structuring and Investment	Term Sheet & Funding
5	Investment	Deal Structuring	Deal structuring	Financial Due Diligence	Exit the investment	Monitoring Portfolio Enterprises	Monitoring

6		Monitoring	Investment	Legal Due Diligence		Exit	Exit
7		Exit	Monitoring	Report prepared & revised Term Sheet			
8			Milestone Verification	Negotiation.			
9			Exit	Final Term Sheet			
10				Deal agreement and Investment			
11				Monitoring:- Financial & Operational			
12				Exit			

**Investment process of VCFs based on In-depth interview and questionnaire address to the fund managers**

**Table 1.2 Model of VC Investment Process Based on In-Depth Interview and Questionnaire**

Stages of venture capital investment process	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7
1	Sourcing	Deal Sourcing	Deal Sourcing	Deal Generation	Find Deal	Deal Sourcing	Proposal Received
2	Preliminary screening	Business Due Diligence	Meeting with top management	First meeting with Senior manager and CFO	Research Deal	Deal Analysis	Initial response based on thesis fit
3	Investment Committee	Financial Due Diligence	Meeting with II layer management	Term Sheet	Structure and Close Deal	Due Diligence	Due diligence & letter of Indent
4	Term Sheet	Legal Due Diligence	Due Diligence	Commercial Due diligence	Manage the investment	Deal Structuring and Investment	Term Sheet & Funding
5	Investment	Deal Structuring	Deal structuring	Financial Due Diligence	Exit the investment	Monitoring Portfolio Enterprises	Monitoring
6		Monitoring	Investment	Legal Due Diligence		Exit	Exit
7		Exit	Monitoring	Report prepared & revised Term Sheet			
8			Milestone Verification	Negotiation.			
9			Exit	Final Term Sheet			
10				Deal agreement and Investment			
11				Monitoring:- Financial & Operational			
12				Exit			

## Investment process of CX Partners:

CX Partners, is a Delhi based private equity firm founded in 2008 by former Citigroup Venture Capital International (CVCI) managing director Ajay Relan. CX Partners is a spin-off (3 senior members) of arguably India's most experienced teams with one of the longest and best track records. CX Partners is led by Ajay Relan, who as Head of Citi Venture Capital International (CVCI) for 13 years from its inception in July 1995 to July 2008, built and managed a team that has invested over USD1BN in approximately 40 Indian companies during the period 2001-2008. It specializes in making growth capital and buyout investments in consumer driven sectors. It seeks to make investments in Asia including India and China but firm prefer to make investments in India. Ajay Relan aimed to raise \$ 750 million for its first fund which probably was too much at that time when Lehman crisis emerged and without any clue about fund raising and had no network. But they stopped raising fund at \$ 515 million target which he reached in 18 months, in April 2010. They are quite satisfied with this amount because valuations at that time had dropped quite dramatically. They prefer to invest in both listed and non listed company.

CX Partners believes that they can replicate their success by adhering to their core investment philosophy of identifying

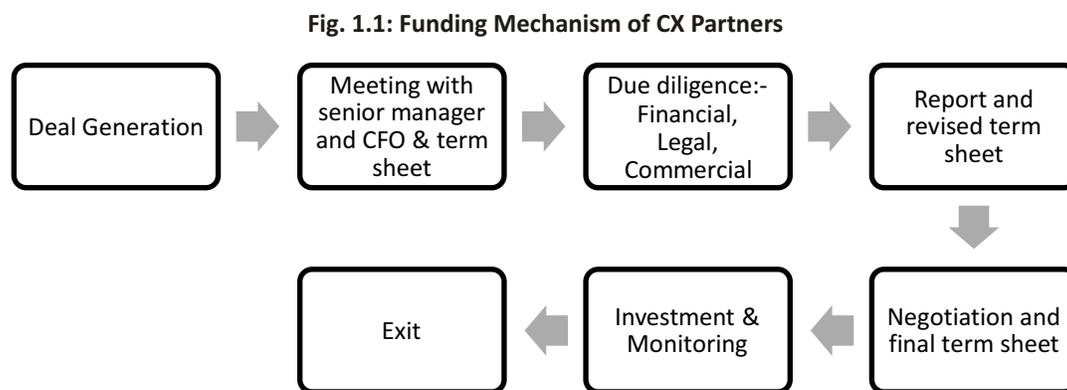
great businesses (often times market leaders) led by hungry, growth-oriented managements in attractive sectors with strong tailwind. CX Partners would be well served in this effort by the brand, goodwill and the networks that the team members have built over the last several years.

According to CX Partners the two factors that determine success are:-

- Have to be in the right sectors with macro tailwinds and within that sector, there is a need to work with a market leader who has pricing power.
- Have to work with entrepreneurs who have the integrity, the hunger and the competence to build large, great businesses.

CX Partners with the team of less than 25 members has committed 38% of \$515 million corpus and expected to invest the rest in two years.

Outline of CX Partners funding mechanism is as follows:-



Source: Field Data

The funding process of CX Partners starts with the fund raising activity. They pooled the fund from various sources such as Pension Funds, Large Banks and fund of funds. Then this pooled fund is invested in business opportunities by CX Partners through following stages:-

- 1. Deal Generation:-** CX Partners sources the 80 % deal from Investment bankers and rest 20 % are sourced from direct networking, cold call to CEO and Chairman etc. It is a continuous process. During last five years they have received more than 300 applications for funding out of which less than 25% have been funded. The company initiates preliminary investigation or screening on the basis

of deal size which is on an average of Rs.25-150 crore but it can be altered if an appetizing deal will come. They have their operational presence across the nation and focus on the services sector not manufacturing like financial services, real estate's/ hospitality. They target early stage for investment. They generally focus in the areas where India has core competencies as compare to the world, whether it is a local story or export story and whether the company has pricing power in that market. Sometimes these factors shift from sector to sector but by and large they look at the indicator; core competency, pricing power and market leadership.

After preliminary investigation and the review of business idea they schedule the meeting with the applicant if they seem potentially fit.

**2. Meeting with senior manager and CFO & term sheet:-**

Based on some preliminary work, business proposal, and secondary data and having quantitative and qualitative industry analysis they have a meeting with senior manager and CFO etc. After having a meeting initial term sheet having the complete data and expectation of applicant is prepared. After having the initial term sheet it goes for detailed evaluation in the due diligence process.

**3. Due diligence (Financial, Legal, Commercial):-** With this they try to make a mental picture of the company and try to know about:-

- Is it a differentiated business with a possibility of becoming a seriously differentiated business in the near future?
- Are they just followers or do they happen to be the market leaders or have the potential to be the market leaders in their businesses?
- What's the size and scale of the opportunity?
- Will the business be constrained by the ambition of the promoters?
- Or does the entrepreneur truly have the ambition of building a large business which would dominate the industry?

Over all entrepreneurs should have the ambition to stand a chance. So if entrepreneur find fit with CX Partners strategy and philosophy they spend more time with the entrepreneur to better understand their business. Basically they do three type of due diligence:-

- Financial Due diligence which is done by partners like KPMG etc. In this they study account by account, entry by entry etc. to find out key facts, trustworthiness of the figures etc.
- Legal Due diligence which is done by lawyers like KR Chawla & Co. to study all the relevant documents such as incorporation document, agreements etc.
- Commercial Due diligence which is done by their own team and sometime outsourced to study the competitive environment, industry, market, growth rate etc.

Now they have frequent meeting with respective company personnel and the selected proposal undergoes a rigorous evaluation. For evaluation entrepreneur/ team characteristics, product/ services attractiveness, market, exit potential, barrier to entry, financial soundness are very important criteria. Government influences and personal reference are also considered somewhat important

evaluation criteria. Among all the evaluation criteria they give top preference to entrepreneur / team characteristics in both the stages.

During due diligence process information retrieved from interview with entrepreneurs, contact with suppliers, customers, accountants and other references, own due diligence, due diligence by reputable accounting or consulting firms, all financial statement included in the business plan, proposed exit timing and method have a vital influence in decision making process where as information from statistical information services and other venture capitalist have only moderate influence.

Prior to funding investment 6-10 times they contact entrepreneur's former business associates, existing outside investors etc. Besides this more than 10 times they visit the applicant, contact current and potential customer, have informal discussions with experts, contact legal representative, have detail market study and conduct in-depth library research.

Finally after the whole due diligence report will come out with revised facts and figure.

**4. Report and revised term sheet:-** After having due diligence report, analyzing negative and positive aspect and initial term sheet will be revised in the light of due diligence information.

**5. Negotiation and final term sheet:-** They will negotiate, reprising the deal, discuss the specific terms of how they work together to build the company etc. CX Partners always use ordinary shares as financial instrument for funding the investee but sometimes they use convertible preferred shares, preferred shares, and convertible debenture also. For financial valuation of potential investments they always use conventional method, ROI and IRR. Sometimes they may prefer a revenue multiplier method, first chicago method, payback period and dividend yield basis also. Its target ROI (return on investment) is more than 25 % in early stage but sometime they may prefer less than 25 % in later stage.

Due diligence charges are negotiable some time they pay sometime investee pays. Depending upon the nature of project the entire process takes six to twelve month to mature the deal.

**6. Investment & Monitoring:-** After due diligence the final term sheet is made on the basis of which lawyers make a deal agreement covering all the relevant point related to deal. This is a long process which takes atleast two months. Finally after signing all the documents, investment will be done. After investment they monitor the company performance on two

aspects, first financial monitoring and other is operational monitoring.

For monitoring they have 40 % stake in the investee company with a board seat and try to attend the entire board meeting. They have an investment officer who visits the company on monthly or quarterly basis. They also have a set template covering details of all the relevant facts, which is to be filled by Investee Company on quarterly or monthly basis.

The other aspect is operational monitoring where they work as partner having operational team which guides them apart from finance in their operational aspects. They also help them in planning, marketing, distribution etc.

**7. Exit:-** Taking the decision of exit is the joint process which is initiated generally after 3-4 years of investment. They prefer IPO for exit but if it is not possible then they look for sale of the enterprise to another company. But as this fund is new, till date they have no exit.

Finally the key strength of CX Partners is its experienced top management. They operate in a democratic manner where each person's opinion is respected. They operate in a new structure that is a collective entity rather than a hierarchical entity. Another thing is how they manage their relationship with their investee, bankers, promoters etc. According to CX Partners the thing which hampers the industry is the absence of a structured public incubation system.

## Conclusion

The objective of this study is to investigate into the funding mechanism of VCFs through the perspective provided by the fund managers of VCFs with special reference to CX Partners. The study was conducted in two stages. In the first stage, pretested structured mail survey on the fund managers of VCFs was conducted to investigate into the investment practices of VCFs. In the next stage, the same research question was addressed using structured open ended in-depth telephonic interview on seven fund managers. Finally, the perspective of CX Partners was discussed in detail.

Overall, the findings of the study suggest that the typical investment process of VCFs in India consist of following seven stages (a) Deal generation; (b) Meeting with senior manager and CFO & term sheet; (c) Due diligence:- Financial, legal, commercial; (d) Report and revised term sheet; (e) Negotiation and final term sheet; (f) Investment & Monitoring; (g) Exit. The comparison of the findings of this study with other studies from developed countries (Boocock and Woods, 1997; Klonowski,

2007) suggests that typical VCFs follow a similar broader investment process.

Second, the study suggests that in both the stage of financing the most preferred evaluation criteria is entrepreneur characteristic / team characteristic and Government influences and personal reference are also considered somewhat important evaluation criteria.

Third, in order to capture the financial soundness of the proposal; conventional method, internal rate of return (IRR) & return on investment (ROI) are the most preferred financial criteria used by CX Partners.

Fourth, for funding of the proposal during the early stage as well as the later stage of financing, the most preferred financing instrument is ordinary shares but sometimes they use convertible preferred shares, preferred shares and convertible debentures also

Finally, fund managers suggests that during the divestment/ exit decision, initial public offer (IPO) is the most preferred exit route for VCFs but if it is not possible then they use sale of the enterprise to another company. But as this fund is new, till date they have no exit.

Finally it is concluded that the key strengths of CX Partners is its experienced top management which operate in a new structure that is a collective entity rather than a hierarchical entity.

## References

1. Ashok Lahri Committee (2003) Report of the advisory committee on venture capital. Retrieved May 23, 2012, from <http://www.sebi.gov.in/commreport/rep22.pdf>.
2. Boocock, G. and Woods, M. (1997) The evaluation criteria used by venture capitalists: evidence from a UK venture fund. *International Small Business Journal*, 16: 36–57.
3. Bowonder .B & Mani Sunil (2002), *Venture Capital and Innovation: The Indian Experience*, "Financial System, corporate Investment in Innovation and Venture Capital." Presented at international conference organized by UNI//INTECH & EU-DG Research at Brussels, Nov.7-8 2002. Retrieved March 24, 2007. From [http://www.google.co.in/url?sa=t&rct=j&q=venture+capital+and+innovation+the+indian+experience&source=web&cd=1&ved=0CDUQFjAA&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.128.1448%26rep%3Drep1%26type%3Dpdf&ei=2Uo\\_T639BI7rrQf8mdzABw&usg=AFQjCNHnm5quzsjLvlcOzMjwytJHTF36Ww&sig2=4TM1pvYLuRg-zRdG9q00pg](http://www.google.co.in/url?sa=t&rct=j&q=venture+capital+and+innovation+the+indian+experience&source=web&cd=1&ved=0CDUQFjAA&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.128.1448%26rep%3Drep1%26type%3Dpdf&ei=2Uo_T639BI7rrQf8mdzABw&usg=AFQjCNHnm5quzsjLvlcOzMjwytJHTF36Ww&sig2=4TM1pvYLuRg-zRdG9q00pg)

4. Chary T.S.(2005, "Venture Capital :An overview", *Venture Capital Concepts & Applications*", (pp.2), Delhi, Macmillan
5. Gupta N.K., *Venture Capital, Financial Markets, Institutions & Services (Second Edition)*, Ane Books Pvt.Ltd.
6. Ibrahim. M.Syed (2009). *Performance of Venture Capital in India. Global Management Review. Volume 3. Issue 3. May, 68-75.*
7. Klonowski, D. (2005) "How Do Venture Capitalists Make Investment Decisions in Central and Eastern Europe?," *Brandon University Working Paper.*
8. Pandey, I. M. (1996) *Venture capital: The Indian experience. New Delhi: Prentice Hall.*
9. Verma. J.C. (1997). *Growth of Venture Capital in India. "Venture Capital Financing in India" .(pp. 34) .Sage publication*

# The Topsy Turvey Marketing Tactics of Wedding Industry

Dr Neha Arora\*

## Abstract

*Lavishness is infectious. Although all this flashing of middle class cash may seem in bad taste in a country in which the average daily income wouldn't even buy a couple of invitation cards, there is another side to the story. Behind the wedding industry's rocketing growth figures, it's the bridal shops and its ranks of well-groomed and well-paid professionals are its foot soldiers and big-spenders are good news for them too.*

*Thus it can be said that the wedding industry thrives largely on the notion of characterizing marriage as a singular high-point in one's life. In a bid to make one's wedding unique wedding planning industry derives a reasonable demand owing to their professionalism and touch of precision to make the entire process smooth. Rise in disposable income coupled with time constraints that people face has led to the development of the wedding planning sector in India.*

*The present study uses observation of marketing trends as a method for developing wedding industry segments. While not an industry in itself, the wedding business is a key revenue contributor to a diverse mix of local busi-nesses. Weddings are customized, and therefore not prone to efficiency, and they often occur on an irregular timeline. The research paper provides the quick evaluation of the marketing strategies and trends that follows in the wedding Industry.*

**Keywords:** Weddings, trends, emotional ties, tactics, competition, wedding professionals, social media websites, tie ups

## Introduction

There has been much chatter over the last month concerning changes taking place in the wedding industry. Chatter about the new guard grabbing the baton from the old and the old steadfastly refusing to let go. Chatter about some at the top, the bigger than big, finally getting the message that the old ways won't work no matter how tightly they close their eyes and try to wish it away.

I listen to a lot of different wedding businesses over the course of a time. I also talk a lot about change and our changing marketplace in our day to day talks.

When I run across the former that really gets the later I want to jump up and down with joy. You have heard about photographers that are switching focus, florists that are changing to showcase rental and planners that are putting their

talents into an Easy store with all the things they make for weddings.

If we go on the other side Brides today think differently and it isn't just about the economy. Oh, that's part of it. I guess I should say it isn't just about the money. It is about the experiences they have had, the way they think and the way they were raised.

We now live in a time that values self-service and self-reliance. Ask the internet any question short of brain surgery and you will find not just instructions but a video tutorial on how to do it. Your brides are well aware of this. They were also raised to believe that they could do anything they set their mind to. Forget the fact that they may have no talent whatsoever. No score soccer leagues where everyone gets a trophy ring a bell?

With same perceptive in mind, with the ongoing wedding season one can't help but notice that the Indian wedding industry is a huge one. In an Indian wedding, everyone just

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spends and does not think of returns. Every manufacturer and retailer involved with marriage related goods eagerly awaits the season to push business. With each passing decade the Indian weddings are getting grandeur. Three decades ago people hardly thought about the lavish wedding function that has now become a trend and may be a compulsion. However, no one's complaining; at least not the retailers and associated players because of the tremendous business opportunity that comes along with it. Let's penetrate deeper.

## **The Driving Forces Behind The Change in The Wedding Industry**

### **a) Upbringing of modern technologies**

There has been much chatter over the last month concerning changes taking place in the wedding industry. Chatter about the new guard grabbing the baton from the old and the old steadfastly refusing to let go. Chatter about some at the top, the bigger than big, finally getting the message that the old ways won't work no matter how tightly they close their eyes and try to wish it away. I don't know how many of you have been in the industry long enough to remember the days before Vera Wang. She was the harbinger of the last revolution. She ushered in the trends we have seen for the last 8 or so years, the halcyon days of weddings. Before that change, weddings were the pearl and lace encrusted children of Princess Diana's wedding. Things were formal and heavy, just look at the gowns and head pieces from that era. Brides were ready for a change and Wang delivered with a breath of fresh air. The rest of the industry followed suit. Cakes became sleek fondant creations with nary a column in sight. Flora went contemporary with glass containers replacing silver and baby's breath died a slow death. Invitations became envelopments and grew belly bands. The seated chicken dinner became exotic stations. Those that refused to change died along with the baby's breath, but still the industry survived the upheaval and went on to grow and survive. This kind of change is necessary to keep our industry healthy.

### **b) Growing every year**

I am told, though I'm not sure how accurate this is, that the Indian wedding industry is valued at around Rs. 1, 25,000 crore and that it is growing by around 25 per cent every year. I am also reliably informed that the better known wedding planners, sometimes referred to as wedding management professionals, are ISO certified. And, although the rich and the famous do contribute their share towards keeping this industry busy, the middle class too are not to be left behind. Even the most Spartan of contemporary weddings costs not less than Rs. 5,00,000.

All of this, you would imagine, should directly translate to more marital bliss than ever before. Unfortunately, this is not quite the case.

As any couples therapist will tell you, in the first five years or thereabouts of marriage, one of the key issues that consume most couples' fights relates to the wedding. What was spent on the wedding? What was not spent on the wedding? That so-and-so uncle was not given due importance. Or such-and-such aunt didn't get enough to eat. That your father dressed so embarrassingly 'down'. Or your mother dressed so mortifyingly 'up'. That the floral arrangements were pathetic. Or the DJ at the sangeeth was so retro. That the silver was not displayed at all. And what happened to all the gold and diamond jewellery that was promised? Often, the issues are not related to just the minor niggles that are part of any large event. Sometimes jewellery is stolen, lechery is in evidence, passes are made and sexual peccadilloes discovered. The end result is that many couples take this wedding-related baggage into their marriages and, since neither partner is willing to cede ground and since there is rarely any hard evidence to support any of the allegations that generally float around, issues are usually carried forward unresolved and are dredged out again when marital fights turn nasty.

One of the interesting offshoots of globalisation, Internet and television is that Indian cultural mores, far from being threatened by Western influences as many people fear, are becoming more pan-Indian. Nowhere is it more in evidence than in the Indian wedding.

### **c) Better thoughts on the concept of social media marketing**

With the spawn of social media and especially with its increasing likeness in the area of marketing, individuals can create online communities painlessly and reach out to their target audience through free platforms. Twitter and Facebook have proven to be the two most effective across the board.

In other words we can say that the trends that affect emotional ties are the ones that will have the most enduring impact on the business side of weddings.

April 2012 I cannot forget to mention Kate Middleton and Prince William insisted that their wedding be accessible via social media, including YouTube. The wedding will air live on YouTube as well as traditional television. Streaming a live feed of the ceremony for friends and family who couldn't attend a wedding in person isn't a new idea, but it is one that will see a definite increase in popularity after Kate and Wills tie the knot on 29th April. With the general

public exposed to the idea, more couples will start asking for it.

**d) Lack of Business Strategies and Marketing Tactics**

The major thing that occurs in any business is competition amongst the existing players, amongst the new entrants, market environment and the consumer demand. I'm not at liberty to say who they are, but they are all facing similar issues:

- Newcomers are coming in and beating them up with super low prices
- Newcomers are more adept with digital technologies
- Newcomers understand this "twitter and facebook business"
- Newcomers are forcing them to lower prices
- They dislike newcomers
- They feel threatened by newcomers

Sound familiar? It should resonate with everyone—newcomers and veterans alike. Veterans shouldn't need to fear the aforementioned; nor should newcomers do anything differently [for now] unless they are ready to move forward with their businesses.

Lowering your prices to compete does not make you that much more competitive. In fact, it probably hurts you more than it helps. There are many bootstrapped businesses lacking clarity and strategies. It doesn't mean that lacking the two will not allow you to survive.

The truth is without having business clarity and strategies, all you can do is just survive. There is no progression. There is no goal. There is no end. That is what this is called the "hula hoop paradox".

**e) Wedding a new area for investment**

Another interesting recent phenomenon is the 'return on investment' approach to the whole business of marriage. Since so much of money is invested on a wedding, the investors (usually the parents of the bride but, in recent times, the parents of the bridegroom as well) want to 'protect' their investment as a result of which they play a much stronger role in their children's marriages to ensure that the couple stay together and experience the much-touted bliss (just to play safe, they keep meticulous accounts of the wedding expenses, in case these are needed by the family court at some point of time). This, as it usually turns out, is a sure-fire way to reduce marital harmony, for, the couple engages in a me and my family vs. you and your family sort of dynamic that they may find hard to get out of.

**f) Diversified objects Introduced**

There has been into news recently that a wedding held in a five-star New Delhi hotel last winter, the groom stepped out of a two-door BMW sports car, specially flown in from Europe for the occasion. Spanish flamenco dancers, fresh orchids from Thailand, ice sculptures, even second-tier Bollywood stars paid to mingle - all are just some of the flourishes seen at recent Indian weddings. Forget being down-to-earth. The latest fad is to stage the whole shebang on pontoons, putting family and friends on a veritable flotilla of flaunted wealth. When demands and expectation increases the whole scenario of the wedding industry comes into the challenge of meeting the complex nature of the today's consumer. Weddings today have become the single most visible expression of a person's social standing and wealth, an expression that is both acceptable and expected.

**Potential in The Wedding Market-by Key Recognizers of The Industry**

The Indian wedding industry is on a high growth trajectory and this makes the event management in this area a very lucrative business. Importance given to marriage in one's life and the desire to make it a memorable event encourage people to spend extravagantly. The big-fat Indian wedding is famous across the globe but it requires tremendous amount of planning and execution to make it a grand successful event. Paucity of time and resources compel the families to go for professional assistance for organizing the event. Increasing disposable income has further boosted the wedding planning industry. The following empirical points will justify the same.

Over 18 percent of India's population falls in the top-tier socioeconomic class, which is a huge potential market for luxury goods brands," says Renuka Keron, marketing manager at LVMH Watch & Jewellery India Private. Ltd., which sells Tag Heuer and Christian Dior, watches in India.

According to the National Council for Applied Economic Research (NCAER), the middle class are those making \$4,545 to \$23,000 a year. NCAER projects that the market for all categories of products, from daily consumables to consumer durables, will double in annual sales by 2012. With the economy expected to maintain steady 6 percent annual growth, India is widely seen as one of the world's 10 largest emerging markets.

With nothing opening up Indian wallets like a marriage, local entrepreneurs have devised one-stop wedding exhibitions, novel gifting and holiday options, and entertainment ideas.

"It is one of India's recession-free businesses," says Divya Gurwaara, who organizes Bridal Asia, an annual wedding exhibition that brings together fashion and jewellery designers and luxury goods sellers under one roof.

Ms. Gurwaara is a trendsetter of sorts; in 1999, she was the first to see the potential of a one-stop shop where families could browse in air-conditioned comfort.

Since then, the number of participants in Bridal Asia has doubled to 80 and this October 2011, she expects 60,000 visitors at the exhibition, which will sprawl over 40,000 sq. ft.. There are several such annual wedding extravaganzas, heralding the beginning of the wedding season with a mix of traditional and international offerings. Together, they rake in at least \$50 million in sales.

The options on display reflect the well-travelled and increasingly internationalized tastes of many upwardly mobile Indians. Noticing the craze for Japanese food in urban India, caterers are offering sushi and tempura on their menus. Handmade chocolates from Lebanon are another new offering, as chocolates begin to replace Indian sweetmeats as customary wedding favours.

Gurwaara notes that "costs are bound to go up when professional wedding planners take over the tasks traditionally performed by grandmas."

## **Marketing Trends in The Wedding Industry**

### **Free Usage of Online and Social Media Marketing**

We've already witnessed the upsurge of Social Media, Blogging and Online Advertising among the wedding industry and most of us have adjusted our marketing to accommodate this new wave of online movement. If we look also in the scenario after this New Year more and more wedding professionals have shifted their marketing budgets to online mediums for the mere reason that online is where the bulk of their audience is. While print marketing is not about to bow out by any stretch of the imagination, most wedding professionals are going to realize the need to mix their Marketing Campaigns with Online Marketing Campaigns in order to get the most bang for their marketing bucks.

In 2011 we'll see more wedding professionals jumping on the Social Media bandwagon as they'll have a better grasp of what Social Media is. Those who just didn't "get it" this past year will be trying it out in the New Year. (In other words, if you're not on Social Media, you might want to get on that).

### **Growing Expansion of the Concept of Search Engine Optimization**

In the past couple of years wedding professionals have been focusing a lot of energy on increasing their SEO (Search Engine Optimization) and well I'd certainly hope so as it's pretty much been the number one way of getting found by your target market. However with the emergence of other search engines as major contenders like Bing, MSN, Ask, etc it's become not just about being on the first page of Google anymore it's about getting on the first page everywhere. So guess what? Now the SEO is on-par is more important than ever. Then we have social media websites like Twitter, Facebook, LinkedIn and more which provide new ways to be found online. Toss in Mobile Searches and Geo-Location Searches and voila -- there have been so many more places into which the professionals are finding exposure to their brand.

Acknowledging that there is so much more than just Search Engine Optimization on Google is the first step to increasing your brand's profile. Embracing the new practices and using them is the next one.

### **Ragging up with Different Professionals**

It works for the real estate, fashion and jewel industries and while it's was embraced rather slowly in the wedding industry its usage is anticipated. 'Fashion shoots' are no longer only for the fashion industry. These days wedding professionals - from cake designers and decorators to caterers and wedding planners -- are styling, staging and photographing tabletop designs, theme decor, food and more in classic 'high-fashion' style as a way to showcase their talent for design and detail in their portfolios, blogs and as a gateway to the media.

While capturing in the wedding industry is definitely not a new concept, fashioning and photographing wedding concepts in 'high-fashion' zine-like style for self-promotion is.

Gone are the days of simply setting up a table yourself and taking some photos with your own camera or hoping that a high-profile magazine will offer to do a shoot for you. While it can be costly, these days wedding professionals are hiring or partnering with other professionals in the industry to put together full theme concepts (like bollywood night, the princess on the ride etc ) and having established photographers skill fully capture it.

Everyone who participates essentially wins with equal promotion and let's face it; it looks so much better than if we did it with our rinky-dinky point-and-shoot. Staging has become the newest form of collaborative partnership among industry professionals and can be expected to increase in the coming time.

### **Mobile Marketing has an up catching Start**

With the success of the iPhone and the introduction of the iPad and Google's Android, Smartphone technology is booming and so mobile marketing has sped up from a light jog to a full on run.

In the coming era mobile marketing won't just be about texting, emails or applications. We'll see an escalation of new applications, new devices (ahem...the new iPad anyone?) and an increase in technology making our networks that much faster and technology that much smarter.

That said, our marketing efforts will expand to Smartphone technology services like location-aware programs, mobile games and applications that will feed interest to our consumers and send them in our direction. You'll see more wedding professionals develop their own 'Apps' for their services or making use of Wedding Apps that already exist like iWedding and more.

### **Online Video Will Get Even Bigger**

One thing that stood out in the past was the increase of numbers of people watching online video. With an abundance of video sharing sites like YouTube, Loomia and Woomu and video hosting sites like Hulu.

While using video for marketing purposes is not a new concept, (promo videos, 'trailers', recorded interviews, etc. have been used for the last three years in practically every industry from entertainment to publishing to fashion and more) there has been a dramatic increase in using video for marketing among wedding professionals as a result of this increase in what's being referred to as 'Social Video'.

From 'wedding trailers' to 'video testimonials' you can expect to see more promotionally-aimed videos coming from the wedding industry than from the wedding couples themselves.

### **Customer Centric Approach**

More wedding professionals are realizing that 'personalizing' their marketing' efforts are getting more personable results meaning that by tweaking their marketing to capture the interest and needs of their 'target market' they see a stronger presence of that specific audience in their ROI (Return on Investment).

With such an uprooted competition we would likely see more wedding professionals 'getting personable' with their target audience as well (and not just with direct marketing methods).

More conversations will be sparked by wedding professionals in online social communities, more wedding blogs will surface (but more importantly more wedding blogs will reflect and

attract specific audiences) and more attention will be paid to how customer service is handled.

Speaking of customer service, 2010 proved that consumers don't want to wait for an answer to their question or a solution to their problem. Everything had that "I want it now" mentality. Some professionals labelled this mentality as "demanding". Other professionals saw this mentality for what it was -- a desire for real communication in real time.

Inspire Smart success magazine discussed wedding and events occurred throughout the last year focussing also on Kathy Romero wedding, They have also re launched website and blog to give wedding industry professionals the business tools and information they need in one easily assessable place. The new site will allow visitors to stay up to date with the wedding brose.

As a result of this, we will find that many companies will be providing 'real-time' customer service to engage and appease their consumers in this fast-paced era. Consumers now have more than one option of obtaining customer service. (Ahem...remember the good old' days of waiting on hold for what seemed like eternity?)

### **Marketing Strategies Adopted by Different Companies to Beat The Competitors**

When the competition is high everyone is running to achieve its target. With the small discounted schemes to the large customer centric approach everyone is running to sustain itself in the market. Some of the instances of the companies which we see around us are:-

- Samsung, Sony, LG, and other appliance makers now time their discounts to the wedding season, which begins this month and runs until March.
- GE Money India has introduced an "auspicious" personal loan, a quick and easy loan exclusively for weddings.
- Gurgaon, a city built on new-economy money, will boast India's first wedding mall in 2006, built at a cost of \$16 million and with 400 stores. Eight more wedding malls are being planned around the country.
- Lotus Herbal changed the wedding scenario of the decade. They have given it a new picture with their sponsored television first wedding show "Shaddi 3 Crore Ki"
- Bride's Magazine has teamed up with IKEA to sponsor a show house geared toward the nearly & newlyweds. Featuring furnishings from IKEA and hosting a bevy of bride-centric event it looks like a win-win for both entities. Wedding vendors from gown designers hosting trunk shows to wedding photographers doing snap shots to florists doing floral arranging workshops are offering something for everyone. Set up for only a limited time, it

runs thru the end of May, this is a partnership that seems to make perfect sense. In another stroke of brilliance, they are also teaming up with the Lower East Side Girls Club as their selected charity with all proceeds going to the Girls Club. As you know, today's consumers are keenly attuned to the "good works" of the companies they buy from and are likely to place more value on those whose charitable affiliations mirror their own.

- Vistaprint offers a multitude of products and services for any type of wedding. Products include printed options such as wedding invitations, save the date cards and place cards; promotional apparel like hats and T-shirts; and even wedding websites.
- When Portovert (a renowned bridal magazine) launched in January 2007," we became the voice of glamour in the green movement, showing brides and grooms that green doesn't have to mean giving up on the idea of a spectacular wedding," said Megan Yudes, Editorial Director of Portovert, "All brides are looking for ways to stretch their budgets. We've been able to do this by showing them how to be creative fixing and recycling items found throughout their surroundings and incorporating these elements into their nuptials in a way that will garner positive attention and make them feels good about using these cost saving measures for the good of the environment."
- Ferns and Patel, known for its exceptional floral arrangement, tied up with celebrity event designer Preston Bailey. Preston has experience in techniques which have never been used in India like use of theatrical sets, providing a different touch to Indian wedding scenario.
- Kodak has itself started a campaign named wedding collection 2013 where it helps the brides to get attached to trends going on in the market within a flick of a mouse on its Facebook page.

## Techniques for Enhancing Brand Exposure

### a) Flip Weddings

My Flip Wedding is the brainchild of Storymix Media. These guys have been doing editing and fusion media for pro-photographers for a long time. Couples can rent Flip Video cameras and have their closest friends and family member's video their wedding, shower, stag & hen nights or any other part of their celebration. Then they send the cameras back in the pre-paid envelope and let the Apple Certified pros create a highlight reel. Its fun, it's easy, it's really inexpensive and couples are loving it.

### b) Something Borrowed In

We have all watched the changes happening in the bridal lehnga market. It seems that the newest generation of

bride still longs for that high end designer fairy lehnga, but don't attach the same sentimentality to it as generations past. Yes they want to wear it, but once the wedding is over, they could care less. After the wedding, these same brides tried, mostly in vane, to sell their very expensive gowns. Despite the now seeming abundance of resellers and consignment sites on the web, they had no takers. As a response Haas is working the plan and building the foundation of what may well be a new trend Rentals. It may not take off tomorrow or next week, but as more and more Gen Y brides enter the marketplace this will become acceptable. They are already comfortable with concepts like rent the Runway and Bag, Borrow or Steal. When it comes time to decide what to wear on the big day, well, Something Borrowed In will look pretty good. Yes, it is a fledgling business in a fledgling concept, but when it hit's; look out world. Something Borrowed In is an idea whose time may very well have come.

### c) Green (Eco-Friendly) Weddings

Eco-friendly weddings are emerging. Everything from sustainable wedding dresses to plantable favours' and recycled invitations will be commonplace. The setting will likely be an outdoor venue or tent, with decor consisting of LED lights and locally produced flowers. Green, brown and rust are common colour choices.

### d) Vintage Inspirations

Vintage inspired weddings are one of the biggest trends for 2011. Brides can be glamorous and chic without breaking the bank. Common themes include beaded or feathered hairpieces, and natural and outdoor settings. These weddings could include lots of lace and do-it-yourself touches such as homemade favours' and hand-tied ribbons around the invitations. Softer, muted colours help add a touch of romance to the occasion.

### e) CPM Ads

CPM advertising is a type of advertising that is becoming more popular with wedding blogs. It's a legitimate form of advertising. CPM stands for "cost per 1000" (with M being the Roman numeral for 1000). This means that it is the cost you pay for every 1000 impressions, or page views, your ad displays for. This is different from CPC, or "cost per click", in which you pay only if your ad is clicked on (the type of pay-per-click ad model that Google is famous for). It's also important to note that an impression is different than a unique visitor. A unique visitor can generate dozens or more impressions if they get hooked on the site and click through the archives and different pages. A CPM is typically sold with a minimum purchase requirement for impressions. One of the industry standard buys for CPM's

(for online advertising in general, not just wedding advertising) is 100,000 impressions. So, if you bought a minimum of 100,000 impressions, you would be purchasing 100 units of CPM.

## Conclusion

Contrary to popular belief, the current wedding ideal does not stem from tradition but rather originates from advertisements, sales techniques and marketing techniques by the wedding industry. Businesses saw the marriage boom of the World War II era as an opportunity to make money by expanding the wedding market. Advertisers' promotional tactics captivated brides, which transformed them into mass consumers. The wedding industry's "invented traditions" aided the commercialization of weddings. Department stores are the primary culprits for altering the meaning of weddings from a modest affair to a consumer event. Brides thus consumed excessively, believing the advertised wedding products to be essential to achieve perfect white weddings.

Through bridal magazines and reality television shows, the media today inspires lavish wedding consumption and allows for the persistence of the commercial wedding ideal. These publications' depictions of weddings surround the event with excess, establishing the lavish wedding as a cultural "norm." Thus the growing awareness though has bring us on the brighter side but on the other side enhances a cut throat competition with lot of complexities entering in both for the consumer as well as the marketer.

## References

1. Chesser, B. J. (1980). *Analysis of Wedding Rituals: An Attempt to Make Weddings More Meaningful*. *Family Relations*, 29(2).
2. Chopra, A. Chopra, U, Chopra, P. Chopra, Y. Vakil M. & Kohli, K. (2002). *Mujhse Dosti Karogi [Motion picture]*. India: Yash Raj Films.
3. Chopra, Y. & Chopra, A. & Kohli, S. A., K. (2004). *Hum Tum [Motion picture]*. India: Yash Raj Films.
4. Coontz, S. (2005) *Marriage, a History: How Love Conquered Marriage*. New York: Penguin Books
5. Engstrom, Erika. "Unraveling the Knot: Political Economy and Cultural Hegemony in Wedding Media." *Journal of Communication Inquiry* Vol. 32, No. 1, (2008): 60- 82. Retrieved November 5, 2008
6. Jellison, Katherine. "The Wedding Story". *Research Communications 2008 Ohio University*. 5 November 2008 <http://news.research.ohiou.edu/perspectives/>
7. Kolenda, P. (1984). "Women as Tribute, Women as Flower: Images of Women in Weddings in North and South India". *American Ethnologist*, Vol. 11, No 1.
8. Kumar, K.G. (1999-2003). "South Indian Wedding". Retrieved on line May, 15, 2006 from <http://www.sanathanadharma.com/wedding.htm>
9. Lluch, E. Lluch A. (2004). *Easy Wedding Planner: Organizer and Keepsake*. San Fransico: Wedding Solutions Publishing.
10. Seal, Manisha. (2001-2006). "The Hindu Wedding Ceremony". Redhotcurry Limited. Retrieved on Line May, 15, 2006 from [http://www.redhotcurry.com/culture/hindu\\_wedding.html](http://www.redhotcurry.com/culture/hindu_wedding.html)
11. Sniezek, T. (2005). "Is It Our Day or The Bride's Day? The Division of Wedding Labour and Its Meaning for Couples". *Qualitative Sociology*, 28 (3), Fall 2005.

# Age Disparity in Job Stress, Employee Morale and Job Involvement; Real or Unreal

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## Abstract

*Irrespective of age, no individual is immune to stress. Most of us are well aware that as a person chronologically ages, there are more responsibilities and situational stressors that become part of our lives which subsequently can bring about consequences affecting our well being. As adults, stress is a daily event, majority of which is chiefly manifested at work place. On the flip side, with age one acquires better understanding of one's work, learns greater adaptability skills, refined skills for execution of work, and overall becomes more apt at one's job. But, the question remains whether the acquired skills, experience, etc. are enough to offset the increased stresses of responsibilities with age. Also, would an older employee bear a better level of morale compared to a younger employee. It would also be interesting to find about the differences in job involvement levels of employees taking into account their age. Hence, the present study. A comparative analysis brings out similarity in the job stress level of bank executives aged  $\leq 30$  years and  $>30$  years on the basis of eight out of ten sub variables of job stress. Self-Role Distance, Role Expectation Conflict, Role Overload, Inter-Role Distance, and Role Ambiguity are the predominant sub variables contributing towards job stress among the bank executives of both age groups. A comparative analysis brings out that the overall morale level of bank executives aged  $\leq 30$  years and  $>30$  years is similar on the basis of three out of five indices of employee morale. Index of Satisfaction with Superiors and Index of Satisfaction of Emotional and Physical Needs are the highest employee morale reducers in the case of both age groups of bank executives. Considering the job involvement variable, a comparative analysis based on age brings out that job involvement is possessed alike by bank executives aged  $\leq 30$  years and  $>30$  years under study.*

**Keywords:** Job Stress, Employee Morale, Job Involvement, Age Disparity, Human Resource Policies

## Introduction

Irrespective of age, no individual is immune to stress. Most of us are well aware that as a person chronologically ages, there are more responsibilities and situational stressors that become part of our lives which subsequently can bring about consequences affecting our well being. As adults, stress is a daily event, majority of which is chiefly manifested at work place. On the flip side, with age one acquires better understanding of one's work, learns greater adaptability skills, refined skills for execution of work, and overall becomes more apt at one's job. But, the question remains whether the acquired skills, experience, etc. are enough to offset the increased stresses of responsibilities with age. Also, would an older employee bear a better level of morale compared to a younger employee. It would also be interesting to find about the differences in job involvement levels of employees taking into account their age. Hence, the present study.

## Literature Review

The review of related available studies in variables job stress, employee morale and job involvement in relation to age was done with a view to analyze and critically examine them, and to connect the present knowledge with the earlier studies in order to decide about the general framework of this study.

Reddy and Ramamurthy (1991) analyzed the influence of age on stress experience of a person and the results revealed that executives in the age group of 41-50 experienced more stress than the age group of 51-60. Beena and Poduval (1992) conducted a study on sample of 80 (40 male and 40 female) executives in different organizations and found that when age increases, experienced stress also increased due to the increase in the responsibility of the executives. Female executives showed higher rate of stress because women experience greater amount of work change than men do. Bhatia and Kumar (2005) studied occupational stress and burn out in industrial

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employees belonging to supervisor and below supervisor level. Their chronological age ranged from 22-32 years and 33-42 years. It was found that industrial employees at supervisor rank and below supervisor rank belonging to higher age group experienced more occupational stress.

According to Greenberg and Baron (1995), older employees are generally happier with their jobs than younger employees, while people who are more experienced in their jobs are more highly satisfied than those who are less experienced. This view is supported by Drafke and Kossen (2002). The researchers state that job satisfaction typically increases with age as older workers have more work experience and generally have a more realistic view of work and life in comparison to their younger counterparts. They are of the opinion that younger workers have less experience to draw on and have an idealistic view of what work should be like. Research conducted by Okpara (2004) amongst managers within an IT environment found a significant relationship between job satisfaction and age.

It is believed that older workers tend to report higher levels of job involvement than their younger counterparts. As people grow older they may tend to psychologically invest more and more of themselves in their job (Sekaran & Mowday, 1981; Newton & Keenan, 1983) However, the relationship between age and job involvement has varied from between studies, from finding which report significant differences between older and younger workers (Taylor & Thompson, 1976) to studies reporting no significant differences between these groups (Mannheim, 1975; Bigoness, 1978). Morrow McElroy & Blum (1988) reported that job involvement is not only related to an individual demographic attributes, say job tenure and age, but also interactions among them.

From the aforementioned review of literature, it is evident that the banking sector has not been explored fully in the regard of age based study of job stress, employee morale and job involvement. Hence, there exists enough scope for more research in the field.

## Methodology

The study is mainly concerned with comparison of bank executives aged  $\leq 30$  years and  $> 30$  years in the light of job stress, employee morale and job involvement by way of analysis and interpretation of data collected through questionnaires-cum-scales for the same. Executives in the Indian banking sector constitute the scope of the study, within that it is limited to the scheduled commercial banks in Punjab including Chandigarh. As many as 400 banking sector executives formed the sample size. For the present study, standardized questionnaires-cum-scales namely, Pareek's (1981) job stress scale (comprising fifty questions and covering ten sub variables: Inter-Role Distance, Role Stagnation, Role Expectation Conflict, Role Erosion, Role Overload, Role Isolation, Personal Inadequacy, Self-Role Distance, Role Ambiguity and Resource Inadequacy), Srivastava's (1978) and Brayfield & Roath's (1951) employee morale scale (comprising twenty questions and covering five indices: Index of Job Satisfaction, Index of Organizational Image, Index of Satisfaction with Superiors, Index of Career Growth, and Index of Satisfaction of Emotional and Physical Needs) and Lodahl and Kejner's (1965) job involvement scale (comprising twenty questions and covering predominantly the areas such as how much time an employee willingly spends on ones job, how much importance an employee associates to ones job in one's life, etc.) were used for measuring the three variables of this study. The statistical tools used for data analysis in this research work include mean, standard deviation and t-test.

## Analysis and Discussion

### A Comparison among Bank Executives Aged $\leq 30$ years and $> 30$ years on the basis of Job Stress Level

Table 1 establishes whether the difference in terms of job stress among the bank executives aged  $\leq 30$  years and  $> 30$  years is significant or not.

**Table 1: Job Stress in Bank Executives Aged  $\leq 30$  years and  $> 30$  years**

Category	No. of Executives	Mean	S.D.	t-value	Sig.
Bank Executives Aged $\leq 30$ years	194	2.89	0.61	0.59	0.556
Bank Executives Aged $> 30$ years	206	2.86	0.59		

The t-test results shown in the above table exhibit insignificant mean difference with regard to job stress, significant at  $> 0.05$  level, among the bank executives aged  $\leq 30$  years and  $> 30$  years. This data indicates that bank executives in the age group

$\leq 30$  years and  $> 30$  years experience a similar level of job stress as reflected by the mean values of 2.89 and 2.86 respectively. Hence, the analysis provides that irrespective of age the banking sector executives experience a similar level of job

stress. This could be due to both age group bank executives being affected alike by different stressors such as role distance, stagnation at ones job, conflicting role expectations, erosion of role, overload of work, isolation at work, ambiguity about the job to be performed and inadequacy of resources.

**Overall Sub variable-wise Comparison of Job Stress among Bank Executives Aged <=30 years and >30 years**

The questionnaire included ten sub variables of job stress for which mean and standard deviation were computed for having a comparison among the bank executives aged <=30 years and >30 years. The results are presented in the following table.

**Table 2: Sub variable-wise Comparison of Job Stress among Bank Executives Aged <=30 years and >30 years**

**Number**

A comparison among the bank executives aged  $\leq 30$  years and  $>30$  years under study reveals that Self-Role Distance, Role Expectation Conflict, Role Overload, Inter-Role Distance, and Role Ambiguity are the predominant sub variables contributing towards job stress. It has also been observed that overall Role Stagnation is by far the least contributing job stress sub variable. This could be due to the ever evolving human resource management practices centered on mutual growth of both the organization and the employees, thereby mitigating the chances of employees feeling role stagnant and stressed. The t-test results further reveal that the bank executives aged  $\leq 30$  years and  $>30$  years differ insignificantly at  $>0.05$  level on the basis of eight of the total ten sub variables of job stress. It implies that these eight sub variables, namely, Inter-Role Distance, Role Stagnation, Role Expectation Conflict, Role Erosion, Role Overload, Role Isolation, Role Ambiguity and Resource Inadequacy have caused an equally stressing influence on both the bank executives aged  $\leq 30$  years and  $>30$

years. The whole analysis provides that job stress is more or less similarly experienced by both the bank executives aged  $\leq 30$  years and  $>30$  years. Earlier, it was established on the basis of data given in Table 1 that the level of job stress experienced by bank executives aged  $\leq 30$  years ( $N=194$ , Mean=2.89, S.D.=0.61) and bank executives aged  $>30$  years ( $N=206$ , Mean=2.86, S.D.=0.59) is similar. Eight of the total ten sub variables have been found to be causing like job stress among bank executives aged  $\leq 30$  years and  $>30$  years under study which explains the similar level of job stress among them.

The following table sums up the findings displaying comparative analysis undertaken among the bank executives aged  $\leq 30$  years and  $>30$  years on the basis of job stress and its various sub variables. The job stress position with respect to these sub variables among the bank executives aged  $\leq 30$  years and  $>30$  years under study is presented at a glance as follows:

#### **Number**

The t-test results shown in the above table exhibit insignificant mean difference with regard to employee morale, significant at >0.05 level, among the bank executives aged <=30 years and >30 years. This data indicates that bank executives in the age group <=30 years and >30 years experience a similar level of employee morale as reflected by the mean values of 2.67 and 2.68 respectively. Hence, the analysis provides that irrespective of age the banking sector executives experience a similar level of employee morale. This could be due to both age group bank executives' bearing similar perception and morale related to job

satisfaction, career growth, and satisfaction of emotional and physical needs.

**Overall Index-wise Comparison of Employee Morale among Bank Executives Aged <=30 years and >30 years**

The questionnaire included five indices of employee morale for which mean and standard deviation were computed for having a comparison among bank executives aged <=30 years and >30 years. The results are presented in the following table.

**Table 5: Index-wise Comparison of Employee Morale among Bank Executives Aged <=30 years and >30 years**

**Number**

Organizational Image and Index of Satisfaction with Superiors have a more positive bearing on the morale of bank executives aged <=30 years and >30 years respectively. The whole analysis provides that the employee morale borne by bank executives aged <=30 years is similar to that of the bank executives aged >30 years. Earlier, it was established on the basis of data given in Table 4 that the level of employee morale borne by bank executives aged <=30 years (N=194, Mean=2.67, S.D.=0.50) is similar to that of the bank executives aged >30 years (N=206, Mean=2.68, S.D.=0.50). Three of the total five indices have been found to be having similar bearing on the morale of the bank

executives aged <=30 years and >30 years under study which explains the similar level of morale among them.

The following table sums up the above findings displaying the comparative analysis undertaken among the bank executives aged <=30 years and >30 years on the basis of employee morale and its various indices. The employee morale position with respect to these indices among the bank executives aged <=30 years and >30 years under study is presented at a glance as follows:

**Table 6: Employee Morale Position in Bank Executives Aged <=30 years and >30 years with respect to its Various Indices**

Variable/ Position	1	2
IJS	Bank Executives aged >30 years	Bank Executives aged <=30 years
	Insignificant difference between bank executives aged >30 years and <=30 years	
IOI	Bank Executives aged <=30 years	Bank Executives aged >30 years
ISS	Bank Executives aged >30 years	Bank Executives aged <=30 years
ICG	Bank Executives aged <=30 years	Bank Executives aged >30 years
	Insignificant difference between bank executives aged <=30 years and >30 years	
EPN	Bank Executives aged >30 years	Bank Executives aged <=30 years
	Insignificant difference between bank executives aged >30 years and <=30 years	
Employee Morale	Bank Executives aged <=30 years	Bank Executives aged >30 years
	Insignificant difference between bank executives aged <=30 years and >30 years	

**A Comparison among Bank Executives Aged <=30 years and >30 years on the basis of Job Involvement Level**

Table 7 establishes whether the difference in terms of job involvement among the bank executives aged <=30 years and >30 years is significant or not.

**Table 7: Job Involvement in Bank Executives Aged <=30 years and >30 years**

Category	No. of Executives	Mean	S.D.	t-value	Sig.
Bank Executives Aged <=30 years	194	4.47	0.68	0.75	0.456
Bank Executives Aged >30 years	206	4.42	0.63		

The t-test results shown in the above table exhibit insignificant mean difference with regard to job involvement, significant at >0.05 level, among the bank executives aged <=30 years and >30 years. This data indicates that bank executives aged <=30 years and >30 years experience a similar level of job involvement as reflected by the mean values of 4.47 and 4.42 respectively. Hence, the analysis provides that irrespective of age the banking sector executives experience a similar level of job involvement. This could be due to a similar level of importance associated by bank executives aged <=30 years and

>30 years to their jobs, equal willingness to devote time to it and like degree of identification with their jobs.

The table given below sums up the above findings displaying the comparative analysis undertaken on the basis of job involvement experienced by the bank executives aged <=30 years and >30 years. The position which emerged with respect to job involvement of the bank executives aged <=30 years and >30 years under study is presented at a glance as under:

**Table 8: Job Involvement Position in Bank Executives Aged <=30 years and >30 years under Study**

Variable/ Position	1	2
Job Involvement	Bank Executives aged <=30 years	Bank Executives aged >30 years
	Insignificant difference between bank executives aged <=30 years and >30 years	

### Main Findings

The main findings emerging from the study are as follows:

- Age based comparison of mean scores of job stress leads us to conclude that job stress is experienced alike by both the categories of bank executives, i.e., those aged <=30 years and >30 years.
- In the case of bank executives aged <=30 years, Self-Role Distance is the highest job stress contributor, while, Role Expectation Conflict, Role Overload, Inter-Role Distance, Personal Inadequacy and Role Ambiguity are the other sub variables contributing towards job stress.
- In the case of bank executives aged >30 years, Inter-Role Distance is the highest job stress contributor, while, Role Ambiguity, Role Expectation Conflict, Self-Role Distance and Role Overload are the other sub variables contributing towards job stress.
- Sub variable-wise analysis of job stress shows that Self-Role Distance, Role Expectation Conflict, Role Overload, Inter-Role Distance, and Role Ambiguity are the predominant sub variables contributing towards job stress among the bank executives aged <=30 years and >30 years under study. It has also been observed that overall Role Stagnation is by far the least contributing job stress sub variable.
- The analysis further highlights that the bank executives aged <=30 years and >30 years differ insignificantly on the basis of eight of the total ten sub variables of job stress. It implies that these eight sub variables, namely, Inter Role Distance, Role Stagnation, Role Expectation Conflict, Role Erosion, Role Overload, Role Isolation, Role Ambiguity and Resource Inadequacy have caused an equally stressing

influence on both the categories of bank executives, i.e., those aged <=30 years and >30 years. The whole analysis provides that bank executives aged <=30 years and >30 years experience job stress at more or less a similar level. Therefore, eight of the total ten sub variables found to be causing like job stress among bank executives aged <=30 years and >30 years explain a similar level of job stress among them.

- Age based comparison of mean scores of employee morale leads us to conclude that employee morale borne by bank executives aged <=30 years is similar to that of bank executives aged >30 years.
- In the case of bank executives aged <=30 years, Index of Satisfaction with Superiors and Index of Satisfaction of Emotional and Physical Needs are the greatest employee morale reducers, while and Index of Job Satisfaction is another contributor towards low employee morale.
- In the case of bank executives aged >30 years, Index of Satisfaction of Emotional and Physical Needs is the greatest employee morale reducer, while Index of Satisfaction with Superiors is another contributor towards low employee morale.
- Index-wise analysis of employee morale shows that Index of Satisfaction with Superiors and Index of Satisfaction of Emotional and Physical Needs are the highest employee morale reducers in the case of both categories of bank executives, i.e., those aged <=30 years and >30 years. The overall results reveal that Index of Organizational Image is by far the least contributor towards low employee morale in the case of both the age groups of bank executives.
- The analysis further highlights that the bank executives aged <=30 years and >30 years differ insignificantly on the

basis of three of the total five indices of employee morale. It implies that these three indices, namely, Index of Job Satisfaction, Index of Career Growth and Index of Satisfaction of Emotional and Physical Needs have had an equal bearing on the morale of both the categories of bank executives under study, i.e., those aged  $\leq 30$  years and  $>30$  years. However, one of the remaining two indices, namely, Index of Organizational Image has a more positive bearing on the morale of bank executives aged  $\leq 30$  years, while Index of Satisfaction with Superiors has a more positive bearing on the morale of bank executives aged  $>30$  years under study. The whole analysis provides that bank executives aged  $\leq 30$  years and  $>30$  years experience employee morale at a somewhat similar level. Therefore, three of the total five indices found to be having a similar bearing on the morale of bank executives of both age groups under study explain a similar level of employee morale among them.

- Aged based comparison of mean scores of job involvement leads us to conclude that job involvement is possessed alike by bank executives aged  $\leq 30$  years and those aged  $>30$  years.

While concluding it can be said that a comparative analysis brings out insignificant mean difference among bank executives aged  $\leq 30$  years and  $>30$  years on the basis of eight of the total ten sub variables of job stress. This implies a similarity in the job stress level of bank executives aged  $\leq 30$  years and  $>30$  years. Self-Role Distance, Role Expectation Conflict, Role Overload, Inter-Role Distance, and Role Ambiguity are the predominant sub variables contributing towards job stress among the bank executives aged  $\leq 30$  years and  $>30$  years under study. Taking up the employee morale variable, a comparative analysis brings out insignificant mean difference among the bank executives aged  $\leq 30$  years and  $>30$  years on the basis of three of the total five indices of employee morale. Therefore, the overall morale level of bank executives aged  $\leq 30$  years and  $>30$  years is similar. Index of Satisfaction with Superiors and Index of Satisfaction of Emotional and Physical Needs are the highest employee morale reducers in the case of both age groups of bank executives. Considering the job involvement variable, a comparative analysis based on age brings out that job involvement is possessed alike by bank executives aged  $\leq 30$  years and  $>30$  years under study.

## Recommendations

The following recommendations are made on the basis of this study to improve the prevalent levels of job stress, employee morale and job involvement among the bank executives aged  $\leq 30$  years and  $>30$  years:

The chief stressors for bank executives, irrespective of age, are found to be self-role distance, role expectation conflict, role overload, inter-role distance, and role ambiguity. It is, therefore, recommended that in order to reduce the level of job stress among both the age groups of bank executives it needs to be ensured that only those jobs should be assigned to them which are not contradictory to their self-concept. Furthermore, the expectations of different role senders should in conformity with each other to avoid an executive facing role expectation conflict. Also, overload of work needs to be avoided and it is also suggested that each employee be allowed fair 'own' time for family and personal errands to reduce stress. It also needs to be ensured that there is clarity of work mission to reduce job stress.

It should be ensured that the employees are satisfied with their superior's traits and decisions for better employee morale, the supervision exercised over them should in no way hamper their spirit to work for the organization. Also, the emotional and physical needs of both the age groups of bank executives should not be neglected in any way, the deserving employees should be properly appreciated and rewarded for their extraordinary work.

Age based study of job stress, employee morale and job involvement has been covered in this research but it certainly holds substance for a full fledged empirical research incorporating other significant facets, such as its relation with clinical depression, substance abuse, etc.

Intuitively and empirically, some differences between executives aged  $\leq 30$  years and  $>30$  years in the context of workplace have been observed and researchers continue to explore the utility of research on age based differences in various areas. One such area concerning the age related differences in experience of job stress, employee morale and job involvement was taken up in this study which revealed insignificant difference among bank executives aged  $\leq 30$  years and  $>30$  years on the basis of job stress, employee morale and job involvement experienced. Given the general concern with workplace issues and recent attention to understanding attitudinal variables concerning employees, it is useful to have insightful findings from this study.

## References

1. Beena, C. and Poduval, P.R. (1992), *Gender difference in work of executives. Psy. Stu.*, 37(2&3), pp. 109-113.
2. Bhatia, P. and Kumar, A. (2005), *Occupational stress and burn out in industrial employees.*
3. *Indian Psy. Rev.*, 64(4), pp. 191-198.

4. Bigoness, W.J., (1978) *Correlates of faculty attitudes toward collective bargaining. Journal of Applied Psychology*, 63, pp. 228-33.
5. Drafke, M.W., & Kossen, S. (2002). *The human side of organizations (8th ed.)*. New Jersey: Prentice-Hall, Inc.
6. Greenberg, J., & Baron, R.A. (1995). *Behavior in organizations: Understanding and managing the human side of work (5th ed.)*. Trenton: Prentice-Hall International, Inc.
7. Mannheim, B.(1975) *A comparative study of work centrally, job rewards and satisfaction, Sociology of Work and Occupations*, 2, pp. 79-102.
8. Morrow, P.C., Mc Elory J.C. & Blum, M. (1988) *Measuring commitment among Department of transportation employees. Review of Public Personnel Administration*, 8, pp. 96-104.
9. Newton, T.J. & Keenan, A.(1983). *Is work involvement as attribute of the person or the environment. Journal of Occupational Behaviour*, 4, pp.169-178.
10. Okpara, J.O. (2004). *Personal characteristics as predictors of job satisfaction: An exploratory study of IT managers in a developing economy [Electronic version]*.
11. *Information Technology & People*, 17(3), pp. 327-338.
12. Reddy, V.S. and Ramamurthy, P.V. (1991), *The relation between stress experience on the job age, personality and general ability. Psy. Stu.*, 36(2), pp. 87-95.
13. Sekaran, U. & Mowday, R. T.(1981) *A cross cultural analysis of the influence of individual and job characteristics on job involvement, International Review of Applied Psychology*, 30, pp. 51-64.
14. Taylor, R N., & Thompson, M,(1976) *Work value systems of young workers, Academy of Management Journal*, 19, pp. 522-36.

# Human Resource Accounting: the concept and its practices in India

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## Abstract

*Human Resource Accounting (HRA) is the art and science of measuring human resources in monetary terms and reporting it to all stakeholders. The increasing importance of the human resources necessitates an objective and critical evaluation of the existing HRA practices in Indian companies. The major objectives of this paper are to examine the concept of HRA, analyse its various measurement approaches/models and assess the way of presenting HRA information in the annual report of the Indian companies under study. A humble attempt has also been made to find out the expected future of HRA practices in India. Annual reports of last three financial years (that is, 2012–2013, 2011–2012 and 2010–2011) of all NIFTY based fifty companies listed on the NSE, have been studied to achieve the objectives.*

**Keywords:** Human Resource Accounting, Annual report, NIFTY, Balance Sheet, Intangible Assets.

## Introduction

“Machinery may be there,  
buildings may be there.....  
but without people, it’s nothing,  
people are our only real assets.”

**Henning Holck-Larsen**  
*Founder of Larsen & Toubro*

Human resources of any company, often interchangeably used as human capital or human assets, are the sum total of skills, knowledge, experiences, attitudes and behavior of its workforce. After the revolution in Information Technology, organizations have shifted their orientation from production to knowledge. Now a days, we find that a number of conglomerate’s revenues depending entirely on knowledge. Thus, utility of human resources in today’s knowledge driven economy cannot be overemphasized. Managing human resources in today’s organization has become very complex. We

all have heard the famous quote “what gets measured gets managed”. But how does one go to place value on people and include this value as an asset in a Balance Sheet is a daunting task. The existing methods and techniques of accounting provide no solution for this. This dilemma has led to the emergence of one of the most important branch of accounting i.e. Human Resource Accounting (HRA).

HRA is the art and science of measuring human resources in monetary terms and reporting it to all stakeholders. It not only involves valuation of all the investments associated with recruitment, training, development, and maintenance of the employees in the firm but also reporting it accurately to all the stakeholders of the organizations.

Brummet et al. (1968) defined HRA as “The process of identifying, measuring and communicating information about human resources to facilitate effective management within an organization.”

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American Accounting Association (1973) has defined HRA as “The process of identifying and measuring data about human resources and communicating this information to interested parties.”

Bullen & Eyler (2010) have considered HRA as an approach where expenditures related to human resources are reported as assets on the balance sheet as opposed to the traditional accounting approach which treats costs related to a company’s human resources as expenses on the income statement that reduce profit.

Dr. H. M. Korant (2011) has described HRA as a system that tries to evaluate the worth of human resources of an organization in a systematic manner and record them in the financial statement to communicate their worth with changes in time and result obtained from their utilization to the users of the financial statement.

On the basis of some of the most popular definitions of HRA stated above, we can say that the main purpose of HRA is to evaluate the worth of the human assets of an organization and also make an effort to mention their worth in the financial statements. It not only involves valuation of all the investments associated with recruitment, training, development and maintenance of the employees in the firm, but also reporting it properly and reliably to all the stakeholders of the organization. The importance of human resources accounting was recognized way back in the 1920s by Paton, one of the founding fathers of accounting theory, who stated that: “In the business enterprise, a well-organized and loyal personnel may be a more important "asset" than a stock of merchandise [...] At present, there seems to be no way of measuring such factors in terms of the dollar; hence, they cannot be recognized as specific economic assets. But let us, accordingly, admit the serious limitation of the conventional balance sheet as a statement of financial condition.” But is it not a fact that still we are searching for a scientific and unanimously accepted accounting practices of HRA. During the seventies and eighties, several advocates of human resource accounting, including Hermanson, Likert, Likert and Pyle and Lev and Schwartz, have suggested that HRA could benefit immensely, to both, internal and external stakeholders of any organization. HRA can help in taking a variety of managerial decisions like recruitment planning, staff turnover analysis, personnel advancement analysis and capital budgeting for human resources. External stakeholders must know the investments in human assets in order to evaluate properly assets and profit. The increasing importance of the human resources necessitates an objective and critical evaluation of the existing methods of accounting and valuation. The concept of HRA is not new to India. HRA was pioneered by public sector companies like Bharat Heavy Electricals Ltd.

(BHEL) and Steel Authority of India Ltd. (SAIL) way back in the 1970s. However, the concept did not gain much popularity and acceptance in India. The justification for the present study arises due to paramount significance of HRA practices in the present day knowledge driven economy. The researcher, during literature review found that the existing studies on HRA in Indian context are far from satisfactory. The researcher could not find any latest empirical study on HRA practices followed by Indian companies except a few articles identifying the importance of HRA. The present study is a humble attempt to filling this gap in knowledge.

The objectives of the present study are to:

- Examine the concept of HRA including its utilities and limitations.
- Analyse the various measurement approaches/models of HRA.
- Assess the way of presenting HRA information in the annual report of the Indian companies under study.
- Visualize the expected future of HRA practices in India.

## Literature Review

In 1964, Hermanson wrote an article titled “Accounting for human assets” which reflected the developing concept of many practitioners who were concerned that an organization’s employees were not properly represented or accounted for on the Balance sheet, preventing a true reflection or assessment of the state of business. Many organizations claim their people are their most important asset but, unfortunately, they do not reflect this asset on the Balance sheet. Hermanson suggested various models in his research paper to deal with this. Unfortunately, the very thoughts of treating people as an assets and putting some value on them was so alien to other experts that they rejected the models immediately. The idea did not die, and as it developed it became known as human resource accounting (HRA). This was intellectually more appealing and attracted a number of scholars to study the topic in depth.

In today’s knowledge economy, conventional valuation of assets has been called into question due to the recognition that human resource is an increasingly important part of an entity’s total value. This has led to two important questions: how to assess the value of human capital in addition to an enterprise’s tangible assets and how to improve the development of human capital in enterprises (Jens V. Frederiksen, 1998). According to Punita Jasrotia, while most organizations can readily give detailed information about their tangible assets like plant and machinery, land and buildings, transport and office equipment, there is no formal record of investment in employees. Human assets accounting or human resource accounting (HRA), which stands for measurement and reporting of the cost and value of

people as organizational resources, is still to become an accepted trend in the Indian IT industry(Punita Jasrotia,2000). Although academic research on human resource accounting has been conducted for several decades, specific methods of measuring HR costs and values still remains largely undeveloped.

R.K. Malik (2000) has narrated that accounting of human resources and depiction of such information for decision making process has become a leading topic for advocates of changes in accounting word. There has been an increasing demand of investors and the management for more and more quantitative information about human resources.

R.K. Gupta (2003) has studied the importance of manpower management and the utility of human resource valuation from the view point of management, investors and financiers. The benefits of public disclosure of human resource data in corporate annual reports has been proved by him empirically on the basis of professional opinion obtained through questionnaire survey. He has also studied the practicability of applying in the Indian context some of the HR valuation models. His study very scholarly throws light on the possible impact of human resource data on managerial decisions.

R.K. Patra (2005) has examined the context of application of HRA system in BHEL and its usefulness in organizational achievements. He has concluded in his study that the existing Lev & Schwartz Model of Human Resource Accounting system has been implemented in its right spirit to improve the efficiency and skills of employees associated in BHEL at different level and as a result the organization has since been running in profit.

## Research Methodology

Information has obtained and compiled mostly from annual reports, research journals, reference books and related websites. To fulfill the first two objectives viz. examining the concept of HRA and analysing the various approaches/models of HRA, a detailed and depth study of existing literature has been conducted. To achieve the last two objectives viz. assessing the way of presenting HRA information in the annual report of the Indian companies and visualizing the expected future of HRA practices in India, a detailed study of latest available annual reports of last three financial years (that is, 2012–2013, 2011–2012 and 2010-2011) for all the companies based on **NIFTY** as on 9th April 2014 (**refer to Table 1**) has been done and conclusion has been drawn accordingly.

An annual report is a comprehensive report on a company's activities throughout the preceding year. Annual reports are

intended to give shareholder and other interested people information about the company's activities and financial performance. Most jurisdictions are required for companies to prepare and disclose annual reports. An annual report contains inter alia audited annual accounts, consolidated financial statements, directors' report, auditors' report, the management discussion and analysis (MD&A) report and other important information. Annual reports have been taken as a means of information to analyze HRA practices, because Board of Directors conveys and discloses significant matters through this report. It is viewed as a communication device that allows a corporation to connect with various external and internal stakeholders (Guthrie et al., 2004). **NIFTY** is the leading index for large companies on National Stock Exchange (A premier stock exchange of India). Due to its wide acceptance amongst Indian investors, The **NIFTY** is regarded as the pulse of the Indian stock market. It consists of the 50(fifty) largest and most actively traded companies, representative of various sectors, on the National Stock Exchange (NSE). These companies account for more than fifty per cent of the market capitalization of the NSE. The reasons for selecting these companies are twofold. First, being the largest companies, they are supposed to be the early adopter of the emerging accounting practices like HRA. Secondly, it is assumed that, being the leaders of the sector, they are more forthcoming and committed in disclosing various policies and practices regarding human resources. This research has not been conducted with a large sample, complex statistical analysis entailing quantitative testing of hypotheses. Instead, the researcher has opted for a qualitative research methodology that would provide holistic and meaningful insights to complex questions related to HRA in the contemporary and changing Business India.

The name of 50 companies comprising Nifty as on 10th April 2014, their market capitalization as on date and number of employees based on the latest annual report available, that is, 2012–2013, are listed in **Table 1**.

**Table 1: List of Nifty based companies**

Company	Market Capitalization (Rs. In Crores)	No. of employees
ITC	1,91,430	25,900
Reliance Industries	1,72,267	23,519
Infosys	1,52,252	1,56,608
HDFC	1,44,702	1,833
ICICI Bank	1,44,063	62,065
HDFC Bank	1,41,909	69,065
TCS	1,24,935	2,76,196
L & T	1,09,695	54,092
Tata Motors	97,060	62,716

ONGC	68,861	32,923
Hind. Unilever	66,817	16,000
SBI	60,563	2,28,296
Sun Pharma	50,985	14,000
Axis Bank	49,455	37,901
M & M	47,168	19,434
Wipro	41,523	1,34,541
Bharti Airtel	38,345	15,563
HCL Techno	37,980	90,190
Dr. Reddy's	32,537	16,500
Kotak Mahindra Bank	30,934	23,500
Bajaj Auto	29,257	8,036
Tata Steel	28,404	35,905
United Spirit	26,307	7,500
Asian Paints	25,970	5,236
Tech Mahindra	25,923	83,000
NTPC	25,499	25,484
Maruti Suzuki	25,482	18,911
Ultratech Cement	24,636	12,660
Cairn	24,054	1,299
Lupin	23,528	13,000
Indusind Bank	22,876	11,502
Hero MotoCorp	22,041	5,800
Cipla	20,740	26,000
Hindalco	20,594	20,238
Power Grid	19,739	9,165
GAIL (I)	19,144	3,961
Coal India	18,453	3,57,926
Grasim Industries	18,255	7,332
Tata Power	16,532	4,126
Ambuja Cement	16,419	6,030
IDFC	16,065	238
BHEL	15,981	48,399
Bank of Baroda	15,307	43,108
BPCL	13,069	13,213
ACC	13,042	9,658
Punjab National Bank	12,750	63,292
NMDC	11,870	5,777
Jindal Steel	11,835	7,488
DLF	7,954	2,589
Sesa Sterlite	7,755	13,311

## Concept of HRA

The main purpose of HRA is to evaluate the worth of the human assets of an organization and also to make an effort to mention their worth in the financial statements. It not only involves valuation of all the investments associated with recruitment, training, development and maintenance of the employees in the firm, but also reporting it properly and reliably to all the stakeholders of the organization. The concept of human resource accounting can be basically examined from two

dimensions:(i) the investment in human resources; and (ii) the value of human resources. The expenditure incurred for creating, increasing, and updating the human resource quality is known as investment in human resources. Such investment yields fruitful results like higher productivity and higher income to the organisation. The yields that the investment in human resources generates are considered as the basis of human resource value.

But, the important question is how to calculate human resource value? There are still problems, such as the measurement and disclosure of human resources, as well as how to apply it to the management process, worthy to discuss. For example, which should be put in the dominant place in the disclosure of HR accounting: currency information or non-currency information? How to stimulate human at different level on the basis of human resource value measurement? These problems are worthy putting more efforts into deep research. And we should form a set of complete and effective human resource accounting system which is suitable for our country, developing and utilizing the human resources better to enhance the enterprise's development potential. It is very much important to know that HRA does not only involve measurement of all the costs/investments associated with the recruitment, placement, training and development of employees, but also help quantify the economic value of the people in an organization. Basically, HRA consists of three elements:

- i) Identification and measurement of human capital in figures.
- ii) Identification and measurement of human capital in non-figure terms.
- iii) Provision of information internally and/or externally on human capital.

The term "human resource accounting" ought to be viewed as a metaphor. Human resource accounting is not only a system of accounting for the cost and value of people to organizations; it is also a way of thinking about the management of people in formal organizations (Flamholtz, 1974). Flamholtz identifies three objectives or purposes for human resource accounting. The first objective is to develop methods of measuring human resource cost and value designed to provide a quantitative basis for decision making by managers and investors. The second objective is to develop methods for measuring human resource cost and value necessary to monitor the effectiveness of management's utilization of human resources. The third objective identified by Flamholtz affirms the managerial emphases of human resource accounting. P Mohan Chandran (2005) has suggested that by adopting and implementing HRA in an organization, the following important information could be obtained:

- i. Cost per employee
- ii. Human capital investment ratio
- iii. The amount of wealth created by each employee
- iv. The profit created by each employee
- v. The ratio of salary paid to the total revenue generated
- vi. Average salary of each employee
- vii. Employee absenteeism rates
- viii. Employee turnover rate and retention rate

Conventional accounting principles treat human assets and non-human assets in different way. While balance sheet reflects the recorded value of non-human assets, there is no reflection of human assets. As a result assessment of the total value of an organization becomes very difficult. More over two organizations may be engaged in the same line of business, but the end results in term of growth and profitability may be quite different due to differences in their human assets. Here again HRA helps investors in valuing the organization accurately.

In conclusion we can say that HRA helps various stakeholders to assess the overall performances of human resources being the greatest assets of an organization. It even helps employees to assess whether their efforts are being adequately rewarded according to their performance.

The following poem by Webster (as cited in the book titled 'Human Resource Accounting in Public Enterprises' by R.K.Patra, pp 16-17) has very nicely brought out the utility of HRA:

"Though your balance sheet is a model of what balance sheets should be;  
 Typed and ruled with great precision in a type that all can see;  
 Though the grouping of the assets is commendable and clear;  
 And the details which are given more than usually appear;  
 Though investments have been valued at the scale price of the day;  
 And the auditor's certificate shows everything O.K.;  
 One asset is omitted, and its worth I want to know;  
 That asset is the value of the men, who run the show."

### **Limitations of HRA**

The emphasis on people, likely contributed to the direct criticism of human resource accounting that firms cannot and should not quantify the value of human beings in money terms. Early and recent critics of human resource accounting include those who suggest both conceptual and ethical difficulties in treating people as assets. Human relations and organizational behaviour theorists, in emphasizing the importance and uniqueness of people, contributed to this basic criticism of human resource accounting. Critics of human resource accounting noted that most firms do not own or trade

individuals like other tangible and intangible assets. Opponents of HRA suggest that, while human resource costs might be relevant to decision makers, the valuation models suffer from an intolerable level of subjectivity. Critics also raise the question of ethics about the valuation of human assets. A recently published human asset article begins with an anecdotal reference to slavery and continues by noting how today's production requirements, demand human resource accounting.

HRA has been criticized during the last several years. According to Scarpello and Theeke (1989), HRA is an interesting concept, but they are skeptical about why there has not been a serious effort to develop valid and reliable measures. Roslender and Dyson (1992) maintain that HRA has largely failed to develop in the way of practical applications, and Turner (1996) holds that considering the generally positive views concerning HRA it "has progressed at something less than a snail's pace in the past two decades".

In a nutshell, followings are the limitations which make the arguments of critics strong against the HRA:

- There is no proper, clear-cut and specific procedure or guidelines for finding cost and value of human resources of an organization. The systems which are being adopted have certain drawbacks.
- The period of existence of human resource is uncertain and hence valuing them under uncertainty in future seems to be unrealistic.
- There is a fear that HRA may dehumanize and manipulate employees.
- The much needed empirical evidence is yet to be found to support the hypothesis that HRA as a tool of the management facilitates better and effective management of human resources.
- In what form and manner, their value to be included in the financial statement is the question yet to be classified on which there is no consensus in the accounting profession.
- As human resources are not capable of being owned, retained and utilized, unlike the physical assets, there is problem for the management to treat them as assets in the strict sense.

### **Measurement Approaches/Models of HRA**

It is a known fact that measurement is the process of representing the properties or qualities of objects in numerical terms. But the biggest challenge in HRA is that of assigning monetary values to different dimensions of HR costs, investments and the worth of employees. The monetary value of any resource is nothing but either its utility or the purchasing power, which the possession of a resource gives rise to. The

value of human resources is mostly described in the former sense of use value i.e. in terms of future services expected to be rendered by people.

On scanning through literature, one can broadly classify the important approaches/ model of HRA as under:

1. Cost-Based Approaches:
  - i. Historical cost
  - ii. Replacement cost
  - iii. Opportunity cost
2. Monetary Value - Based Approaches:
  - i. The Harmanson model
  - ii. The Lev & Schwartz Model
  - iii. The Flamholtz Model
3. Non-Monetary Value-Based Approaches:
  - i. The Likert and Bowers Model
  - ii. Brummet, Flamholtz, and Pyle's economic value model
  - iii. Non-Monetary Behavioural Model

### Cost-based Approaches

**Historical cost Method:** The historical cost of human resources is the sacrifice that was made to acquire and develop the resource. These include the costs of recruiting, selection, hiring, placement, orientation, and on the job training. While some of the costs like wages, for instance, are direct costs, other costs like the time spent by the supervisors during induction and training, are indirect costs. Under this method human resources are valued at the unexpired portion of the costs of recruitment, training and development of employees. This is very simple and meets the tests of traditional principles of accounting. It simply involves an extension of the concept of proper matching of cost and revenues.

**Replacement cost Method:** The replacement cost of human resources is the cost that would have to be incurred if present employees are to be replaced. For instance, if an employee were to leave today, several costs of recruiting, selection, hiring, placement, orientation, and on the job training would have to be incurred in order to replace him. Such costs have two dimensions- positional replacement costs or the costs incurred to replace the services rendered by an employee only to a particular position; and personal replacement cost or the cost incurred to replace all the services expected to be rendered by the employee at the various positions that he might have occupied during his work life in the organisation. This requires an estimation of the cost of replacing the existing personnel under present organizational conditions. However, it is difficult to find identical replacement of the existing human resources in actual practice. The determination of such a value will be affected by subjective consideration to a marketed extent and

therefore, the value will differ widely from person to person. Further it lacks verifiability.

**Opportunity cost Method:** This method has been suggested by Hekimian and Jones. According to this method, the value of an employee is determined according to his alternative use. In case an employee has no alternative use, no value will be placed on him. This method specifically excludes those types of employees who can be hired readily from outside. The method suggests competitive bidding process for the scarce employees in an organization. It means that the opportunity cost is linked with scarcity. The opportunity cost of an employee or a group of employees in one department is calculated on the basis of the offers (bids) by other departments for those employees.

### Monetary Value - Based Approaches

**The Harmanson model-Adjusted discounted future wages method:** Present value of future wages payable for next five years discounted at the attributed rate of return is the HR value. The adjusted rate of return refers to average rate of return owned assets of all firms in the economy multiplied by the efficiency ratio of the organization during the last five years on a weighted average basis. Rate of return of a specific organization may not be comparable with other firms in the economy. This model is subjective with respect to present value being restricted for five years, efficiency ratio calculated for past five years and assignment of weightless for past rate of return. Hence, it is too, subjective and cannot be used practically.

**Lev & Schwartz Model:** The Lev and Schwartz model advocated the estimation of future earnings during the remaining service life of the employee and then arriving at the present value by discounting the estimated earnings at the cost of capital. **This model has been widely used in India.** Under this model, the following steps are taken to determine human resources value:

- a. Classification of the entire human resources into certain homogeneous groups like skilled, semiskilled and unskilled etc.
- b. Construction of average earning stream for each group.
- c. Discounting the average earnings at a predetermined rate in order to get present value of human resources of each group.
- d. Aggregation of the present value of different groups which represent the capitalized future earnings of the concern as a whole.

$$V_r = I(t) / (1+k)^{tr}$$

Where,  $V_r$  = the value of an Individual r years old

$I(t)$  = the individual's annual earnings up to retirement

$t$  = retirement age

- k = a discount rate specific to the cost of capital to the company
- r = Present age of the employee

#### Illustration:

Let us understand the application of the Lev and Schwartz model with the help of following data:

- i. Annual average earnings of an employee of a group till the retirement age is Rs. 20,00,000/-.
- ii. Age of retirement is 60 years.
- iii. Cost of capital is 10%.
- iv. Number of employees in the group is 10.
- v. The average age of the employee group is 58 years.

$$\begin{aligned}
 V_r &= I(t)/(1+k)^{tr} \\
 &= 20,00,000 / (1+0.10)^{(60-58)} + 20,00,000 / (1+0.10)^{(60-59)} \\
 &= 20,00,000 / (1+0.10)^{(2)} + 20,00,000 / (1+0.10)^{(1)} \\
 &= 16,52,893 + 18,18,182 \\
 &= \text{Rs. } 34,71,075/-
 \end{aligned}$$

Alternatively, the value of an employee can be computed with the help of Annuity Table. The present value of an annuity of Rs.1 for two years at 10% is 1.736. Hence, the present value of Rs. 20,00,000/- for two years comes to (20,00,000 x 1.736) Rs. 34,72,000/-. This is almost the same as calculated above. Since the total number of employees in the group are 10, hence the total value of human resources of this group comes to Rs. 3,47,20,000/- (34,72,000/- x 10).

**The Flamholtz Model:** According to Flamholtz, the value of an individual is the present worth of the services that he is likely to render to the organisation in future. As an individual moves from one position to another, at the same level or at different levels, the profile of the services provided by him is likely to change. The present cumulative value of all the possible services that may be rendered by him during his/her association with the organisation is the value of the individual. Typically, this value is uncertain and has two dimensions. The first is the expected conditional value of the individual. This is the amount that the organisation could potentially realize from the services of an individual during his/her productive service life in the organization. It is composed of three factors:

- i. Productivity or performance (set of services that an individual is expected to provide in his/her present position);
- ii. Transferability (set of services that he/she is expected to provide if and when he/ she is in different positions at the same level);
- iii. Promoability (set of services that are expected when the individual is in higher level positions).

## Non-monetary Value-based Approaches

**The Likert and Bowers Model:** Likert and Bowers propose causal, intervening, and end-result variables, which determine the group's value to an organization. Causal variables are those which can be controlled by the organization. These variables include managerial behavior and organizational structure. Intervening variables reflect organizational capabilities and involve group processes, peer leadership, organization climate, and the subordinates' satisfaction. Both, the causal and the intervening variables determine the end result variables of the organization. The end-result, dependent variables reflect the achievements of the organization or the total productive efficiency in terms of sales, costs, earnings, market performance etc. They are dependent on the causal and the intervening variables.

**Brummet, Flamholtz, and Pyle's economic value model:** The Brummet, Flamholtz, and Pyle model follows the principle that a resource's value is equal to the present worth of the future services it can be expected to provide, and therefore it can provide a basis of measuring the value of a group of people. According to this method, groups of human resources should be valued by estimating their contribution to the total economic value of the firm. Thus a firm's forecasted future earnings are discounted to determine the firm's present value, and a portion of these earnings is allocated to human resources according to their contribution.

**Non-Monetary Behavioral Model:** Apart from Economics and Accounting, Behavioral Sciences have also played a very important role in the emergence of HRA. The non-monetary methods also measure the human resources but not in money terms. Rather, they rely on various indices or ratings and rankings. These methods may be used as surrogates of monetary methods and also have a predictive value. The non-monetary methods may refer to a simple inventory of skills and capabilities of people within an organization or to the application of some behavioural measurement technique to assess the benefits gained from the Human resource of an organisation.

1. **The skills or capability inventory** is a simple listing of the education, knowledge, experience and skills of the firm's human resources.
2. **Performance evaluation** measures used in HRA include ratings, and rankings.
3. **Ratings** reflect a person's performance in relation to a set of scales. They are scores assigned to characteristics possessed by the individual. These characteristics include skills, judgment, knowledge, interpersonal skills,

intelligence etc. Ranking is an ordinal form of rating in which the superiors rank their subordinates on one or more dimensions, mentioned above.

4. **Assessment of potential** determines a person's capacity for promotion and development. It usually employs a trait approach in which the traits essential for a position are identified. The extent to which the person possesses these traits is then assessed.
5. **Attitude measurements** are used to assess employees' attitudes towards their job, pay, working conditions, etc., in order to determine their job satisfaction and dissatisfaction.

### HRA Information in The Annual Report of The Indian Companies

To assess the way of presenting HRA information in the annual report of the Indian companies a detailed study of latest

available annual reports of last three financial years (that is, 2012–2013, 2011–2012 and 2010–2011) for all the fifty companies based on **NIFTY** as on 9th April 2014 (refer to **Table 1 above**) has been done. On study it has found that out of fifty company only one company i.e. ONGC has valued its human resources and disclose it in its annual report for the financial years 2010-11 and 2011-12. Interestingly, even ONGC have stopped the practice of showing the value of its human resources from the financial year 2012-13.

Here, we may presume that other companies (including ONGC for financial year 2012-13) value their human resources but do not disclosed in their annual report. ONGC has used the Lev and Schwartz model for valuation of human resources which is depicted in **Table No. 2**.

**Table 2: Employees as on 31st March 2012**

Employee Group	Age Distribution				Total Employee Strength	
	< 31	31-40	41-50	51-60	31-03-12	31-03-11
<b>(A) Technical</b>						
Executive	1,765	1,248	6,337	10,343	19,693	19,954
Non-Executive	812	808	946	1000	3,566	3,380
<b>Total (A)</b>	<b>2,577</b>	<b>2,056</b>	<b>7,283</b>	<b>11,343</b>	<b>23,259</b>	<b>23,334</b>
<b>(B) Non-Technical</b>						
Executive	168	477	1,310	3,049	5,004	5,041
Non-Executive	41	458	1,606	2,541	4,646	4,898
<b>Total (B)</b>	<b>209</b>	<b>935</b>	<b>2,916</b>	<b>5,590</b>	<b>9,650</b>	<b>9,939</b>
<b>Grand Total (A+B)</b>	<b>2,786</b>	<b>2,991</b>	<b>10,199</b>	<b>16,933</b>	<b>32,909</b>	<b>33,273</b>

*Note: Whole time Directors excluded*

Valuation# as on 31st March, 2012

(Rs. In millions)

Employee Group	Age Distribution				Total	Value per employee	
	< 31	31-40	41-50	51-60		31/03/12	31/03/11
<b>(A) Technical</b>							
Executive	43,795	35,408	139,987	123,664	3,42,854	17	16.8
Non-Executive	9,541	9,422	13,791	9,608	42,362	12	11.6
<b>Total (A)</b>	<b>53,336</b>	<b>44,830</b>	<b>1,53,779</b>	<b>133,271</b>	<b>3,85, 216</b>	<b>17</b>	<b>16.1</b>
<b>(B) Non-Technical</b>							
Executive	4,157	12,747	25,413	29,894	72,212	14	13.9
Non-Executive	474	5,663	18,932	18,477	43,546	9	9
<b>Total (B)</b>	<b>4,631</b>	<b>18,410</b>	<b>44,346</b>	<b>48,371</b>	<b>1,15,758</b>	<b>12</b>	<b>11.5</b>
<b>Grand Total (A+B)</b>	<b>57,967</b>	<b>63,240</b>	<b>198,124</b>	<b>181,643</b>	<b>5,00,974</b>	<b>15</b>	<b>14.7</b>

*#based on "Lev & Schwartz" model which is a cost based valuation of employee expenditure.*

*#Aggregate future earnings (incremented @4% p.a.) during remaining employment period of employees, discounted @ 8.5% p.a. provides the present valuation.*

## Conclusion, Limitations and Further Research Scope

After going through the Annual Reports of NIFTY based 50 (Fifty) companies listed on National Stock Exchange, we can categorically state that only one Indian company i.e. ONGC is strictly following Human Resource Accounting practices. May be other companies follow the HRA practices but they do not publish the data in Annual Reports probably because it is not mandatory under the Companies Act, 2013. Even the Institute of Chartered Accountants of India (ICAI), the apex accounting body, has not issued any accounting standard on HRA so far. Sveiby (1997) very aptly observed, "some companies measure their intangibles but do not include them in their annual report because they see them as pointless, given current accounting conventions, or because they are afraid, they give away too much information, or because there is no theoretical model for this type of reporting."

The findings of this research contradict the most commonly used adage that people are the most important assets of a company. It is unfortunate that the most valuable assets of an organization, its human assets do not appear as an asset in the company's Balance Sheet. Various researches have already proved beyond any doubt the utility of HRA for all stakeholders whether external or internal. Still Indian companies are not showing interest in the area. In the opinion of this researcher the biggest hindrance in widely acceptance of HRA is the absence of a practical and scientific model for valuing HR. There is an urgent need to develop a widely acceptable HR valuation model. An interesting point to note here is that many of the intangible assets, viz. brands, trademarks, copyright, patents etc. now have reasonably established accounting and reporting treatments associated with them. The Indian financial accounting standards and its reporting systems have been moving toward adoption of more complex measurement methods compared with the traditional historical cost approach to asset measurement. The strong inclination of Accountants and others in the financial reporting environment toward international financial reporting standards (IFRS) is another indication that the fertile ground is being prepared to develop and the use of non traditional assets measurements methods such as the value of human resources. As Roslender and Dyson (1992) has rightly mentioned that HRA "is not a subject that will willingly disappear, simply because of its potential to significantly influence the management of people." This is the high time for Financial Accountants to look beyond the Companies Act. Similarly, there is a dire need that Human Resource Managers come out of the ambit of routine Personnel Management. A Finance Manager should understand people management and a HR Manager should understand the concept of Return on Investment (ROI) and various assets

(tangible as well as intangible) valuation models. Moreover, the experts, both from academic as well as industry will have to with all earnestness evolve a HR valuation model which should be acceptable to all.

The findings of this study must be interpreted with reference to one of the most important limitations of this study, which in turn provide motivation for further research. The analysis of the Annual reports is based on only NIFTY based fifty companies, which means that the findings should not be generalized for all Indian companies. This necessitates a much wider and deeper empirical research through survey and interviews based on a larger sample which this researcher is already carrying out as a part of doctoral thesis.

## References

1. *American Accounting Association (1973): "Report of the committee on human resources accounting", The Accounting Review, vol.48 pg. 169-85 supplement.*
2. *Brummet, R.L., Flamholtz, E.G. and Pyle, C.P. (1968): Accounting for human resources, Michigan Business Review, Vol. 20 No.2 pp 20-25.*
3. *Bullen & Eyer (2010): "Human Resource Accounting", Journal of International Business and Cultural Studies, pp 01-16.*
4. *Chandran P Mohan (2005): Human Resources Accounting in Infosys, Human Capital Accounting and Valuation, The ICAI University Press, pp 225-245.*
5. *Flamholtz, E.G. (1974): "Human resource accounting: a review of theory and research", Journal of Management Studies, Vol. 11 No. 1, pp. 44-61.*
6. *Gupta R.K. (2003): "Human resource accounting", Ammol Publication Pvt. Ltd New Delhi-India.*
7. *Guthrie, J., Petty, R., Yongvanich, K., & Ricceri, F. (2004). Using content analysis as a research method to inquire into intellectual reporting. Journal of Intellectual Capital, 5(2), 282-293.*
8. *Hermanson, R.H. (1964): "Accounting for human assets", East Lansing Mich.: Bureau of Business and Economic Research. Pp 133-137.*
9. *Jasrotia Punita, (2002), "The need for human resource accounting", <http://www.itpeopleindia.com/20021216/cover.shtml>.*
10. *Korant, H. M. (2011): "Importance of Human Resource Accounting in the Era of Economic Recession", RNI: RAJBIL 2009/30097, VOL.III /ISSUE 27, pp. 43-44.*
11. *Malik R.K. (2000): "Human resource accounting and decision making", Anmol Publication Pvt. Ltd, New Delhi-India.*
12. *Patra R.K. (2005): Human Resource Accounting in Public Enterprises, Himalaya Publishing House, Mumbai.*

13. Roslender R. and Dyson J.R. (1992): *Accounting for the worth of employees: a new look at an old problem*, *British Accounting Review*, December, pp.311-329.
14. Sveiby, K.E. (1997). *The new organizational wealth: Managing and measuring knowledge-based assets*. San Francisco: Berrett-Koehler Publishers Inc.

15. Turner, G. (1996): "Human resource accounting - whim or wisdom?" *Journal of Human Resource Costing and Accounting*, Vol. 1 No. 1, pp. 63-73.

# US Subprime Crisis and Macro Economic Factors: Relooking into the Past and Learning for the Future

Pradeep Kumar Panda\*

## Abstract

*US Subprime Crisis (2008) is characterized by contracted liquidity in global credit markets and banking systems triggered by the failure of mortgage companies, investment firms and government sponsored enterprises which had invested heavily in subprime mortgages. The present study analyses the basic factors that led to growth of subprime market, hence try to identify the macroeconomic factors which played a crucial role to stabilize and later destabilize the entire framework. We examine the dynamic linkages and interdependence between various macro economic factors of the US economy namely house price inflation, GDP and federal interest rate using monthly data covering the period February 1992 to December 2008 using Johansen-Juselius cointegration, vector auto regression (VAR) and vector error correction model (VECM). From the study, we can conclude that at least statistically, with some level of confidence that there is a long run stable equilibrium between these factors and hence we can go ahead with the different innovation processes although the result should be accepted with calibrated skepticism. The need of the hour is regulation in order to achieve the stability of the world economy as a whole.*

**Keywords:** US Subprime Crisis, Cointegration, Dynamic linkages and interdependence, VAR, VECM

## Introduction

The Global Financial Crisis (2008) or Global Economic Crisis or Subprime Crisis is characterized by contracted liquidity in global credit markets and banking systems triggered by the failure of mortgage companies, investment firms and government sponsored enterprises which had invested heavily in subprime mortgages. The years 2007 and 2008 witnessed the worst turmoils in the global financial system. The crisis which originated in US mortgage market in the latter part of 2006 and 2007 engulfed not only the entire financial sector of the US, but also that of other mature economies like Germany, Great Britain, Japan and Switzerland. The derivatives, once sold as hot cakes in financial market, were proved to be weapons of mass destruction. Fall of giants like Lehmann Brothers, AIG just showed the lethal repercussions that this crisis has carried forward with itself. The widespread effects of the crisis have compelled the central banks of different countries as well as different authorities to undertake several damage control

policies so as to stabilize the situation. The global financial crisis reverberated the stock markets across the world, from the Wall Street to Dalal Street, and led to sharp declines in stock markets, currencies and other asset prices and it also threatened countries' financial systems and disrupted their real economies, with large contractions in activity.

There are certain subprime puzzles and issues. The first relates to the constellation of factors triggering off the Subprime problem. What is surprising however is the magnitude of the meltdown it has caused and the extent of the output-cum-employment loss effected: both are already disproportionately large in relation to the incidence of default in the mortgage market. *Direct* subprime losses, estimated at around \$34 billion (up to November 2007), are not insignificant; but compared to \$57 trillion US financial system, the amount is not that huge. Most analysts including IMF expected the subprime defaults to leave the rest of the financial sector and real sector relatively

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unscathed. It is for this reason that the virulence of the subprime contagion caught everybody by surprise.

The second issue concerns the failure of highly sophisticated risk-management techniques (as well as the credit rating models) developed by banks and other financial institutions. In particular, securitization of loans, structured investment vehicles (SIVs) and collateralized debt obligations (CDOs) were specifically designed to reduce risk and improve the shock absorptive capacity of the banking system through dispersal of risk on a wide scale. At the same time, robust US economy growth, declining rate of unemployment, large gap between home price inflation and borrowing rate along with a supply shift in the housing market created a psychological environment where people tended to believe that the congenial conditions (especially house price rise) are sustainable. So, in this context, the sharp slide in the economy in so short a while appears puzzling and is hard to explain in terms of the conventional chain of economic causation, remembering that an annual loss of \$34 billion on subprime mortgages constitutes only about a 0.25 per cent cut of the US gross domestic product. Compared to the primary shock, (by the way of the rise in default) arising from subprime market, the magnitude of monetary stimulus provided by FED has been significantly large.

Subprime lending consists of loans extended to borrowers with weak credit characteristics, signifying a relatively high probability of default. These characteristics include low FICO scores (usually 660 or less); two 30-day delinquencies in the last 12 months or one 60-day delinquency over the last 24 months; bankruptcy in the last 5 years; and a debt service-to-income ratio of 50 per cent or more. Given these characteristics, it is not very difficult to appreciate why subprime lending had not been very significant in the US mortgage market for a long while. Subprime mortgages started gaining in importance only from the mid-1990s; but within 12 years their share in total mortgage origination jumped from 4.5 per cent in 1994 to more than 20 per cent in 2006.

The most important legal initiatives that paved the way for an accelerated rise in subprime originations were:

- (a) Depository Institutions Deregulatory and Monetary Control Act, 1980;
- (b) Alternative Mortgage Transactions Parity Act, 1982; and
- (c) Tax Reforms Act, 1986.

The first two acts removed some important constraints on lenders under the earlier legal regime constraints that tended to seriously limit the commercial viability of subprime mortgages. The main provisions of the two acts having an important bearing on subprime lending consisted of the

following:

- (i) Phasing out of "Regulation Q" during the 1980s under which deposit rates offered by financial entities were strictly regulated by the Fed;
- (ii) Removal of ceilings on mortgage rates through abolition of State Usury Laws;
- (iii) Abolition of the geographical boundary within which the operation of an individual mortgage lending agency had to be confined; and
- (iv) Liberalization in respect of the types of mortgages that could be offered.

The State Usury Laws were thus a major factor inhibiting the supply of credit in the subprime market since the according to it lending rate needed to be positively related to the risk of default, and hence it was necessary for subprime mortgage rates to be higher than those set for prime (or Alt-A) borrowers. Again, to garner funds for less creditworthy borrowers, the depositors were needed to be offered higher interest rate. 1980 and 82 reforms scrapped these obligations and ensured that subprime mortgages would be driven by market forces with deposit and lending rates guided by the extent of risk aversion of savers and borrower's risk of default. The removal of ceilings on deposit and lending rates along with abolition of geographical restrictions opened up opportunities for extension of loans to subprime borrowers with proper pricing of risks and created favorable conditions for effective management of these risks. These congenial legal conditions were exploited by private players and the last 12 to 13 years saw the proliferation of ARMs (adjustable rate mortgages).

Between 1980 and mid-2007 the outstanding GSE Mortgage Backed Securities (MBSs) recorded a 20-fold rise, from \$200 billion to \$4 trillion. The MBSs created by GSEs were very good assets since they were backed by Government. But, the real story was something else.

The point to note here is that the assessments were base on complex statistical analysis which was supposed to function as a good substitute for risk monitoring (as provided by individual branch bank manager in case of traditional banking system). The somewhat fictitious good payment record, (highly influenced by steeply rising house prices) fed into the mathematical model of rating agencies, made the results biased in its favor. Thanks to the subprime market, there was a significant rise in the home ownership among the ethnic and poor families. For USA as a whole households having own houses jumped from 64% in 199 to 69.3% in 2004. This may be regarded as a structural shift in the US housing market.

Finally, investment in A or A-plus rated SMBSs could be highly leveraged through issue of asset-backed commercial papers

(ABCPs) or short-term loans from banks. But the question remains as to why the assets were given such high ratings and whether the ratings were reliable.

These can be traced back to the macroeconomic environment, changes in the policy regime and house price inflation. The macroeconomic conditions during the period were highly congenial, which almost compelled the economic agents to rationally predict that, that kind of environment was sustainable. Annual average GDP growth was at 3.2 per cent during the reference period significantly above the rate attained over the previous two decades, but the higher growth was also accompanied with perceptibly lower amplitude of cycles and a decline in the average CPI and core inflation rates. This benign macroeconomic environment provided a boost to long-term investment, especially that in housing. Steeply rising home prices, the wide gap between the house price and CPI inflation rates, a low interest rate regime and large loan-to-value ratios—a heady combination that made mortgage financed investment in housing an irresistible investment opportunity. Between January 2001 and June 2003 the federal funds rate was brought down by as much as 550 basis points, from 6.5 to 1.0 per cent; only at end June, was the rate revised to 1.25 per cent. Even while the rates were being raised, the Fed's policy statements led investors to believe that the upward revisions in the funds rate if any would be slow, in "measured" steps. At the same time, between Q1, 2001 through Q1, 2006 the house price inflation rate was persistently double digit and averaged 14.3 per cent, but the average CPI and core inflation rates were no more than 2.6 and 2.1 per cent respectively.

These are some of the very important observations. The rise in house prices were believed to be sustainable and also the data helped the statistical analyses like FICO scores to bias the result in favor of further investment in the above assets. The constellation of factors noted above played a crucial role in rapid expansion of the subprime market between 2001 and 2006. The large gap between the home price inflation and the borrowing rate along with a loan-to-value ratio of around 80 per cent led to a sharp rise in demand for mortgage financed houses, which in its turn contributed towards sustaining the upward trend in house prices which gave rise to the phenomenon of self-fulfilling expectations. The impact of supply shift in the subprime market was also remarkable. Apart from the enabling legislations and the technological-cum-financial innovations considered earlier, the significant fall in the default rate of subprime mortgages constituted an important reason behind this shift.

But, why there was significant fall in the default rate? It was because of the fact that the double digit inflation rate of house prices was much above the tax-deductible mortgage rate. In

times of financial stress, instead of defaulting it became worthwhile for a borrower to sell the house outright or refinance the mortgage taking advantage of the accumulated home equity and the cheap interest rate. When the housing prices were constantly increasing, borrowers with inadequate income could cover mortgage repayment by borrowing further money against increased value of their house. The decline in the default rate raised the credit scores of prospective subprime borrowers. This made a larger fraction of them eligible for mortgage loans; raised the flow of funds in the subprime market; and brought down the interest spread on subprime loans, something which further raised demand in the housing market. Hence the mutually reinforcing mechanism of house price inflation and the increasing flow of subprime credit.

In short Subprime crisis can be viewed as a failure of the financial securitization mechanism. The entire model worked with the presumption that the mechanism is sustainable. We should also note that the amendments in legislations, the securitization process and other prerequisites for the growth of sub prime market such as financial innovations took place in late 80s and early 90s. We will try to find out the underlying factors responsible for rapid growth of subprime lending and major macroeconomic features characterizing the viability and sustainability of these loans. We will see that macroeconomic variables like interest rate, GDP, house price inflation over CPI inflation have created the congenial environment for different financial innovations like securitization, CDOs, SIVs etc.

The remainder of this paper is structured as follows. Section II gives objectives of the study. Section III presents the nature, sources and preliminary analysis of the data and also the methodology and presents some theoretical considerations. The empirical results and findings are presented in section IV. Finally, Section V concludes with a summary, learning and policy implications.

### **Objective of the study**

The present study will analyse the basic factors that led to growth of subprime market, hence try to identify the macroeconomic factors which played a crucial role to stabilize and later destabilize the entire framework.

The paper will examine long term and short term dynamic price linkages and interdependence between three macro economic factors of the US economy namely GDP, House Price Inflation, Fed Interest rate. Finally, the paper will suggest policy implication regarding the regulation of the economy. If the presumption of a long-run stable relationship is true, that is if statistically we can show that there exists a long-run stable relationship between the factors affecting mortgage market,

housing sector and economy as whole then, we can say at least statistically with a given amount of probability, that in long run the impact of the crisis will die down gradually and the cycle will be reestablished.

### Methodology and Data Source

The study examines the dynamic linkages and interdependence between various macro economic factors of the US economy namely house price inflation, GDP and Federal interest rate covering monthly data points spanning from the period February 1992 to December 2008. Second, this research examines the long-term and short-term dynamic relationship among the macro economic variables using Johansen-Juselius cointegration, vector error correction model and vector auto regression analysis.

We take into consideration GDP (showing the health of economy as a whole), the house price inflation (showing the condition of the housing market) and the federal funds rate which encompasses the policy variables undertaken by the controlling body.

All the relevant data obtained from International Financial Statistics. We take into consideration the monthly house price index of USA provided by office of the federal housing enterprise oversight. We calculated the house price inflation for the relevant period. Thus data are collected on the same dates across the three variables and there are 210 observations for each series.

### Empirical Results and Findings

We take into consideration house price inflation, GDP and federal funds rate. We begin with our analysis by conducting the tests for presence of unit roots in the variables. At the very beginning of a cointegration exercise, it is required to be checked that all the variables are of order (I). Accordingly, we applied standard unit root tests viz., the augmented Dickey Fuller (ADF) test and the Phillips – Perron (PP) test on the level values.

#### Analysis of House Price Inflation

We take into consideration the House Price Inflation since it is a major macroeconomic indicator, guiding and showing the condition of the housing market of the US economy.

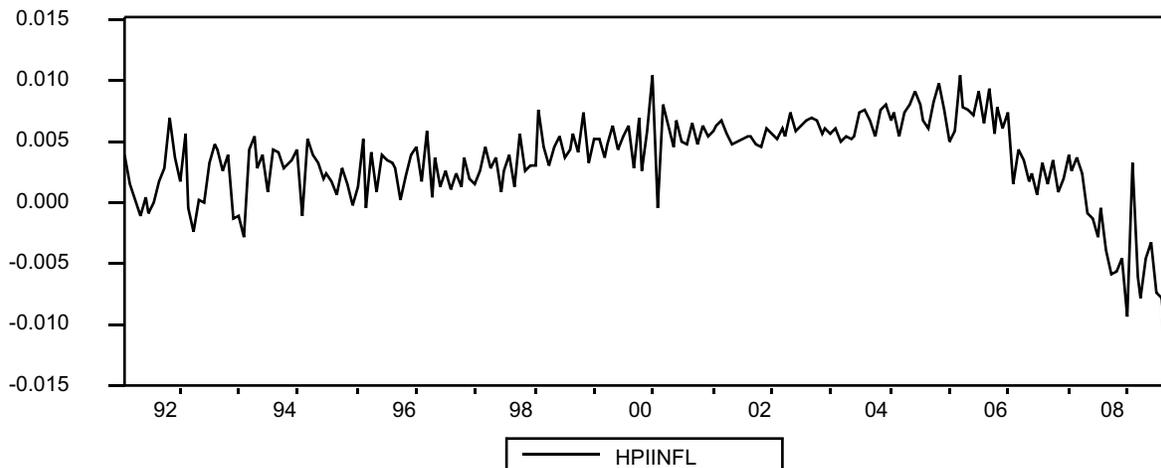


Figure 1. Time Series Plot of HPI Inflation at level values

Table 1: Unit Root Test Results for House Price Inflation

Variable	Level (ADF)	First Difference (ADF)
HPIINFL(-1)	-0.031902	0.976232*
D(HPIINFL(-1))	-0.669784	0.283681*
D(HPIINFL(-2))	-0.272221	0.067366*

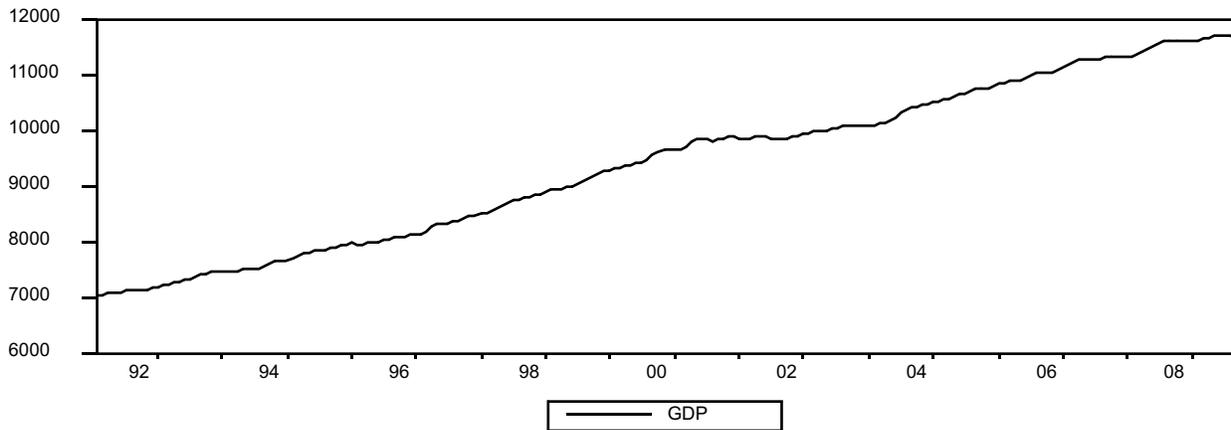
\* denotes no unit root in the series. The MacKinnon critical values for ADF and PP test are -3.9736, -3.4173, -3.1307 with intercept and trend at 1 %, 5%, and 10 % significance level respectively.

From the above result, we find out that value of the test statistic is greater than the critical value, that is it lies to the right of critical value. Thus, the null hypothesis of unit root can not be rejected. In order to show that the variable is  $I(1)$ , we take the first difference of the values and carry out ADF testing on the first differenced values. From the above result it is clear that null hypothesis of unit root is rejected. Hence, hpi\_inflation becomes stationary at its first differenced state. Hence, from

ADF testing, we conclude that hpi\_inflation is integrated of order one.

**Analysis of GDP:**

We take into consideration the GDP of the US economy rate since it is a major macroeconomic indicator, guiding and shows the health of economy as a whole.



**Figure 2: Time Series Plot of GDP at level values**

**Table 2: Unit Root Test Results for GDP**

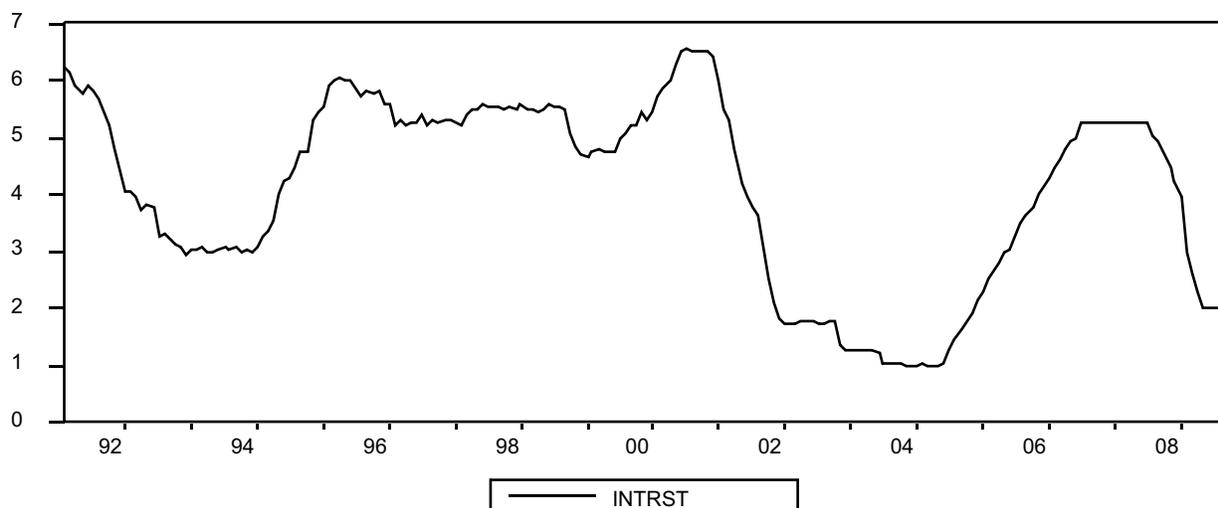
Variable	Level		First Difference	
	ADF	PP	ADF	PP
GDP(-1)	-0.000200	0.002275	-0.112438*	-0.203779*
D(GDP(-1))	2.569300	–	1.686767*	–
D(GDP(-2))	-3.134719	–	-1.458919*	–
D(GDP(-3))	2.044278	–	0.595839*	–
D(GDP(-4))	-0.590811	–	–	–

From the above result, we find out that value of the test statistic is greater than the critical value, that is it lies to the right of critical value. Thus, the null hypothesis of unit root can not be rejected. We carry out PP test also to substantiate our claim. From the PP test result, we conclude that null hypothesis of unit root can not be rejected in favour of the alternate hypothesis of no unit root. In order to show that the variable is  $I(1)$ , we take the first difference of the values and carry out ADF testing and PP testing on the first differenced values. From the above result it is clear that null hypothesis of unit root is rejected. Hence,

GDP becomes stationary at its first differenced state. Hence, from ADF testing, we conclude that GDP is integrated of order one. From the above result it is clear that null hypothesis of unit root is rejected. Hence also from PP testing, we conclude that GDP is integrated of order one.

**Analysis of interest rate**

We take into consideration the US Federal Funds rate since it is a major macroeconomic indicator, guiding and influencing the policies undertaken by different financial agents.



**Figure 3: Time Series Plot of funds rate at level Values**

**Table 3: Unit Root Test Results for FED Interest Rate**

Variable	Level		First Difference	
	ADF	PP	ADF	PP
INTRST(-1)	-0.016005	-0.005335	-0.236156*	-0.396119*
D(INTRST (-1))	0.372814	–	-0.380103*	–
D(INTRST (-2))	0.197128	–	-0.189771*	–
D(INTRST (-3))	0.215186	–	0.595839*	–

From the above result, we find out that value of the test statistic is greater than the critical value, that is it lies to the right of critical value. Thus, the null hypothesis of unit root can not be rejected. We carry out PP test also to substantiate our claim. From the PP test result, we conclude that null hypothesis of unit root can not be rejected in favour of the alternative hypothesis of no unit root. In order to show that the variable is  $I(1)$ , we take the first difference of the values and carry out ADF testing and PP testing on the first differenced values.

From the above result it is clear that null hypothesis of unit root is rejected. Hence, INTRST becomes stationary at its first differenced state. Hence, from ADF testing, we conclude that INTRST is integrated of order one. From the above result it is clear that null hypothesis of unit root is rejected. Hence also from PP testing, we conclude that INTRST is integrated of order one.

Thus all the variables are integrated of the same order; we can say that a cointegrating relation exists if a linear combination of

these variables is of a lower order (in this case it has to be  $I(0)$ , that is, a stationary series).

We now carry out the computations required for finding the cointegrating rank 'r' and then estimating the cointegrating vector  $\beta$  for the system of equations involving these three  $I(1)$  variables. Using Johansen's ML – based reduced rank (RR) regression procedure test statistic was computed to determine the number of cointegrating vectors.

At first, we calculate the number of endogenous lags included in the VECM analysis. We take into consideration different information based criteria like AIC, HQC, SIC to determine the lag length. We take into consideration the value suggested by Schwartz criterion since it has suggested the lowest number of lag (4) values to be included in the VECM specification. We should note that including an extra lag in this VAR model will amount to addition of 4 terms into each equation and hence an addition of 12 terms into the structure making the process difficult to interpret. Hence addition of each extra lag should be considered with calibrated skepticism.

We now try to estimate the rank 'r'. Because, we need lag values as well as the rank to estimate VECM model in Johansen's procedure. We apply trace test as suggested by Johansen to determine the cointegrating rank. We thus report below the values of the two test statistics under the assumption of a constant term and a linear trend term in the cointegrating equation. We allow for both intercept and linear trend term to have a more general model.

**Table 4: Johansen Trace Test Result**

r0	LR	pval	90%	95%	99%
0	46.09	0.0215	39.73	42.77	48.87
1	15.15	0.5690	23.32	25.73	30.67
2	3.67	0.7843	10.68	12.45	16.22

From the above result we observe that the value of test statistic under the null hypothesis of no cointegration (i.e.  $r = 0$ ) is 46.09 which is higher than the corresponding critical value of 42.77 at 5% level of significance, and hence the conclusion is that the null of no cointegration is rejected in favour of cointegration involving the three time series. The next test for the null hypothesis in sequence viz.,  $r = 1$ , can't, however, be rejected in favour of the corresponding alternative of  $r > 1$  as the computed value of 15.15 is now smaller than the 5% critical value given as 25.73. We can thus conclude that suggests that there can be at most one cointegrating relations involving these time series variables.

It is noteworthy to point out that the value of test statistic under the null hypothesis of no cointegration (i.e.:  $r = 0$ ) is 46.09 which is lower than the corresponding critical value of 48.87 at 1% level of significance, and hence null hypothesis can't be rejected at 1% level of significance. This implies that at least statistically the cointegrating relationship is not highly prominent. If we allow for an orthogonal trend and intercept term in our VAR specification, then we have the following result:

**Table 5: Johansen Trace Test Result with orthogonal trend and intercept term**

r0	LR	pval	90%	95%	99%
0	27.39	0.0944	27.16	29.80	35.21
1	9.21	0.3525	13.42	15.41	19.62

From the above result result we observe that the value of test statistic under the null hypothesis of no cointegration (i.e.  $r = 0$ ) is 27.39 which is lower than the corresponding critical value of 29.80 at 5% level of significance, and hence the null hypothesis can't, however, be rejected in favour of the corresponding alternative of  $r > 0$ . Once we have obtained the number of endogenous lags and the cointegrating rank, we can now carry out the Vector Error Correction Mechanism (VECM) analysis with lag value 4 and cointegrating rank equal to 1. The results of the analysis are as follows:

**Table 6: VECM Representation**

**Lagged endogenous term:**

	d (gdp)	d (hpi_inflation)	d (interest_rate)
d(gdp) (t-1)	2.542*	0.000*	0.000*
d(hpi_inflation)(t-1)	-103.322	-0.768*	-8.150***
d(interest_rate)(t-1)	-2.424**	-0.001*	0.330*
d(gdp) (t-2)	-3.092*	0.000*	0.005*
d(hpi_inflation)(t-2)	-78.186	-0.456*	-1.447**
d(interest_rate)(t-2)	2.033**	-0.002*	0.165*
d(gdp) (t-3)	2.016*	0.000*	-0.005*
d(hpi_inflation)(t-3)	-3.934	-0.239*	6.852**
d(interest_rate)(t-3)	-3.029**	0.003*	0.170*
d(gdp) (t-4)	0.580*	0.000*	0.004*
d(hpi_inflation)(t-4)	-142.778	-0.103*	1.764**
d(interest_rate)(t-4)	4.535**	0.000*	-0.015*

**Deterministic term:**

	d (gdp)	d (hpi_inflation)	d (interest_rate)
CONST	41.705	-0.004*	0.801*
TREND(t)	0.132*	0.000*	0.003*

\* denotes significance level at 1 %, 5%, and 10 % respectively.

**Table 7: VAR Representation**

Modulus of the eigenvalues of the reverse characteristic polynomial:

|z| = (1.0634 1.0634 1.1947 1.1947 1.7826 1.7826 1.6739 1.6739 2.1426 2.1426  
1.1612 1.0774 16.3685 1.0000 1.0000)

**Lagged endogenous term:**

	Gdp	hpi_inflation	interest_rate
gdp (t-1)	3.536*	0.000*	0.000*
hpi_inflation(t-1)	190.866	0.195*	-1.500***
interest_rate(t-1)	-2.297**	-0.001*	1.333*
gdp (t-2)	-5.634*	0.000*	0.005*
hpi_inflation(t-2)	25.136	0.312*	6.702**
interest_rate(t-2)	4.457**	-0.001*	-0.166*
gdp (t-3)	5.107**	0.000*	-0.009*
hpi_inflation(t-3)	74.252	0.217*	8.299**
interest_rate(t-3)	-5.062**	0.005*	0.006*
gdp (t-4)	-2.595*	0.000*	0.008*
hpi_inflation(t-4)	-138.844	0.137*	-5.088**
interest_rate(t-4)	7.564**	-0.003*	-0.185*
gdp (t-5)	0.580*	0.000*	-0.004*
hpi_inflation(t-5)	142.778	0.103*	-1.764**
interest_rate (t-5)	-4.535**	0.000*	0.015*

**Deterministic term:**

	gdp	hpi_inflation	interest_rate
CONST	41.705*	-0.004*	0.801*
TREND(t)	0.132*	0.000*	0.003*

\*denotes significance level at 1 %, 5%, and 10 % respectively.

The estimated VECM which captures the short-run dynamics involving the three time series are presented in equations below.

$$\begin{aligned} \Delta \text{gdp}_t = & -0.006 \text{gdp}_{t-1} + 2.542 \Delta \text{gdp}_{t-1} - 103.322 \\ & \Delta (\text{hpi\_inflation})_{t-1} - 2.424 \Delta (\text{intrst\_rt})_{t-1} - 3.092 \Delta \text{gdp}_{t-2} - \\ & 78.186 \Delta (\text{hpi\_inflation})_{t-2} + 2.033 \Delta (\text{intrst\_rt})_{t-2} + 2.016 \Delta \text{gdp}_{t-3} - \\ & 3.934 \Delta (\text{hpi\_inflation})_{t-3} + 3.029 \Delta (\text{intrst\_rt})_{t-3} - 0.580 \Delta \text{gdp}_{t-4} - \\ & 142.778 \end{aligned}$$

$$\Delta (\text{hpi\_inflation})_{t-4} + 4.535 \Delta (\text{intrst\_rt})_{t-4} + 41.705 \text{const.} + 0.132t + u_{1t}$$

$$\begin{aligned} \Delta (\text{hpi\_inflation})_t = & 0.000 \Delta (\text{hpi\_inflation})_{t-1} - 0.000 \\ & \Delta \text{gdp}_{t-1} + 0.768 \Delta (\text{hpi\_inflation})_{t-1} - 0.001 \Delta (\text{intrst\_rt})_{t-1} - 0.000 \Delta \text{gdp}_{t-2} - \\ & 0.456 \Delta (\text{hpi\_inflation})_{t-2} - 0.002 \Delta (\text{intrst\_rt})_{t-2} + 2.016 \Delta \text{gdp}_{t-3} - \\ & 0.239 \end{aligned}$$

$$\begin{aligned} & \text{?(hpi\_inflation)t-3} + 0.003 \text{?(intrst\_rt)t-3} - 0.000 \text{?gdp t-4} - \\ & 0.103 \end{aligned}$$

$$\text{?(hpi\_inflation)t-4} - 0.000 \text{?(intrst\_rt)t-4} - 0.004 \text{const.} + u_2t$$

$$\begin{aligned} & \text{?(intrst\_rt)t} = 0.000 \text{(intrst\_rt)t-1} - 0.000 \text{?gdp t-1} - 8.150 \\ & \text{?(hpi\_inflation)t-1} + 0.330 \text{?(intrst\_rt)t-1} + 0.005 \text{?gdp t-2} - \\ & 1.447 \end{aligned}$$

$$\begin{aligned} & \text{?(hpi\_inflation)t-2} + 0.165 \text{?(intrst\_rt)t-2} - 0.005 \text{?gdp t-3} + \\ & 6.852 \end{aligned}$$

$$\begin{aligned} & \text{?(hpi\_inflation)t-3} + 0.170 \text{?(intrst\_rt)t-3} + 0.004 \text{?gdp t-4} + \\ & 1.764 \end{aligned}$$

$$\begin{aligned} & \text{?(hpi\_inflation)t-4} - 0.015 \text{?(intrst\_rt)t-4} + 0.801 \text{const.} + \\ & 0.003 t + u_3t \end{aligned}$$

After normalizing with respect to GDP, this cointegrating relation involving the three time series variables is given by:

$$\text{Gdp} - 50379.225 \text{ hpi\_inflation} - 21.734 \text{ intrerest\_rate}$$

The above analysis suggests the presence of a cointegrating relation although the presence of the relation is not that profound. We began our analysis with the notion that if the presumption of a long-run stable relationship is true, that is if statistically we can show that there exists a long-run stable relationship between the factors affecting mortgage market, housing sector and economy as whole then, we can say at least statistically with a given amount of probability, that in long run the impact of the crisis will die down gradually and the cycle will be reestablished. What we observe from the above analysis is that the stability in long run is not that straight forward. Hence, the policies that are going to be undertaken in the future should be taken with great caution and care. As suggested by the above analysis, the validity and viability of the smooth functioning of the mortgage market, housing sector and the economy as a whole can be expected, but definitely with a pinch of salt. As we have already found, the existence of a cointegrating relationship is rejected at 1% level of significance. Also when we allow orthogonal trend and an intercept term, the null of existence of cointegrating relationship is rejected at 5% level of significance.

## Learning and Concluding Remarks

Hence, summing up all these we conclude that, taking into consideration data of the given variables and given the limited framework of statistical analysis, we can say at least statistically, with some level of confidence that there can be a long run stable equilibrium between these factors and hence we can go ahead with the different innovation processes although the result should be accepted with calibrated skepticism.

In retrospect we can conclude that due to increased financial integration of the world, risks emanating in one country are being transmitted to other nations. There is no doubt that the financial system of the entire world was under great strain. The basic cause of the crisis was largely an unregulated environment, mortgage lending to subprime borrowers. Since the borrowers did not have adequate repaying capacity and also because subprime borrowing had to pay two-to-three percentage points higher rate of interest and they have a history of default, the situation became worse. But once the housing market collapsed, the lender institutions saw their balance-sheets go into red.

**Policy Strategy:** What does all this mean for macroeconomic and financial policy strategy in the years ahead? As a first goal, and one that is unchanged by the crisis, macroeconomic and financial policy should seek to provide a stable backdrop for economic activity. The familiar guideposts of price and financial stability remain relevant. As a second goal, policy might try to buffer and insulate the economy to some extent from disturbances. Third, while buffering to the degree possible given limited knowledge, policy should allow resource allocation signals to come through as undistorted as possible. Within this high-level policy framework, the stresses on fiscal and monetary policy in many economies have led to new policy challenges. Policy interest rates are very low and fiscal deficits very large in many countries. Finally, exchange rates and relative prices and wages are shifting due to commodity market developments.

**Financial Regulation and Supervision:** The crisis confirmed that the financial system's central economic role, and sudden escalation of systemic problems, make it politically very difficult to ensure that a bank's shareholders and creditors bear the full costs of the bank's failure when the entire system is under threat. Weak banks, effectively holding the economy to ransom, readily pass their liabilities and risks on to governments. Authorities' priority in the midst of a financial crisis tends to be focused on ensuring that the liquidity crunch conditions sparked by bad banks do not drag good banks under. All the various forms of official support involve unpalatable market distortions and incentives for further bad behaviour (moral hazard). While equity stakes capture some upside from the rescue for the government, they also involve difficult governance problems. Junior debt leaves the government with credit risk but no influence over risk-taking. Senior bank debt limits the government's credit risk, but can make the bank's fragility worse by scaring off private investors. Government guarantees of deposits and other liabilities might limit the upfront cashflow implications of financial support, but cast the shadow of moral hazard very broadly. With reduced credit demand, costly funding and stricter regulations, the banking

sector is going to have to get used to more restrained returns. The financial system's basic function is to make credit judgements across uncertain investment propositions, to monitor borrowers' performance and creditworthiness, and to price credit accordingly. Restoring that function is the ultimate goal of financial reform. The sobering experience of the crisis underlines the difficulty of getting the right balance of light-handed versus heavy-handed supervision. Supervisors, financial institutions, credit rating agencies and everyone else inevitably see financial and economic developments imperfectly, both ex ante and ex post. It is therefore unrealistic to expect to be able to reduce the probability of a systemic crisis to zero. Part of the strengthening of the financial system overall must therefore include practical preparation for further crises. This includes regulation and supervision with an eye to ensuring that a crisis can be dealt with effectively, should it eventuate.

**Macro-Financial Policy:** We learned in the crisis that a "micro-prudential" focus on the soundness of individual institutions does not ensure that the whole system will continue functioning under adverse conditions. Part of the international response is macro-financial policy, a new focus of policy development concerned with the stability of the financial system as a whole, and on financial behaviour and its interactions with the economy. Macro-financial policy acts on the structure of financial institution balance sheets and behaviours across the whole system. Such controls add to micro-prudential controls to ensure the soundness of individual institutions considered in isolation. Macro-financial policy settings are intended to deliver automatic stabilisation akin to that of fiscal (tax and benefit) systems, as well as larger buffers against system-wide shocks and some degree of leaning against strong credit upswings. The settings would be reviewed from time to time to suit changing financial and economic circumstances. Macro-financial settings would be expected to change much less frequently than monetary policy. Like most policy interventions, macro-financial measures (such as capital and liquidity buffers or restraints on certain kinds of risky lending) involve costs in the form of potential distortions to financial activity. Such interventions are likely to complement monetary policy, but this cannot be guaranteed. Indeed, we have very limited practical experience of macro-financial policy. These concerns suggest that macro-financial policy should not seek to be too activist. Distortions will be most likely to occur where a policy intervention creates an opportunity for regulatory arbitrage between the regulated and unregulated sectors, or between regulated and unregulated activities. And the incentives for arbitrage will be greater under strong credit demand conditions, suggesting the likelihood that any restraining effect of macro-financial tightenings on business cycle upswings is likely to be small. Under such conditions, the appropriate response to a future credit-fuelled upswing could

well be a combination of measures. Macro-financial tightening would counter banks relaxing credit standards and undermining the stability of the overall system, while monetary policy tightening would address rising inflationary pressures associated with the strong credit demand. But in comparison with other policy areas, macro-financial policy knowledge is still immature, and we have a lot to learn.

**Fiscal Policy:** The experience of sovereigns in less favourable fiscal positions demonstrates how quickly and catastrophically a sovereign can lose credibility for ongoing prudent fiscal and economic management, especially if the exchange rate is not available as an adjustment mechanism and internal cost structures are not flexible. That credibility is a vital resource. Yet, other features of national balance sheets give some cause for concern should another global funding pressure event occur. It will take a long time for the structural causes of financial fragility in World Economy need to be addressed, and for the process of public and private balance sheet repair to run its course. The fiscal balancing act over the next few years is to restore headroom through consolidation where possible, while taking into account any adverse short-term impacts on activity. This should help reduce the chances of getting backed into the very difficult and constrained space in which a number of advanced economies now find themselves. However, this is of course yet another policy challenge in the category of things easier said than done. Moreover, the link to monetary policy is particularly important in the current environment, because of the zero lower bound on interest rates. Fiscal austerity is probably not as contentious when monetary policy loosening can offset its short-term effects on economic activity.

**Monetary Policy:** The events of the past five years have led monetary policy into unfamiliar territory. After responding largely successfully to the priority of reducing and stabilising inflation following the 1970s experience, monetary policy now faces a number of new concerns. First, financial cycles are evidently able to destabilise the economy without necessarily implying large inflation fluctuations. Second, the financial system is far from neutral "plumbing" for the real economy. Instead, it substantially modulates economic shocks and can generate shocks itself. It can also materially affect monetary policy's effectiveness in stabilising economic activity. We can probably expect that, for some time, risk premia on private and public debt will remain much more variable and differentiated, and a source of noise in the policy formulation process. How monetary policy strategy should account for these complications is not at all settled. It does not help that monetary policy settings and interventions themselves have been highly unusual in many countries. Many researchers are studying the possible adverse effects of very low interest rates on investor risk-taking, and the effects on global financial

conditions of large-scale QE activities by major central banks. There are other questions, such as how to set interest rates in a deleveraging environment. Increased saving promotes the longer-term stability objectives of stronger balance sheets, but its impact on demand needs to be accounted for. In addition, the exchange rate effects of monetary policy are no doubt important, but distinguishing these impacts from other influences is far from straightforward.

The need of the hour is regulation in order to achieve the stability of the world economy as a whole.

## References

1. Bernake, B S., "The Subprime Mortgage Market", *Chairman's Speech at the Federal Reserve Bank of Chicago's 43rd Annual Conference on Bank Structure and Competition, Chicago, Illinois, May 17, 2007.*
2. Bernake, B S., "Opening Remarks", *Jackson Hole Symposium on Housing, Housing Finance and Monetary Policy, August 31 - September 1, 2007.*
3. Bernake, B S., Mark Gertler and Simon Gilchrist, "The Financial Accelerator in a Quantitative Business Cycle Framework", in John B. Taylor and Michael Woodford (Eds.), *Handbook of Macroeconomics, Vol. 1c, North Holland, 1999.*
4. Cole R., "Testimony before the US Senate Committee on Banking, Housing and Urban Affairs", March 22, 2007.
5. *Economic & Political Weekly*, "Global Economic and Financial Crisis", Vol XLIV, No 13, March 28, 2009.
6. Feldstein, M. "Remarks", *Jackson Hole Symposium on Housing, Housing Finance and Monetary Policy, August 31 - September 1, 2007.*
7. Gramlich, E. M., "Remarks at the Financial Services Roundtable Annual Housing Policy Meeting, Chicago, Illinois on Subprime Mortgage Lending: Benefits, Costs and Challenges, May 21, 2004.
8. Panda, P.K., and D. Acharya, *Stock Market Integration: Evidence from India and other Major World Markets, Indian Journal of Economics and Business, December 2011, 10(4): pp 605-621.*
9. Rakshit, M., "The Subprime Crisis: A Primer", *ICRA Bulletin, May 2008, pp 1-50.*
10. Shiller, R. J., "Understanding Recent Trends in House Prices and Home Ownership", *Jackson Hole Symposium on Housing, Housing Finance and Monetary Policy, August 31 - September 1, 2007.*
11. Summers, L. H., "Wake Up to the Dangers of a Deepening Crisis", *Financial Times, November 26, 2007.*
12. Taylor, J. B., "Housing and Monetary Policy", *Jackson Hole Symposium on Housing, Housing Finance and Monetary Policy, August 31 - September 1, 2007.*

# Impact of Subprime and Euro Crises on Gold Prices in U.S.A: An Econometric Investigation

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## Abstract

*This Paper examines gold prices in times of economic uncertainty, i.e. Subprime and Euro crises. This also shows the safe haven property of gold against stock market in America. The empirical results for the period Jan 2002 to Dec 2013 show that gold prices have increased significantly in the pre crises period. The results of the Johansen Cointegration tests show that gold and S&P index are related in the long run. In addition, it has been found that gold has a weak and insignificant correlation with S&P index.*

**Keywords:** Subprime, Euro crisis, Gold Price, Cointegration **JEL Classification:** F34, F37

## Introduction

In recent decades the radical liberalization or globalization measures adopted by most of the countries have made the world stock markets more interdependent. As a result, the world stock markets have become more exposed to crises. This has made it necessary to have an asset which has the potential to act as a safe haven during the turmoil. Through a Granger causality analysis, this paper tries to empirically study whether gold is a safe haven against stock market in India during the recent financial crises. During the recent subprime crisis period when all other assets experienced a drastic fall, gold was the only asset which showed a consistent hike in its price. The safe haven property of gold has to get more attention from the academicians. The present paper employs a Granger causality study for the pre-crisis and crisis periods to study the safe haven quality of gold. As of start 2006, the American housing market had witnessed a very long period of continual rise in prices. The mortgage market was facilitated by innovative mortgage

products to the end consumer such as Adjustable Rate Mortgages, which allowed people to “flip” property.

## The Collapse

Driven by financial innovation and easy credit, American housing prices peaked in the first quarter of 2006. The overconfidence of the builders led to a buildup of inventory. This forced suppliers to drop prices. Since housing loans represent leverage, a drop of the prices tends to knock off the buyer's equity first. If the value drops significantly, the buyer's equity becomes zero, which means the home is effectively worthless to the buyer. The home owner hands over possession of the house to the bank. The bank is now left with a property that is falling in value, and does not have the income from the home owner repaying the loan. As many home owners defaulted, the bank does not have money to provide further loans, and soon runs out of business and files for bankruptcy. As more and more home owners in neighborhoods across the

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country defaulted, the value of the houses spiraled downwards. This in turn led to the bankruptcy of many of the banks involved in granting mortgages. Meanwhile, in the financial markets, the prices of the financial assets linked to the home loans (Mortgage backed securities) also dropped. However, due to the complexity of the mortgage backed securities, the investors could not figure out what is the worth of the security held by them, or if the securities that are up for sale are worth the price quoted. Revelations about the holdings of these mortgage backed securities possessed by various investment banks led to a loss of trust among the banks. This information caused enormous liquidity pressures within the interbank market. Due to the widespread dispersion of credit risk and the complexity of financial instruments, the mortgage crisis had a large impact on financial markets. Banks became reluctant to lend to each other. Several large banks, credit insurances and mortgage companies have reported significant losses and have lost much of their market value. The banking system, which depends on short-term lending by banks to other banks, completely froze as banks did not trust that the bank requesting the short term loan to return the money as they could go bankrupt any time. To compound matters, the rating agencies also dropped the credit ratings of many of the investors due to the disclosures of large amounts of mortgage backed securities. This caused the market to further distrust the banks whose ratings were dropped, and made it difficult for the banks to raise funds from all the sources who would have lent them money during the normal course of business. Because of all this turbulence, in September 2008, the markets panicked and due to this loss of liquidity, many prominent investment banks (Lehman, Bear Sterns) went bankrupt. This caused further crisis as the firms tried to sell all their assets (equities, bonds, sovereign debt, commodities etc.) and caused heavy price drops in all asset classes. Because of this uncertainty, the price of the credit default swaps, to insure against the default of the home owners increased. As the number of mortgage defaults far exceeded the number calculated by the insurance companies (most notably American International Group, AIG), the resulting payment that the insurer had to make far exceeded their ability to pay, and consequently led to the bankruptcy of the biggest American insurance firm. The US government, in order to get credit flowing again, pumped in a lot of liquidity to banks by means of a "Troubled Assets Relief Program" by means of an 800 billion USD bailout package. The hope was that the banks would now lend money to each other and get the financial system up and running again. The government also expected the banks to lend money to prop up the housing market and prevent home owners from defaulting on their loans. However, the banks, seeking to protect the value of their assets, en masse invested in gold, which has a safe haven status among all assets.

## The Euro-Zone Crisis

Based on a dream to integrate the whole of Europe into a big unified economy, about the size of the USA, the Europeans abandoned their old currencies in favor of a single currency, the Euro, in 1999. This monetary union was designed to bind disparate economies of Europe into a cohesive whole, thus pulling the poorer parts of Europe (Portugal, Ireland, Greece, etc) into prosperity enjoyed by the richer parts of Europe (Germany, France, Belgium, Netherlands, and Luxemburg). The promise of one currency, one market and one Europe was attractive to policy planners and governments. However, the governments of Europe were also reluctant to cede control of their economies as the monetary union had the potential to result in a loss of sovereignty, the free will of the nation to decide its course of action to respond to any situation as it deemed fit. The fear was that now governments would be answerable to pan-European authorities for their actions and would be prevented from implementing economic schemes that helped their citizens because the pan-European authorities may not approve of it. This was a stumbling block in establishment of a European Economic Zone. To convince governments that the Euro would not harm the sovereignty of the participant countries, the economists decided to implement a pan-European monetary union, without treading onto a fiscal union. Simply put, the Euro was to be a currency for separate countries that grew at different speeds and had divergent economies, but the value of 1 Euro issued by Germany was to be the same as the value of 1 Euro issued by Greece. In order to be a part of the monetary union proposed for the Eurozone, the Maastricht treaty, signed in 1992, established rigid parameters of eligibility. This was to ensure that the economies of Euro-adopting countries converge enough in order to sustain a common currency. The Maastricht Euro convergence criteria are as follows:

- **Inflation rates:** No more than 1.5 percentage points higher than the average of the three best performing (lowest inflation) member states of the EU.
- **Government finance:**
  - **Annual government deficit:** The ratio of the annual government deficit to gross domestic product (GDP) must not exceed 3% at the end of the preceding fiscal year. If not, it is at least required to reach a level close to 3%. Only exceptional and temporary excesses would be granted for exceptional cases.
  - **Government debt:** The ratio of gross government debt to GDP must not exceed 60% at the end of the preceding fiscal year. Even if the target cannot be achieved due to the specific conditions, the ratio must have sufficiently diminished and must be approaching the reference value at a satisfactory pace.

- **Exchange rate:** Applicant countries should have joined the exchange-rate mechanism (ERM II) under the European Monetary System (EMS) for two consecutive years and should not have devalued its currency during the period.
- **Long-term interest rates:** The nominal long-term interest rate must not be more than 2 percentage points higher than in the three lowest inflation member states.

## Review of Literature

Kumar and Lagesh (2011) have studied about the safe haven property of gold against stock market in India. Their study was to test the safe haven property of gold against stock market in India during the recent financial crisis. The study used a Dynamic Conditional Correlation Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model. The data utilized was gold prices and BSE SENSEX Index closing price from 1st January, 1998 to 30th September, 2009. The results show that gold is a safe haven and a hedge in extreme stock market conditions. Gold serves as a safe haven or as a hedge in financial markets (Baur and Lucey, 2010). The study uses constant and time varying relations between U.S., U.K. and German stock and bond returns. An econometric model based on a regression is used in which gold returns are regressed on stock and bond returns. The data consist of daily prices of MCSI bond indices and U.S. closing spot gold from November 30, 1995 until November 30, 2005. The study shows that gold is a safe haven for investors in stocks, in the United Kingdom and Germany. Gold serves as a hedge for stocks, in the United States and United Kingdom. Whereas Gold is nowhere a safe haven for bonds nor is it a bond hedge. Coudert, HeleneFiengold, 2011, look into the role of Gold as a safe haven or a hedge against stocks. This property of gold being a safe haven is particularly sought after during episodes of financial and economic crisis. They consider crisis periods successively defined by recessions and bear markets. The results show that gold qualifies as a safe haven against all these stock indexes. This result holds for crises defined as recessions or bear markets, as the covariance between gold and stocks returns is found negative or null in all cases. Gold is also able to hedge against stock losses in most cases, although results are less clear-cut. A recent study by Wu and Pandey (2011) examine four precious metals, i.e. Gold, silver, platinum and palladium for their value to investors as diversifiers of equity portfolio, safe havens or an inflationary hedge. An examination of gold bullion prices from the London Bullion Market and the S&P 500 Composite Index between January 1, 2000, and December 31, 2009. To investigate the merits of various investments as an inflation hedge, examination of their buy-and-hold investment returns over overlapping 3-year holding periods, month by month, over the entire sample period. Each month's computed return includes any price changes and cash distributions to the asset during the

month and is based on asset values on the last trading day of the month. The results show that Gold is unique in its capacity to offer protection from unanticipated inflation and diversification benefits for US equity portfolios. The overall conclusion is that gold is a unique asset among precious metals due to its capacity to be a portfolio diversifier and an inflation hedge at all times. In addition, gold can also be used as a safe haven investment during times of high uncertainty in stock markets. Fei, Fan and Adibe, Kelechi (2010) examine several of the explanations commonly provided regarding gold and its price movements. They considered the safe haven, inflation hedge, and dollar destruction hypotheses. The results are mixed. Their data supports the theories that gold is a safe haven or an inflation hedge. They find that gold is a zero-beta asset and there is a strong negative correlation between gold and the value of the US dollar in the post Bretton-Woods era. The decomposition of gold prices under a semi-structural model finds the aggregate demand shock, monetary policy shock, and precautionary demand shock of gold all only have modest influence on the price movement of gold. The role of gold in the global financial system (Baur and McDermott, 2009) is a study that tests the hypothesis that gold represents a safe haven against stocks of major emerging and developing countries. A descriptive and econometric analysis for a sample spanning a 30 year period from 1979-2009 shows that gold is both a hedge and a safe haven for major European stock markets and the US but not for Australia, Canada, Japan and large emerging markets such as the BRIC countries. It also distinguishes between a weak and strong form of the safe haven and argues that gold may act as a stabilizing force for the financial system by reducing losses in the face of extreme negative market shocks. Looking at specific crisis periods, it's found that gold was a strong safe haven for most developed markets during the peak of the recent financial crisis. Conover, et al. (2009) finds that portfolio performance improves substantially when a prominent portion of the portfolio is re-allocated to the equities of precious metals firm, for U.S. equity investor. In addition, the authors find the investment benefits are considerably larger if the exposure to precious metals is obtained indirectly via an investment in the equities of precious metals firm, rather than directly by purchasing the precious metal as a commodity. Also its found that, relative to platinum and silver, gold has better stand-alone performance and appears to provide a better hedge against the negative effects of inflationary pressures.

Ratner and Klein (2008) investigate the value of gold as stand-alone investment, and assess the benefit of including the metal as part of a global investment portfolio. It is assumed that gold as stand-alone investment is relatively poor investment compared with the U.S. stock market over the long-term. Furthermore, it is shown historically that gold has generally low or negative correlations with U.S. equities. A study by Hillier,

Draper and Faff (2006) further develops the research on precious metals. Hiller et al. examine the relative benefits of supplementing an investment in the S&P 500 with gold, silver or platinum over the period 1976 to 2004. The authors find that portfolio performance generally improves regardless of which precious metal is added. Gold offers the greatest incremental benefit, while silver offers the least benefit. Additionally, the authors find evidence refuting the merits of using tactical allocation as the basis of a precious metals investment, as they find a switching strategy based on market volatility is dominated by a buy-and-hold position in precious metals. While Hiller et al. and others provide many insights as to the benefits of adding precious metals to U.S. equity portfolios; this study extends the literature along several important dimensions. In a recent study by Almudhaf and AlKulaib, (2012), Gold is assumed to be a stable investment in times of political and economic uncertainty. Their article is the first to examine the diversification benefits of including gold in the portfolio of a Kuwaiti investor. The empirical results for the period Jan 2000 to May 2011 show that Kuwaiti investors have gained benefits by adding gold to their portfolios. The results of the Johansen cointegration tests show that gold and KSE index are not related in the long run. In addition, it has been found that gold has a weak and insignificant correlation with KSE index. Mishra, Das studied the gold price volatility in India. The authors attempt to analyze the causality relation that may run between domestic gold prices and stock market returns in India. The study by taking into consideration the domestic gold prices and stock market returns based on BSE 100 index, investigates the Granger causality in the Vector Error Correction Model for the period January 1991 to December 2009. The analysis provides the evidence of feedback causality between the variables. It infers that the Gold prices Granger-causes stock market returns and stock market returns also Granger-causes the gold prices in India during the sample period. Thus, both the variables contain some significant information for the prediction of one in terms of another. Baur&McDermott, 2012, study two different safe haven assets, US government bonds and gold, and examine how the price changes of these assets can be used to infer investor behavior under uncertainty. They find that investors are ambiguity-averse, that is they buy gold when faced with extreme uncertainty about the state of the economy or the financial system and when they receive ambiguous signals. In contrast, investors buy US government bonds when faced with extreme but unambiguous signals. Also its shown that there is overreaction to ambiguous signals. Mansor, (2011), examines the relation between gold return and stock market return and whether its relation changes in times of consecutive negative market returns for an emerging market, Malaysia. It was found that there is a significant positive but low correlation between gold and once-lagged stock returns. Moreover, consecutive negative market returns do not seem to intensify the co-

movement between the gold and stock markets as normally documented among national stock markets in times of financial turbulences. Indeed, there is some evidence that the gold market surges when faced with consecutive market declines. Based on these results, the author proves that there are potential benefits of gold investment during periods of stock market sinks.

Gold investments and short term and long term determinants of the price of gold as studied by Mika and Eropatari, 2007, use Monthly data consisting of US and world consumer price indexes, US and world inflation and inflation volatility, beta of gold, gold lease rate, credit default risk and US-world exchange rate index from December 1972 to August 2006. Cointegration regression techniques are used to develop a model and find the key determinants for the price of gold. We also examined the literature to find out what different investment methods and instruments exist on the gold markets. Findings show that the evidence that gold can be regarded as a long-run hedge against the inflation and that the price of gold moves in line with the general price level. However, the movements in the nominal price of gold are dominated by short-run influences and that the long-run relationship has less impact at any given time. We also found that gold is readily available to investors in all the major markets. Ciner, Gurdgiev, and Lucey (2010), studied five major financial asset classes, examining how and under what circumstances each may act as a hedge or a safe haven to each other. The authors examine this in the case of the UK and the USA, both major gold and oil trading centers, over a twenty year period using the approach of Baur and Lucey (2010) and Baur and McDermott (2010). They find that gold acts as a safe haven for most assets, except oil. Bonds do not appear to be a long-term hedge against equity price movements but do act as a safe haven for equities. Steven W. Sumner, Robert Johnson and Luc Soenen, 2010, the authors, have made an attempt to document the interdependence among stocks, bonds and gold. Gold is an important asset class and has often been seen as a safe haven and counter-cyclical investment vehicle. It presents an extension of the work done by Diebold and Yilmaz (2009) using a spillover index methodology to examine whether gold returns and volatilities can predict U.S. stock and bond market movements or vice versa. For the sample period from January 1970 to April 2009, return spillovers appear muted. However, there is some evidence of volatility spillovers of which much is attributable to a spillover from innovations in stocks to bond return volatility. Spillovers in terms of returns are higher during the early 1980s, mid-1990s and the most recent financial crisis. Volatility spillovers have been very elevated in the recent financial crisis as well as late 1970s and early 1990s. The lack of any substantial relationship between gold and stocks and gold and bonds raises the question whether gold price movements can be used as a predictor for stocks and bond prices.

## Research Implications

Gold has been a valuable and highly sought after precious metal for coin, jeweler and other arts since the beginning of the recorded history. During the last years gold started to be an interesting add-on to a portfolio. Gold serves as a safe haven during financial turmoil (Baur and Lucey B., 2010). Gold is assumed to be a stable investment in economic uncertainty. Gold is also known for its unique property as a portfolio diversifier.

This study examines the uncertainty in US due to subprime crisis along with the recent Euro crisis which has forced the investors to move towards less risky investment opportunities, as the primary reason behind gold price rising rapidly in recent times. The study attempts to examine the behavior of gold prices and equities on a daily basis. The relationship is followed over an extended period of time (2002 - 2011). This time period is characterized by a neat split in the time series. 2002 to 2006 was characterized by a period of extended optimism of the state of the US (and world economy). This led to a boom in the housing market (which is often an indicator of expectation of future prosperity and good incomes), which was also fuelled by financial innovations. The time period 2007 to 2011 has been characterized by two prolonged and major crises, the subprime from 2007 to 2008 and the Eurozone crisis from 2009 to 2011. The unprecedented crises that affected the world economy had visibly led to some assets being highly sought after and some assets losing almost all their value. In view of the availability of data and appropriate statistical tools to analyze the value of gold, we discuss the behavior of gold prices, compared to the rest of the economy (through the S&P 500) during time periods, 2002 to 2006 and 2007 to 2011. Inferences drawn from the difference in relative price movements shall be used to conclude on the existence of a long run relationship and how that relationship is affected due to a crisis, when there is a degradation/ breakdown of normal price-value equations.

## Data and Methodology

In order to examine causality between gold Price and S&P Price, this paper has employed "Granger Causality" test (Granger 1969, 1988). Prior to this Granger Causality test, it has investigated unit root test (Augmented Dickey Fuller, ADF and Phillips-Perron, PP) for checking stationary. Islam, Habib & Khan: Time Series Analysis of Finance and Growth 115 in data as well as Johansen Cointegration test (Johansen, 1988) for verifying cointegrated relationship between finance and growth variables over 1975 to 2002. Only integrated of order one i.e. 1(1) (according to unit root tests) variables have been considered for Johansen Cointegration test and similarly cointegrated variables (according to Johansen Cointegration

test) are forwarded for Granger causality test. Unit Root Test Usually time series analysis considers stationary time series in empirical studies. If the series is non-stationary, the relationship between the independent and dependent variables may exhibit misleading inferences leading for spurious regression. A series is to be stationary if the mean and auto covariance of the series does not depend on time. In order to examine whether each variable's time series is integrated and has a unit root, this study has considered two widely used popular unit root tests-Augmented Dickey Fuller (ADF) test and Phillips-Perron (PP) test. Both the tests use the null hypothesis that the series does contain a unit root (non-stationary variable) against a stationary variable in the alternative hypothesis. If the calculated test statistics is higher than McKinnon's critical value then one does not reject the null hypothesis and the concerned variable is non-stationary, if not that is stationary.

## Empirical Analysis and Discussion

When we run the augmented Dickey-Fuller Test for the log values of the daily returns from Standard & Poor, we obtain tables 1.1 and 1.2, we can draw a few inferences.

**Table 1.1: Augmented Dickey-Fuller Test for daily S&P prices**

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-39.88764	0.0000
Test critical values:	1% level	-3.432729	
	5% level	-2.862477	
	10% level	-2.567314	

\*MacKinnon (1996) one-sided p-values.

Source: Author's own calculation

The summary table, Table 1 above, shows that for the logarithmic stock price return and the lag length chosen by E-views software, the test statistic is -39.89 and the p-value is 0.0. The critical values at the 10%, 5% and even 1% level are all considerably greater than the test statistic, at 2.57, 2.86 and 3.43 respectively. This means that the probability of autocorrelation in the series is zero, which implies that we very significantly reject the null hypothesis. So the conclusion is that S&P price does not have a unit root and is not a random walk process. The S&P prices are therefore "Stationary" and do not have a trend. The presence or absence of autocorrelation is verified by analysis of the Table 1.2, given below.

**Table 1.2: Augmented Dickey-Fuller Test for daily S&P prices**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSPC(-1)	-1.174954	0.029457	-39.88764	0.0000
D(LSPC(-1))	0.062231	0.019805	3.142223	0.0017
C	0.002849	0.011827	0.240859	0.8097

\*MacKinnon (1996) one-sided p-values.

Source: Author's own calculation

The Durbin-Watson statistic from the above table is used to check for the presence of autocorrelation in the series. An autocorrelated series is one where two observations in the series are related as a function of the time interval between the two observations. This hidden function, if not removed, can result in spurious data and results. The stat varies from 0 to 4, with 2 indicating no autocorrelation; values toward 0 indicate positive autocorrelation and values toward 4 indicate negative autocorrelation. The Durbin-Watson stat for the S&P prices is 1.997, very close to 2, implies that the S&P series has zero autocorrelation. Now the same test is performed upon daily returns of gold prices. The resultant tables 1.3 and 1.4 are also interpreted below.

**Table 1.3: Augmented Dickey-Fuller Test for daily gold prices**

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-50.97154	0.0001
Test critical values:	1% level	-3.432438	
	5% level	-2.862348	
	10% level	-2.567245	

\*MacKinnon (1996) one-sided p-values

Source: Author's own calculation

The summary table, Table 4.3 above, shows that for the logarithmic stock price return and the lag length chosen by evIEWS (1), the test statistic is -50.97 and the p-value is 0.0. The critical values at the 10%, 5% and even 1% level are all considerably greater than the test statistic, at -2.57, -2.86 and -3.43 respectively. This means that the probability of stationarity in the series is zero, which implies that we very significantly reject the null hypothesis. So the conclusion is that gold price does not have a unit root and is not a random walk process. Therefore, gold prices are "Stationary" and do not have a trend. The lack of autocorrelation is verified by analysis of the Table 1.4, given below.

**Table 1.4: Augmented Dickey-Fuller Test for daily gold prices**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGOLP(-1)	-0.950803	0.018654	-50.97154	0.0000
C	0.003149	0.001256	2.507950	0.0122

Source: Author's own calculation

The Durbin-Watson stat for the gold prices is 1.997, very close to 2. This confirms that gold prices are not autocorrelated.

### Correlation between Gold and S&P Prices: Pre- and Post-Crisis.

This study aims to determine if there is any correlation between two asset classes, equities (S&P) and gold, and if the correlation between these two asset classes is affected in any way by the long-drawn crisis that has affected the world economy since 2007. As the series have been individually tested for autocorrelation, any significant change in the behavior of the asset classes can be attributed to the economic conditions. First, the correlation coefficient of the two series over the entire data set (2002 to 2011) is calculated. Now, the data set is split into two, a pre-crisis data set (2002 to 2006) and a post-crisis data set (2007 to 2011). The correlation coefficient of gold and stock prices is computed for both the data sets, to determine if there are material changes to the relation between the two asset classes. The results of the correlation exercise are provided below in tables 1.5 below.

**Table 1.5: Correlations between S&P and gold**

Correlation – Entire Period		
	LGOLP	LSPC
LGOLP	1	0.02098
LSPC	0.02098	1
Correlation – Pre crisis		
	PREGOLD	PRESPC
PREGOLD	1.000000	0.01618
PRESPC	0.01618	1.000000
Correlation – Post crisis		
	POSTGOLD	POSTSPC
POSTGOLD	1.000000	-0.05967
POSTSPC	-0.05967	1.000000

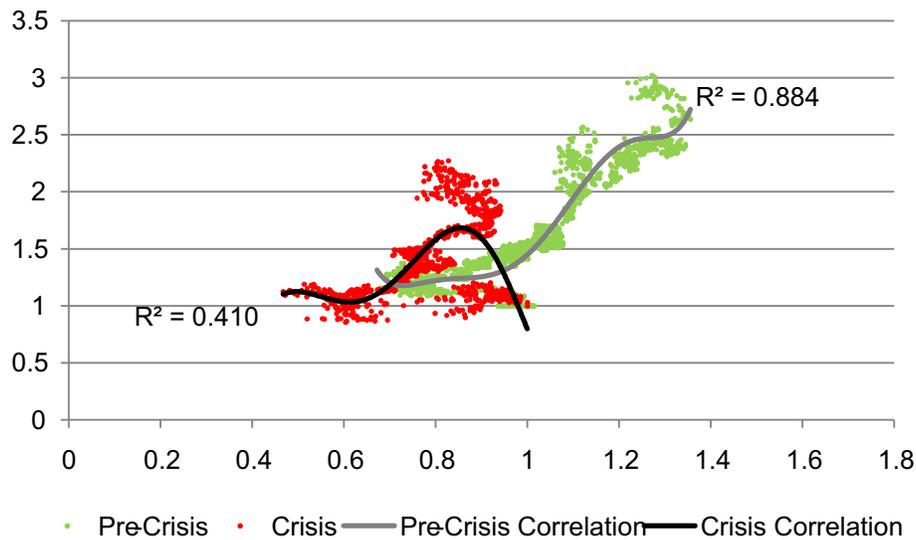
Source: Author's own calculation

It is observed that the pre-crisis and post-crisis correlations significantly differ from one another. Each data series is perfectly correlated with itself (Gold prices vis-à-vis gold prices, S&P prices vis-à-vis S&P prices), as expected. Pre-crisis, stock and gold prices are slightly positively correlated, which means that both the prices on an average moved in the same direction, but that the magnitude of the movements of the two were not related to each other (due to a very low correlation of .01). Post-crisis, we note that the stock and gold prices are now negatively correlated, and to a greater extent than before. This means that the prices on an average moved in the opposite direction, and that the magnitude of the movements, though still only 6%

correlated, is still much more correlated to each other than before the crisis. This is intuitive, as the stock prices have fallen significantly post 2007, while gold has been regularly scaling new heights. This correlation can be explained by the presumption of a “flight to safety”, wherein a greater portion of

the portfolio of the investors was allocated to gold and a lesser portion to stock. Correspondingly, the demand for gold prices (and consequently prices) rose while demand for stocks (and consequently prices) fell. The correlation between S&P 500 and gold prices has been represented in the graph below.

**Figure 1.6: Correlation of S&P Index and Gold Prices (Indexed)**



Source: Author’s own calculation

Pre-crisis and crisis correlations between gold and S&P prices vary to a significant degree as shown in graph 3.5 above. The pre-crisis data points can be represented reasonably by the trend line as shown above, with a goodness-of-fit of 0.8845. However, the relationship between the S&P 500 and gold prices becomes much more volatile in the crisis period. The trend line has significantly changed, and the goodness-of-fit now falls to 0.4101, which means that the line is a poorer representation of the S&P-gold correlation than before.

**Cointegration between Gold and S&P Prices: Johansen Cointegration test**

As both the daily gold prices and daily S&P prices do not have unit roots and are non-stationary, we can now test for Cointegration using the Johansen Cointegration test. The results of the Cointegration test have been shown in the table below:

**Table 1.7: Johansen Cointegration Results**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.191228	539.7127	15.49471	0.0001
At most 1	0.000247	0.627562	3.841466	0.4283
Trace test indicates 1 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.191228	539.0851	14.26460	0.0001
At most 1	0.000247	0.627562	3.841466	0.4283
Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

**MacKinnon-Haug-Michelis (1999) p-values			
Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):			
GOLD	SP		
-0.047881	1.823887		
2.841122	0.002699		
Unrestricted Adjustment Coefficients (alpha):			
D(GOLD)	0.000281	-0.000156	
D(SP)	-0.665821	-0.000463	
Cointegrating Equation(s):		Log likelihood	3699.012
Normalized cointegrating coefficients (standard error in parentheses)			
GOLD	SP		
1.000000	-38.09230		
	(1.55727)		
Adjustment coefficients (standard error in parentheses)			
D(GOLD)	-1.34E-05		
	(9.5E-06)		
D(SP)	0.031880		
	(0.00130)		

Source: Author's own calculation

The test assumes a linear deterministic trend in the two series, GOLD (gold prices) and SP (S&P 500 index values). If a linear combination of integrated variables (tested here: Gold and S&P prices) is stationary then such variables are said to be cointegrated.

The trace statistic for  $r=0$  (539) exceeds the 5% critical value (15.49), which means that there is at least one cointegrating relationship present, and that the probability of  $r=0$  (no Cointegration) is very low (.00001). For more than one cointegrating vector, the test statistic (.627) is less than the critical value (3.84), so we conclude only a single cointegrating vector is present. Since there are only two variables considered in the test, the trace statistic concludes that the series GOLD and SP are cointegrated. The Maximal Eigenvalue test conducts separate tests on each eigenvalue. The null hypothesis is that there are  $r$  (first instance none, second instance at most one) cointegrating vectors present against the alternative that there are  $(r + 1)$  present. The maximal eigenvalue for  $r=0$  (539) exceeds the 5% critical value (14.2646), which means that there is at least one cointegrating relationship present, and that the probability of  $r=0$  (no Cointegration) is very low (.00001). For more than one cointegrating vector, the test statistic (.627) is less than the critical value (3.84), so we conclude only a single cointegrating vector is present. Since there are, only two variables considered in the test, the maximal eigenvalue test confirms that the series GOLD and SP are cointegrated.

## Summary and Conclusion

Neither the S&P daily prices nor the gold prices have unit roots. Also, the series are also not autocorrelated. Hence, there is no requirement to adjust the time series values, and the price data can be used to determine the relations between the variables without the possibility of detection of spurious regression (the chance that the time series data would provide relationships when they are not actually correlated). We can thus state that the relation between stock and gold prices was affected due to the crisis and that there was a likely increase in demand for gold (and a corresponding fall in demand for S&P stocks) during the crisis. We cannot as yet determine if the two data series share a causal relationship. Both the trace tests and the maximum eigenvalue tests of Johansen's procedure have detected the presence of Cointegration in time series of Gold prices and S&P values at level of significance 5% and the null hypothesis that there is no Cointegration between them can be rejected. These results confirm that there is a long run equilibrium relationship among gold prices and S&P values. Gold and stocks exhibited a correlation of 1% pre-crisis, which changed to -6% during the crisis. This implies that as the confidence in the general economy dropped because of liquidity and structural concerns, investors flocked to the yellow metal. Consequently, as the value of the other stocks dropped, the price of gold increased. The presence of Cointegration between gold and stock prices implies that the values of the two assets are interlinked. Based on an estimate of the index prices, gold prices can thus be forecasted. The producers of gold can also use this as the basis for setting production targets. In the event of a worsening crisis

(E.g., breakup of the Eurozone), investors can analyze the impact of the same on gold more accurately and allocate their resources among various asset classes on a more risk-focused basis.

## Reference

1. Fei, F. and Adibe, K. (2010). "Theories of Gold Price Movements: Common Wisdom or Myths?," *Undergraduate Economic Review*: 6 (1), Article 5.
2. Baur, D. and Lucey, B. (2010) *Gold a Hedge or a Safe Haven? An Analysis of stocks, Bonds and Gold*, *The Financial Review*, 217-229.
3. Ciner, C., Gurdgiev, C. and Lucey, B. (2010). *Hedges and Safe Havens-An examination of Stocks, Bonds, Oil, Gold and the Dollar*. Institute for International Integration Studies. IIS Discussion Paper No. 337.
4. Conover, C., Jensen, G., Johnson, R., & Mercer, J. (2009). *Can precious metals make your portfolio shine?* *Journal of investing*, Spring, 75-86.
5. Coudert, V. and Raymond-Fiengold, H. (2011) *Gold and financial assets: Are there any safe havens in bear markets?* *Economics Bulletin*, Vol. 31 no.2 pp. 1613-1622.
6. Dirk G. Baur & Thomas K. McDermott, (2009) *Is Gold a Safe Haven? International Evidence*. Institute for International Integration Studies, IIS Discussion Paper No. 310.
7. Dirk G. Baur & Thomas K.J. McDermott, (2012). *Safe Haven Assets and Investor Behavior under Uncertainty*. Webpage: <http://www.rbnx.govt.nz/research/feb2012>
8. *Forecasting handouts prepared by Professor Clifford Hurvich*. Retrieved from <http://pages.stern.nyu.edu/~churvich/>.
9. Ghosh, D.P., Levin, E.J., Macmillan, P. and Wright, R.E.(2004). *Gold as an inflation hedge?*, *Studies in economics and finance*, vol. 22, no. 1, pp.1-25.
10. Hillier, D., Draper, P., & Faff, R. (2006) *Do precious metals shine? An investment perspective, 2006*. *Financial Analysts Journal*. 62(2), 98-106.
11. Johansen, S. (1991). *Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models*, *Econometrica*, vol. 59, pp. 383-397.
12. Levin, E.J. and Wright, R.E. (2006). *Short-run and long-run determinants of the price of gold*. *Research study*, No. 32, *The World Gold Council*.
13. Mansor, I. (2011). *Financial Market Risk and Gold Investment in an Emerging Market: The case of Malaysia*. *Romanian Journal of Economic Forecasting*, 79-89.
14. McCown, J., Zimmerman, J. (2006). *Is Gold a Zero Beta Asset? Analysis of the Investment Potential of Precious Metals*. Retrieved from, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=920496](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=920496).
15. Meili, C. 2008. *Swiss Banking Institute University of Zurich*. 5 pages. [www.bf.uzh.ch/publikationen/pdf/publ\\_1894.pdf](http://www.bf.uzh.ch/publikationen/pdf/publ_1894.pdf)
16. P K Mishra, J R Das and S K Mishra, (2010). *Gold Price Volatility and Stock Market Returns in India*. *American Journal of Scientific Research Issue 9*, pp.47-55.
17. Quang, G. Do and Sriboonchitta, S. (2009) *Cointegration and causality among international gold and ASEAN emerging stock markets*. *Social Science Research Network, SSRN: http://ssrn.com/abstract=1533919*.
18. Ratner, M., & Klein, S. (2008). *The portfolio implications of gold investment*. *Journal of Investing*, Spring, 77-87.
19. Kumar and Lagesh. (2011) *DCC Analysis of the 'Safe Haven' property of Gold against Stock Market: Indian Scenario*. *ArthaVijnana*, June 2011, Vol. LIII, No. 2, pp. 125-135.
20. Shakarchi, M. (2008). *Gold Rush or Sub-prime? Background on a Golden Success Story*. KS(Switzerland)SA. [http://www.mks.ch/index.php?id=marwan\\_shakarchi\\_article](http://www.mks.ch/index.php?id=marwan_shakarchi_article).
21. Smith, G. (2001) *the Price of Gold and Stock Price Indices for the United States*. <http://www.spdrgoldshares.com/media/GLD/file/Gold&USStockIndicesDEC200120fina.pdf>.
22. Steven W. Sumner, Robert Johnson and Luc Soenen, (2010). *Spillover effects among gold, stocks, and bonds*. *Journal of Centrum Cathedra*. Pp. 106-120.
23. Vaihekoski, M. and patari, E. (2007). *Gold Investment and Short- and long-run Price Determinants of the Price of Gold*. Retrieved from <https://www.doria.fi/bitstream/handle/10024/30680/TMP.objres.688.pdf?sequence=1>.
24. Wu, C. and Pandey, V. (2011) *Is Gold Unique? Gold and Other Precious Metals as Diversifiers of Equity Portfolios, Inflation Hedges and Safe Haven Investments*. *South West Decision Sciences Institute Conference*, PA137.
25. Yaser, A. & Al mudhaf, A. (2012) *Does Gold Shine in the Portfolio of a Kuwaiti Investor?* *International Journal of Economics and Finance*, January 2012 Vol. 4, No.1, 160-166.

# A Study on Role of RBI in Overcoming Recession in India

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## Abstract

*The sub-prime crisis and its consequent effects on the global economy saw some of the established financial institutions getting consumed in the turmoil that ensued; many others have been pushed to the brink. The crisis itself is a manifestation of aggressive lending with inadequate appraisals, tax regulatory supervision and questionable credit ratings of complex instruments. Nationalization of institutions - a thought inconceivable a couple years back - is turning out to be an attractive option for institutions grappling for survival. The crisis originating in the US has now spread across the integrated financial world engulfing countries and sectors that have little to do with the root causes. Though in the beginning Indian official denied the impact of US meltdown affecting the Indian economy but later the government had to acknowledge the fact that US financial crisis will have some impact on the Indian economy. But the impact on India was little because of India's strong fundamental and less exposure of Indian financial sector with the global financial market. Perhaps this has saved Indian economy from being swayed over instantly. Unlike in US where capitalism rules, in India, market is closely regulated by the SEBI, RBI and government. This paper talks about global financial crisis and monetary policy response in India. As the crisis intensified, the Reserve Bank of India, like most central banks, took a number of conventional and unconventional measures to augment domestic and foreign exchange liquidity, and sharply reduced the policy rates.*

**Keywords:** Sub-prime crisis, monetary policy, Indian economy, Recession

## Introduction

Over the past decade, India has emerged as one of the fastest-growing economies on the globe. The rest of the world has been impressed to see that the reforms initiated in the early 1990s are bearing fruit. To sustain any country's growth, of course, a strong and dynamic financial sector is essential. In recent years, financial markets have undergone some of the most rapid and extensive changes perhaps foremost among recent changes in world financial markets have been their accelerating integration and globalisation. This development, which has been fostered by the liberalization of markets, rapid technological progress and major advances in telecommunications, has created new investment awareness and financing opportunities for business and people around the world. The banking system is, by far, the most dominant segment of the financial sector.

During 2008 the global financial crisis and economic downturn

increased uncertainty and negatively affected the world wide economy. The sharp decrease in export volumes during the latter half of 2008 and the first quarters of 2009 has already had a major impact on industry. In India, the impact of the recession has been deeper than what was estimated by our policy maker's although it is less severe than in other emerging market economics.

It may be true with rest of the world but India had some higher immunity to resist the global meltdown which started in USA in 2007. This financial crisis impacted various economies across the world; including USA, UK, Japan, China, France and India. During this turmoil the countries had varying impacts; countries like China and India had a lesser share of the worldwide despair. There are many reasons which it has led the world to believe that India survived the global problem. Financial policies implemented in India after liberalization in 1991 played an important role in this perspective. In India we have strictly regulated market by active participation of financial regulators

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like Reserve Bank of India, Securities and Exchange Board of India, Ministry of Finance, Ministry of Corporate Affairs. These regulators ensure that although Indian Markets have exposure to foreign players but at the same time have lesser vulnerability to global risks. Participatory Notes (P Notes) is one of the measures taken by Government of India (GOI) to control the Foreign Institutional Investment (FII). During recession stock markets gets plummeted if foreign players pull out their investments, P Notes is the key to check that. There are many such policies which had enabled GOI to run Indian Market as a tight ship. Some of the major Indian Banks were nationalized in 1969; it facilitated GOI in forcing certain policies like high Cash to Reserve Ratio (CRR), stringent credit policy and regulation of lending rate. This control over banks has proven to be a boon to India as recession started in U.S. due to the burst of Sub Prime Bubble; during this phase, to increase their profits, financial institutions started lending to the borrowers having lesser credibility at higher rates. In India above policies prevented Indian Banks from falling into this pitfall.

### **Impact of the Global Meltdown on the Indian Economy**

The Indian economy has shown negative impact of the recent global financial meltdown. Though the public sector in India, including nationalized banks could somehow insulate the injurious effects of globalization as we are also part of the globalization strategy of neo-liberalization, there is a limit of our ability to resist global recession, which may change into a great depression.

#### **Drop in Foreign Institutional Investment**

Data compiled by Securities and Exchange Board of India (SEBI) shows that after receiving record \$ 45.07 billion between 2004 and 2007, Indian economy witnessed reversal in FII equity flows in 2008 with an outflow of \$12.03 billion because of global financial crisis. Global investors hit by financial sector meltdown started selling their holdings in Indian companies in order to ease liquidity conditions given huge losses in home markets and to look for safer investment in an uncertain environment.

#### **Reaction of India's Stock Exchange**

Being dominant player in free float portion of listed companies, trading behavior of Foreign Institutional Investors (FIIs) is bound to impact the Indian share market. Cumulative investment of \$67.12 billion till December by FIIs in equity market played a crucial role in astonishing rise (from 3000 in 2003 to 21000 in 2007) of Sensex. However, with the emergence of crisis in US market FIIs started divesting their shares holding in order to ease liquidity problem. Reversal in FII flows led to a steep fall in BSE index in 2008.

#### **Drop in External Commercial Borrowings**

Financial sector reform since 1991, on the one hand has resulted in downfall of Developmental Financial Institutions (DFIs) and on the other hand led to massive borrowings from external sector by corporate houses in the form of External Commercial Borrowings (ECBs).

#### **Exchange Rate Appreciation and decline in Foreign Exchange Reserve**

After the financial globalization India has been grappling with the problem of foreign exchange management. The problem that policy makers have been facing is that movements in exchange rate is influenced more by capital inflow or outflow than with the fundamentals in real sectors.

#### **Export Growth**

India's export registered more than 20 percent growth for 6 consecutive years since 2002-03, however the financial crisis and subsequent recession in the world economy decelerated the export growth to 3.4 percent in 2008-09.

The other direct impact of the global financial crisis has occurred in the area of credit availability to the small-scale agriculture and other rural livelihoods. The impact of the crisis on the rural sector, originated from the slowdown experienced by secondary and tertiary sectors. The fact that the present crisis adversely affected the manufacturing and service sectors imply that occupational diversification is more difficult to achieve. The financial crisis, therefore threatens to intensify the income deflation that is already a feature of the rural economy and simultaneously aggregate the alarming levels of hunger and malnutrition that currently exist in India.

#### **How RBI responded?**

With the world coming out of an economic crisis and India's inflation rate and rate of interest soaring high, one cannot help but think whether we are heading the same way again. If anything is to be learnt from history, it is that recession in an economy has an oscillatory effect. And anybody can see that the time intervals, between economic slumps, are decreasing. In times of crisis and economic volatility, the monetary and credit policy of nations are geared towards steady economic growth instead of economic booms. In essence, the monetary policy regulates the supply of money and the cost and availability of credit in the economy. Also, for precisely such purpose has the Reserve Bank of India ("RBI") been established in India and given wide powers under the RBI Act, 1934 ("Act").

Government's response through fiscal policy was cautious, given already massive expenditure through social sector

schemes, burden of 6th Pay commission and difficulties associated with curtailing expenditure and increasing taxes, once crisis is over. But monetary policy response of Reserve Bank of India (RBI) was quick; it announced multiple policy measures through conventional and unconventional instruments to ease the liquidity condition in the economy. The RBI has been effectively able to manage domestic liquidity and monetary conditions consistent with its monetary policy. This has been enabled by the appropriate use of a range of instruments available for liquidity management with the Reserve Bank such as the Cash Reserve Ratio (CRR), which was reduced to 5% in July 2009 from 9% in August 2008 and Statutory Liquidity Ratio (SLR) stipulation and Open Market

Operations (OMO) including the Market Stabilization Scheme (MSS) and Liquidity Adjustment Facility (LAF). Reduction in the repo rate (the rate at which RBI lends to the banks) from 9% as on October 2008 to 4.75% in July 2009 and the reverse repo-rate (RBI's borrowing rate) reduced to 3.25% in July 2009 from 6% as on October 2008 in order to improve the flow of credit to productive sectors at viable costs so as to sustain the growth. Further-more, money market liquidity is also impacted by our operation in the foreign exchange market, which in turn, reflects the evolving capital flows. The existing set of monetary instruments has thus, provided adequate flexibility to manage the evolving situation.

**Table 1: Actual/potential Release of Primary Liquidity since Mid-September 2008 till July 2009**

(Rs. Billion)

1.	Cash Reserve Ratio (CRR) Reduction	1600
2.	Open Market Operations	801
3.	MSS Unwinding/Buyback/De-sequestering	1,555
4.	Term Repo Facility (14days)	600
5.	Increase in Export Credit Refinance	266
6.	Special Refinance Facility for SCBs(Non-RRBs)	385
7.	Refinance Facility for SIDBI/NHB/EXIM Bank	160
8.	Liquidity Facility for NBFCs through SPV	250
	Total (1 to 8)	5,617
	Memo : Statutory Liquidity Ratio (SLR) Reduction	400

Source: Reserve Bank of India (RBI)

As a result of these policy measures, liquidity situation improved significantly. Table (1) shows that potential liquidity in system increased by Rs.5.6 trillion or 9.5 percent of the GDP. Average of daily Call money rates under the impact of reduction in CRR and Repo Rate declined from 9.9 percent in October-08 to 3.17 in May-2008.

Although RBI increased liquidity significantly, the utilization of liquidity by banking system was limited because of the low credit demand from the corporate sector and reluctance of commercial banks to lend during the recession.

So the financial sector has emerged without much damage thanks in part of our strong regulatory framework and in part on account of most of the nationalized banking sector.

## Prospects

India's economic performance in 2009-10 shows that the recovery from the slowdown during the global financial crisis is

well underway. India's exports increased 29.5 percent over the previous year and became \$105064 million and import increased by 19.0 percent during the same period and reached to \$161051 million. The balance of payment was \$-55986 million.

In 2009-10, the foreign exchange reserves increased to \$279.1 billion and as on 31st December, 2010, INDIA'S foreign exchange reserves was \$297.3 billion and according to the Reserve Bank of India's (RBI) Weekly Statistical Supplement it is \$303.51 billion on March 18, 2011.

The BSE Sensex also revived and reached to 17527.8 in last trading day of 2009-2-10 from 9708.5 on the same day in 2008-09. On the 30th April, 2010, it was 17558.7.

So, we can say that the trade and external sector of the country also witnessed heightened momentum due to the growth in exports, increase in capital inflows and addition in the foreign exchange reserves.

Due to the global nature of an economic crisis on one hand and accelerated trade and financial integration of the Indian economy with the world since the 1990s, the Indian economy is no longer immune from the repercussions of a global economic crisis. The RBI's monetary and credit policy during the recession and even after, shielded India from the fate of many other nations, United States of America to name one. However, with inflation rates and rate of interest at such a steep incline, the RBI needs to find more innovative and long term strategies to keep its head above the water. Another recession is inevitable, and as Edward de Bono said, "If you cannot accurately predict the future then you must flexibly be prepared to deal with various possible futures."

## Conclusion

We have analyzed that monetary stimulus package can lead to increase in GDP numbers during the slowdown period. The basic task of every central bank is to strike a balance between growth and inflation and RBI, presently, is stuck in this vicious circle only. Despite slowing from highs of 8% to 9% growth, India's economy grew close to 6% in 2009. Amid domestic and global liquidity crunch, large domestic savings and corporate retained earnings are financing investment. Sluggish labor market and wealth effects have hit urban consumption. But low export dependence, a large consumption base and the high share of employment (two-thirds) and income (one-half) coming from rural areas has helped sustain consumption. Pre-election spending, especially in rural areas, and high government expenditure, are also pluses. Timely monetary and credit measures have played a key role in improving private demand, liquidity and short-term rates and reducing the risk of loan losses.

Institutions like cooperative markets and credit cooperatives can go a long way in addressing the lack of economically viable producer prices and loaning credit availability for economic activities in the primary sector. Such an alternative policy to tackle the consequences of the financial crisis will require

effective Keynesian policies in the form of increased public expenditure at the rural and urban infrastructure. No doubt, India has come back to high growth but this new growth should have to come not from some new speculative bubble but from enlarged government expenditure that directly improves the livelihoods of the people and that is geared towards improving the production of food grains through a changing of peasant agriculture and not through corporate farming since that would reduce purchasing power in the hands of the peasantry and perpetuate its distress. In short, the new paradigm must entail infrastructure and food grain-led growth strategy on the basis of peasant agriculture sustained through larger government spending towards the agriculture and rural sector, which can simultaneously sustain the growth and remove the food crisis in India.

## References

1. *Economic Survey 2010-11, Ministry of Finance, Government of India, New Delhi;*
2. *Bhagwati Jagdish, "The Capital Myth," Foreign Affairs, May/June 1998, pp. 7-12;*
3. *RBI (2009), Report on Trend and Progress of Banking in India, 2008-09*
4. *RBI (2009), Annual Report (2008-09);*
5. *Reserve Bank of India. 2010. Financial Stability Report. Available at: www.rbi.org;*
6. *Stiglitz, J. 2010b. "India still on Track for Growth." Columbia Business School Public Offering. Available at: <http://www4.gsb.columbia.edu/publicoffering/topics/business>*
7. *India's Experience during Current Global Crisis: A Capital Account Perspective, Policy Research Institute, Ministry of Finance, Japan, Public policy review, Vol.6, No.5, June 2010*
8. *Hand Book of Statistics on Indian Economy 2009-10, Reserve Bank of India.*
9. *SEBI Bulletin, June 2010, Vol.8, Number-06 Security and Exchange Board of India (SEBI). Mumbai.*

# Relationship between Internal Service Quality and Front- Line Employees' Satisfaction Levels: A Review of The Hospitality Sector

Ms. Monika Attri\*

## Abstract

*This study explores the relationship between internal service quality and the satisfaction that it brings to front-line employees. The opinions, values, and practices of employees have a direct impact on the external value being delivered to the customers. The study discusses the significance of the roles of these front-liners in the compelling environment of the hospitality sector. It also covers the importance of contemporary and appropriate internal marketing practices in improving the internal service quality in typical service situations. The entire study has been conducted with the service profit chain in the background.*

## Introduction

World-class market performance in delivering high quality and cost competitive service is essential for survival in today's business environment. Therefore, most business organizations turn to their customers for quality assessment either directly or indirectly via measuring customer satisfaction. Many research publications, including the 2001 Malcolm Baldrige National Quality Award (MBNQA) guidelines ([www.quality.nist.gov](http://www.quality.nist.gov)), also emphasize the customer-based nature of quality management (for example, Anderson, Cleveland, and Schroeder 1989; Flynn, Schroeder, and Sakakibara 1995; Hackman and Wageman 1995; Saraph, Benson, and Schroeder 1989; Zeithaml, Parasuraman, and Berry 1990).

At the same time, competitive companies must support customer preferences with effective operations management. While successful marketing offers a product-service package that appeals to the needs and desires of a particular segment of

customers, this effort is futile without the ability to efficiently design, produce, support, and manage the distribution and delivery process. Therefore, in response to increased global pressures, many American firms have adopted practices such as total quality management (TQM), reengineering, benchmarking, and other improvement-oriented programs. The abundance of recent research on operations strategy has sought to explain how effective operations strategies facilitate the development of a competitive advantage in a variety of organizational settings.

While it is important for a firm to closely monitor and conform to the needs and preferences of its customers, it is equally essential to build a quality culture within the organization. The responsibility of delivering high-quality service ultimately rests on front-line employees (and their managers), and, therefore, the success of market focused initiatives also depends on employees' acceptance of quality culture (Heskett et al. 1994). Ultimately, the front-line service employees are the critical link

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to the customer. They are responsible for both understanding customer needs and interpreting customer requirements in real time. Often service employees are the service, and in all cases they represent the organization through the customers' eyes. Service employees impact the service quality perception primarily because of their influence on all five dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman, Zeithaml, and Berry 1988).

Building on the aforementioned ideas, this study aims to find out the relationship between internal service delivered to employees in the organization; external service value delivered to the customers, and measures taken to keep employees satisfied.

## Background

The significance of services continues to increase with the evolution of global economic expansion (Chase 1981; Silvestro et al. 1992; Verma et al. 2002). Accordingly, service management research has moved beyond the initial classification/theory development stage to the theory validation stage (Chase 1996; Flynn et al. 1990; Meredith et al. 1989; Swamidass 1991; Roth, Chase, and Voss 1997; Voss and Johnston 1995).

Many researchers contend that to effectively compete in a competitive marketplace, service companies must develop a sound operations strategy (Ahmad, Montagno, and Firenze 1996; Vickery, Droge, and Markland 1993; 1997). Operations strategy generally provides a framework around which organizations coordinate their various operating decisions. There is general consensus regarding the composition of the key competitive priorities (cost, quality, flexibility, and delivery), which comprise the content of a corporation's operations strategy (Anderson, Cleveland, and Schroeder 1989; Leong, Snyder, and Ward 1990). Similarly, it is commonly agreed that the effectiveness of a company's operations strategy can be measured by assessing the degree of strategic consistency among the employees for the competitive priorities that are emphasized regarding the structural and infrastructural decisions (Leong, Snyder, and Ward 1990). Along similar lines, Smith and Reece (1999) presented a model linking service strategy, fit, productivity, and performance for individual branches of a large organization. In essence, the degree of fit between an organization's competitive priorities and its key decisions regarding structural and infrastructural investment provides the key to developing the full potential of operations as a competitive weapon.

## Service Profit Chain

Over the past decade considerable emphasis and attention has been placed on the quality cultures of organizations (Gryna and Gryna 1999). The opinions, beliefs, values, and practices of employees regarding quality are the fundamental elements that define an organization's quality culture. Management must gain an understanding of the quality culture and apply this knowledge to plan for the successful implementation of quality-related activities.

The importance of employee variables in successful service organizations cannot be underestimated. Numerous studies have shown that the employees of an organization must be seen as a valuable resource for a company to successfully compete in the marketplace. There is ample evidence that satisfied employees make for satisfied customers. For example, Schneider and Bowen (1985) have shown that both a climate for service and a climate for employees' well-being are highly correlated with overall customer perceptions of service quality. They concur that both the service climate and human resource management experiences that employees have within their organization are reflected in how customers experience the service. Bowen and Lawler (1992) contend that motivated, empowered employees who have a clear vision of the importance of service quality to the firm will provide superior service. This superior service should result in greater customer satisfaction.

In an oft-cited study Heskett et al. (1994) introduced the concept of the service-profit chain. They examined the critical interaction of the front-line service employee and the customer and demonstrated that profitability and customer loyalty are closely related to employee productivity and motivation. They propose that by understanding the relationships among the links in the "service profit chain" an organization can develop an effective competitive strategy. Building on research conducted by Heskett et al. (1994), Rucci, Kirn, and Quinn (1997) studied Sears, Roebuck and Company's transformation process through the establishment of the employee-customer-profit chain model.

The model evolved from management's belief that there was a chain of cause and effect from employee behavior to customer behavior to profits. A set of measures was devised based on organizational objectives in three categories: 1) a compelling place to work; 2) a compelling place to shop and; 3) a compelling place to invest to make the employee-customer-profit chain model operational. The employee-customer-profit chain allowed the organization to assess the bottomline impact of behaviors across the chain.

Hayes and Hill (1999; 2001) investigated the effects of employee motivation and vision and organizational learning on perceived service quality in a service organization. The results of their research showed that employee motivation, vision, and organizational learning positively affect perceived service quality. They also found that employee motivation and vision mediate the relationship between organizational learning and perceived service quality, resulting in evidence that both a valuable resource (employee motivation and vision) and a superior capability (organizational learning) can positively affect a distinctive competence (service quality) and that resources can mediate the relationship between capabilities and competencies.

## Service Quality Issues

Because of the intangible nature of services, service quality is inherently more difficult to measure than product quality. Service quality perception results from a comparison of customer expectations with actual service performance. In their seminal paper, Parasuraman, Zeithaml, and Berry (PZB) (1985) proposed a conceptual framework for service quality. The PZB model was based on the interpretation of qualitative data from extensive exploratory research (focus groups and in-depth executive interviews) performed in four service businesses. Their research revealed 10 dimensions transcending different types of services that customers use in forming expectations about and perceptions of services received. PZB also identified four distinct gaps on the service provider's side that potentially affect customer perception of service quality. Since the introduction of the conceptual service quality model, PZB published the 22-item instrument referred to as SERVQUAL (Parasuraman, Zeithaml, and Berry 1988). The intent of the instrument was to provide a tool for assessing customer perceptions of service quality in service and retailing organizations. Perceived service quality is the degree and direction of discrepancy between customers' perceptions and expectations.

Customer perceptions are subjective assessments of actual service experiences. Customer expectations are the standards or reference points for performance against which service experiences are compared and are often formulated in terms of what the customer believes should happen. Their research found that customers consider five dimensions in their assessment of service quality, including:

**Reliability** The ability to perform promised service dependably and accurately

**Responsiveness** The willingness to help customers and provide prompt service

**Assurance** The employee's knowledge and courtesy and their ability to convey trust and confidence

**Empathy** The caring, individualized attention given to customers

**Tangibles** The appearance of the physical facilities, equipment, personnel, and written materials.

The dimensions represent how the customers organize information about service quality in their minds. The number of dimensions that influence customer perceptions varies from service encounter to service encounter. Sometimes customers use all of the dimensions to determine service quality perceptions and other times consider a limited subset of the dimensions.

## Importance of Service Employees' in Hospitality Sector

The hospitality industry is a several billion dollar industry which mostly depends on the availability of leisure time and the level of disposable income. The demand in the hotel industry has been soaring further still. This seems to be a lucrative line of business. However, in this world of servicing guests, there seem to as many challenges as there are challenging customers. The biggest one being a **consistent service experience**.

The importance of concept intangibles, their significance to lifestyle and cultural preferences of customers in themselves represent a major challenge. Such intangibles may be more vulnerable to changes in customer perceptions than the physical aspects of products and service delivery. However, intangibles also present an opportunity for entrepreneurs to create alternative and differentiated concepts, based on their own view and intuition of what customers will find appealing.

**Customers' experiences** of service depend on the hotel employee catering to their requirements. One of the key areas to be emphasised upon is the service encounters where the customers interact with the boundary spanners.

**Employees in an organization form the service as well as the brand.** Investments in employee success are the key drivers of sustained business success in organizations. Investing in the employee to improve the service is equivalent to making a direct investment in the improvement of a manufactured product.

**As per the service profit chain,** satisfied employees make for satisfied customers. And a satisfied customer can reinforce

employees sense of satisfaction in their jobs. Since organizations today aim at delighting customers, they must also think of delighting their employees.

Satisfied employees under normal circumstances can be retained by the organization. Often they are the ones responsible for higher productivity. But does satisfaction of the employees have an effect on service quality.

In the hospitality industry, **face value of service encounters** and the precision with which activities are performed, have an integral role to play. It makes the role of those who perform these activities i.e. the **front-line employees or boundary spanners**, even more critical. They physically **embody the product/service** and are walking billboards for the organization. This makes them effective marketers. Boundary spanners are responsible for creating moments of truth and lasting impressions on the customers' minds.

**Experiential marketing** is most prevalent in the hospitality industry. Word of mouth brings in prospect business. Repeat business coming from loyal customers contributes a major chunk towards the overall business volume. Out of the five dimensions of service quality, reliability contributes the most to this form of business.

The compulsive and competitive environment in hotels makes it all the more important for service managers to keep their teams happy. **As suggested by the Service Profit Chain**, internal service quality leads to employee satisfaction. Satisfied employees deliver higher standards of external service value to customers. The fact itself gives us an opportunity to find out whether investing in the employees could have positive results on the external service value. However still there's lot of scope for countering this, as too many efforts may also enhance expectations which in the long run may be difficult to fulfill.

The opinions, values, and practices of employees regarding quality are the fundamentals that define quality culture in many service organizations. Management must apply this knowledge to plan for the successful implementation of service-quality related activities.

Front-line employees provide a link between the external environment and the internal operations of the organization. The key to running successful businesses is utilizing this interface to gather customers feedback on the front-line. The most important interactions are "moments of truth", those relatively few points of contact that hold the greatest potential to delight or alienate an organization's customers. As they mine the steady flow of customers feedback, companies should pay

particular attention to these touchpoints. Allianz CEO Michael Diekmann recognized that no group was better positioned to pinpoint the make-or-break customer experiences and come up with effective ways of improving them, than the tens of thousands of customer-facing Allianz employees who delivered services day in and day out (Markey, Reichheld & Dullweber, 2009). This valuable feedback from the customers is passed on to the top-level management via the front-line employees.

A clear understanding of the customers' perceptions about the service experience helps the management take important strategic decisions about service quality and creation of external value for customers. This results in inculcating a sense of achievement and satisfaction in the minds of the front-line employees. But there is a dire necessity for organizations to go much beyond this in the process of keeping the front-liners happy and satisfied and most importantly engaged.

### **Strategies to Enhance Front-Line Employees' Satisfaction Levels**

#### **It's not just the check anymore.**

Today's employees are looking for more than just a paycheck, and many companies have learned that paying more than the competition is not necessarily the best or even an effective way to recruit qualified personnel.

As the hospitality industry is expanding, managing employees has become even more critical. The way managing employees has become important, it has also become challenging due to higher employee expectations. **Internal marketing** comes in as a respite to managers in hotels who deal with front-line employees on a regular basis.

Hotels not only compete with each other for talent, but also against a broader category of people-intensive, service-oriented industries. In this environment, hotels are trying to improve their internal marketing practices by examining their wage strategies, decentralizing their HR operations, outsourcing certain functions and implementing new technologies.

Indeed, many firms are making strategic choices to invest in training and recognition programs to gain a competitive edge, increase retention and build morale.

Others are adjusting pay levels, but not necessarily across the board. Instead, they are implementing job classification programs and performance-based pay systems to remain competitive while still keeping salary costs of the hotel in line.

However, monetary component of the remuneration is still as important today as it has been always. To design the best possible compensation package, firms need to know if their wages are in line with market standards. However, compensation data on front-line staff is difficult to find.

### **People don't leave their jobs, they leave their managers.**

Although committed and loyal employees are the most influential factor to becoming an employer of choice, still hotels face significant challenges in developing energized and engaged workforces. There is ample research to prove that increased employee commitment and vision for excellence can positively impact the hotel's bottom line. The true potential of a hotel can only be realized when the productivity level of all individuals and teams are fully aligned, committed and energized to accomplish the bigger goals of the hotel.

As a result, the goal of every company should be to improve the desire of employees to stay in the relationship they have with the company. When companies understand and manage employee loyalty - rather than retention specifically - they can reap benefits on both sides of the balance sheet i.e., revenues and costs.

One of the key steps to understanding and improving employee loyalty is by acknowledging the importance of the following factors in building loyalty and satisfaction:

- Broadly-defined responsibilities rather than narrowly-defined job functions
- Effective and regular performance evaluations, both formally and informally
- A corporate emphasis on employee learning, development and growth
- Wide-ranging employee participation in the organization as a whole

Typically, a combination of factors influences employees' decisions to stay at their current job. Contributing factors include satisfying work, a sense of job security, clear opportunities for advancement, a compelling corporate mission combined with the ability to contribute to the organization's success, and a feeling that their skills are being effectively used and challenged. Specifically, employees who enjoy their work, identify themselves with their employer and perceive that the company is flexible regarding work and family issues also intend to stay with the organization.

In particular, consider the following elements of effective strategies designed to provide satisfaction and retain key employees:

- Include opportunities for personal growth and invest heavily in the professional development of the best people in the organization.
- Provide employees with well-defined career paths (including a succession plan), mentors and tuition reimbursement for job-related education.
- Train employees, even if it makes them more attractive to the competition. Without seeing an opportunity on the horizon, few high potential employees will stay with a company and allow themselves to grow stagnant.
- Acknowledge non-work priorities by recognizing and responding to employees' needs for greater balance in their lives, since employees will develop loyalty for organizations that respect them as individuals, not just as workers.

Another important strategy for improving loyalty is to implement a systematic process of performance reviews, since effective reviews can simultaneously increase employee morale and productivity. To achieve their primary objectives, such as improving the working relationship between employee and supervisor, performance reviews should be structured so as to:

- Accurately define the employee's job description, including a focus on the skills most important to the employee's job
- Discuss the job skills the employee performs well on and identify areas that need improvement so as to fairly summarize their most recent job performance
- Set mutual and worthwhile goals, which are the heart of a professional growth plan
- Provide useful coaching to improve the employee's performance

With these objectives, performance reviews can make an important and ongoing contribution to furthering each employee's career.

Another important influence on employee satisfaction is a sense of being led by capable management, with both immediate supervisors and senior management having a clear sense of direction for the organization. One of the forces that disconnect employees from their companies is management's ever-changing corporate focus. Employees are therefore skeptical at best - and cynical at worst - about their company's perpetually shifting focus. Without a constant, long-term strategic vision, organizations risk confusing, bewildering, depressing and disconnecting with their employees. Within an environment of ever-changing focus, employees find it hard to see a strong link between their role and the company's core purpose. Alternatively, communicating a company's shared vision and establishing a shared mission with employees are important means of enhancing employee commitment.

Employees feel a stronger sense of job satisfaction when they agree with the strategic decisions, especially when they are involved in developing the strategic direction.

Recent studies have shown that managers, whether front-line supervisors, project leaders, team captains or senior management, actually have more power than anyone else to reduce unwanted employee turnover because the most important factors driving employee satisfaction and commitment are largely within the direct manager's control. These include providing recognition and feedback regularly, offering opportunities to learn and grow, helping to ensure fair compensation reflecting an employee's contributions and value to the organization, fostering a good work environment, and above all, recognizing and respecting the uniqueness of each employee's competencies, needs, desires and working style.

At the supervisory level, though, managers also need to strike the right balance of using a more employee-centered leadership style, under which their employees are welcome to participate in making decisions (i.e., "leadership through collaboration") When the participatory approach becomes excessive, employees may feel that they are being given more responsibility than their positions should require and, thus, can feel overworked or underpaid for the work expected.

Also, the nature of many hotelier roles suggests that customer satisfaction will be enhanced when people work as teams. Firms use teams to enhance service quality and rewarding teams ensures higher levels of performance. Team-based rewards are used to encourage co-operation between departments and individuals and manage internal service quality effectively.

## Concluding Remarks

As discussed, investments made in service employees of a hotel is comparable to investments made in improving the quality of a tangible product. A satisfied employee creates good service value for the external customer. This customer automatically becomes satisfied with the quality of service. So, there is a dire necessity for customer-centric hotels anticipating success and growth, to be able to provide good service quality internally as well as externally. These organizations need to completely understand the needs, wants, demands and desires of the employees so as to bring in a substantial improvement in the overall service quality and the corresponding customer satisfaction levels. Internal marketing to the employees of the hotel is an important tool in the hands of the management. This should cover monetary as well as non-monetary benefits to the employees. The monetary benefits include the fixed salary as well as performance incentives and tips which are often given by guests to the hotel staff. The non-monetary benefits include

employee training on interpersonal & communication skills, product training, guest handling etc. Strong leadership, participative management, team-building approach, healthy work environment and employees' wellness audits are the key factors linked to employees' commitment and satisfaction. An important role is played by the supervisor who should conduct effective performance appraisals and develop broader job designs for his team members. All this will have positive and drastic effects on internal service quality.

In all, treating the employees as internal customers sets the stage for external value delivery to the guests of the hotel. But does this also imply that keeping employees happy will have a direct and specific impact on the service quality dimensions. This is a bigger area to be explored.

## References

1. Ahmad, N. U., R. V. Montagno, and R. J. Firenze. 1996.
2. Anderson, J. C., G. Cleveland, and R. G. Schroeder. 1989.
3. Barger, P.B. & Grandey, A.A. (Dec 2006). *Service with a smile and encounter satisfaction: Emotional contagion and appraisal mechanisms. Academy of Management Journal*, 49(6). Retrieved from Emerald Management Reviews Database.
4. Black, S., and L. Porter. 1996. *Identification of the critical factors of TQM. Decision Sciences* 27 (1): 1-21.
5. Bowen, D. E., and E. E. Lawler. 1992. *The empowerment of service workers: What, why, how, and when. Sloan Management Review* 33 (3): 31-39.
6. Browning, V. (Jul 2006). *The relationship between human resource management practices and service behaviour in South African service organizations. The International Journal of Human Resource Management*, 17(7). Retrieved from Emerald Management Reviews Database.
7. Carman, J. M. 1990. *Consumer perceptions of service quality an assessment of SERVQUAL dimensions. Journal of Retailing* 66 (1): 33-55.
8. Chase, R. B. 1978. *Where does the customer fit in a service operation? Harvard Business Review* (November-December).
9. Clow, K.E., & Kurtz, D.L. (2004), *Services Marketing* (2nd ed.). Biztantra.
10. COOK, L.S. and Verma R. 2000. *Exploring the linkages between Quality System, Service Quality, and Performance Excellence: Service Providers' Perspectives. Quality Management Journal* Vol.9/No. 2: 38-56.
11. Crick, A.P. & Spencer A. (2011). *Hospitality Quality: New directions and new challenges. International Journal of Contemporary Hospitality Management*, 23(4), 463- 478. doi: 10.1108/09596111111129986

12. Cronin, J. J., and S. Taylor. 1992. *Measuring service quality: A reexamination of the extensions. Journal of Marketing* 56: 55-69.
13. Ekinci, Y. & Dawes, P.L. (2009). *Consumer perceptions of frontline service employee personality traits, interaction quality and customer satisfaction. The service Industries Journal*, 29(3). Retrieved from Emerald Management Reviews Database.
14. Flynn, B. B., R. G. Schroeder, and S. Sakakibara. 1995. *The impact of quality management practices on performance and competitive advantage.*
15. Gryna, D., and F. Gryna. 1999.
16. Harrison, & Virick, M. (Winter 1997). *Managing the boundary spanner: Customer turnover connection.*
17. Hartline, M.D. & Ferrell, O.C. (Jan 1996). *The management of customer- contact employees: An empirical investigation. Journal of Marketing*, 60(4). Retrieved from Emerald Management Reviews Database.
18. Hays, J. M., and A. V. Hill. 2001. *A preliminary investigation of the relationships between employee motivation and vision, service learning, and perceived service quality.*
19. Heskett, J. L., T. Jones, G. Loveman, W. E. Sasser, and L. Schlesinger. 1994. *Putting the service profit chain to work. Harvard Business Review* (March-April).
20. *Human Resource Management Review*, 7(4). Sinha, N.M. (2010, February 7). *Foreign beds galore. Business India.*
21. Kattara, H.S., Weheba, D. & El-Said, O.A. (2008). *The impact of employee behaviour on customers' service quality perceptions and overall satisfaction. Tourism and Hospitality Research*, 309(8), 309-323. doi:10.1057/thr.sagepub.2008.1.13
22. Lloyd, A.E. & Luk, S.T.K. (2011). *Interaction behaviors leading to comfort in the service encounter. Journal of Services Marketing*, 25(3), 176- 189. doi: 10.1108/08876041111129164
23. Lovelock, C., Wirtz, J., & Chatterjee, J. (2007), *Services Marketing* (6th ed.) Pearson Education.
24. Markey, R., Reichheld, F., & Dullweber, A. (Dec 2009). *Closing the customer feedback loop. Harvard Business Review South Asia.*
25. Parasuraman, A., L. L. Berry, and V. A. Zeithaml. 1991.
26. Parasuraman, A., V. A. Zeithaml, and L. L. Berry. 1985. *A conceptual model of service quality and its implications for future research. Journal of Marketing* 49 (Fall): 41-50.
27. Peter, J. (2010, January). *Managing the downturn with style. Human Capital.*
28. Roth, A. V., R. B. Chase, and C. Voss. 1997. *Service in the U. S. Severn Trent Plc*
29. Rucci, A., S. Kirn, and R. Quinn. 1997. *The employee-customer-profit chain at Sears. Harvard Business Review* (January-February): 83-97.
30. Shikari, A. (2010, January). *Structured team rewards. Human Capital.*
31. Shikari, A. (2010, January). *Wellness Audits. Human Capital.*
32. Slatten, T. (2008). *Antecedents and effects of emotional satisfaction on employee- perceived service quality. Managing service quality*, 18(4). Retrieved from Emerald Management Reviews Database.
33. Slatten, T. (2009). *The effect of managerial practice on employee- perceived service quality: The role of emotional satisfaction. Managing Service Quality*, 19(4). Retrieved from Emerald Management Reviews Database.
34. Smith, T. M., and J. S. Reece. 1999. *The relationship of strategy, fit, productivity, and business performance in a service setting. Journal of Operations Management* 17: 145-161.
35. Snipes, R.L., Oswald, S.L., LaTour, M. & Armenakis, A.A. (Oct 2005). *The effects of specific job satisfaction facets on customer perceptions of service quality: An employee level analysis. Journal of Business Research*, 58(10). Retrieved from Emerald Management Reviews Database.
36. *Validating the Malcolm Baldrige National Quality Award framework through structural equation modeling. International Journal Production Research* 38 (4): 765-791.
37. Woodruffe, H. (1998), *Services Marketing* (1st ed.). Pitman Publishing.
38. Zeithmal, V.A., & Bitner, M.J. (2006), *Services Marketing* (4th ed.). Tata Mc Graw- Hill.

# Determining the Effective Factors for Third Party Logistics (3PLs) Selection in Appliance Manufacturing Industry

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Mahrokh Makhsos\*\*

## Abstract

*The purpose of this research is to identify factors and indexes influencing the selection of third party logistics service providers (3PLs) in Iranian trading system for product distribution in appliance manufacturing industry. The factor analysis method is used for analyzing data obtained from the questionnaire. The research sample includes 230 key managers of appliance manufacturing industry in companies located in Tehran and Markazi provinces in Iran, during the first half of 2012. The plain random method is employed for the sample selection. The findings of factor analysis indicate that 38 attributes are grouped in five factors which are quality and operation, history and position, financial and technical position, communication management structure, cost, and resources all included in the proposed model.*

**Keywords:** Logistics; 3PL; Supply chain management; Selection.

## Introduction

One of the theories with increasing importance in recent years is supply chain concept. Currently, a great progress has been occurred in the techniques of supply chain management. One reason is that with the elimination of trade barriers and opening of markets, the intensity of competition has been increased and as a result, companies need to be more competitive and to increase their cost effectiveness. Supply chain management plan is effective in achieving such goals. The supply chain management includes the management of primary and supportive activities, resources, and supplier-customer relationships required for product/services delivery. Successful implementation of such plan makes it possible to gain competitive advantage through reduced costs differentiation. Some researchers believe that it is possible to reduce costs significantly through effective supply chain management (Singh Bhatti et al., 2008, 279).

Today, the supply chain management is enumerated as one of the fundamental principles of e-business infrastructure in the world. In the contemporary global competition, it is necessary to make available a variety of products according to customer's demands. Customers' request for high quality and fast services has created unprecedented pressures; in this way, companies can no longer do alone all their tasks.

In the present competitive market, manufacturing and business firms need more focused efforts in relation to management of resources and factors outside of the firms. In fact, the firms try to achieve competitive advantage(s) through higher market share. For this reason, some activities e.g. demand and supply planning, material provision, product planning and manufacturing, services and goods supply, inventory control, distribution, and delivery are now depended on supply chain as a whole.

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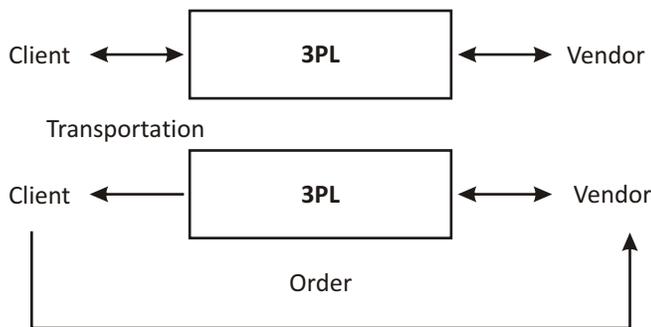
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A key issue in the supply chain is the coordinated and integrated control and management of all such activities. The supply chain management makes it possible for customers to receive a fast and reliable service as well as a high quality product with a minimum cost (Porter, 2003).

Today, a convenient transportation network is very important in the efficient and effective logistics services. The convenient network means a system with the maximum power, flexibility, and efficiency along with the least cost. Product transportation network is commonly referred to as the road transportation (Javanmard, 2004, 262).

Logistics services are known as one of the strong arms of management in every organization and play an important role in achieving the organizational objectives. The logistics management provides a balanced relation between the logistics levels and supply sources from one hand and consumer units in organizations from other hand such that goods and materials are provided for customers with the least cost and expenditure. The feedback from parties will increase the productivity (Rajab Zadeh, 2007, 91).

The relationship between the 3PL provider, the seller, and the buyer as the customer is classified as the following model. Each model is applied based on specific conditions and business system in a country or region. The research aims at using the 3PL according a model in which customer makes an order electronically, the seller provides a two-way communication with the 3PL provider, and the 3PL provider makes the product available for the customer (client).



Based on the managerial structure of 3PL communication process, it is divided into financial management, transportation management, inventory management, and information management (Singh Bhatti et al., 2008, 275-285).

**Literature review**

In their interview with 271 managers and consultants of 71 organizations in different industries such as transportation,

banking, pharmacology, military, finance, and oil in the USA, Europe and Australia, Sini and Cassy (2001) examined outsourcing activities and indexes (Chashm-Berah and Mortazavi, 2007, 23).

Beneth M. Bimonin his proposal indicates that the logistic performance cannot be measured efficiently by a single index. He believes that a performance measurement system should be effective on three types of performance measures i.e. flexibility measurement, resource measurement, and output measurement each of which with their unique measurement indexes. In addition, the performance measurement system should be able to quantify each of these criteria, because each of these criteria is critical in the success of logistic supply chain (Khalaj, 2004, 4).

Singh Bhatti et al. (2008) reported a list of important parameters for the third party selection among the world class logistic suppliers. Their research aim was to provide benefit for the final consumer/client.

In their research under the topic of “Using ANP for selection of the best supplier in the supply chain”, Mohammad Bagher Zadeh and Behrooz Dorry (2008) provided some discussions about the most important evaluation criteria and their selection for the best strategic supplier in the strategic supply chain.

**Methodology**

The present research main objective is the identification and classification of factors and indexes influencing the selection of third party logistics providers (3PLs) in appliance manufacturing industry. According to data collection method, the research is classified as an applied research; the research sample is representative of the studied features and data are collected from appliance manufacturing industry in companies located in Tehran and Markazi Provinces in Iran.

**Identification of indexes**

In the social and economic researches, there are a huge number of variables due to the nature and the scale of measured variables. The present research aims at accurate analyzing of data, so it is tried to reduce the data volume from one hand and to propose a new structure for data. The studied indexes and factors are extracted from Singh Bhatti et al. (2008) and Bagher Zadeh and Dorry (2008). In a group session, then, the proposed indexes are evaluated by the experts. Table 1 lists the indexes.

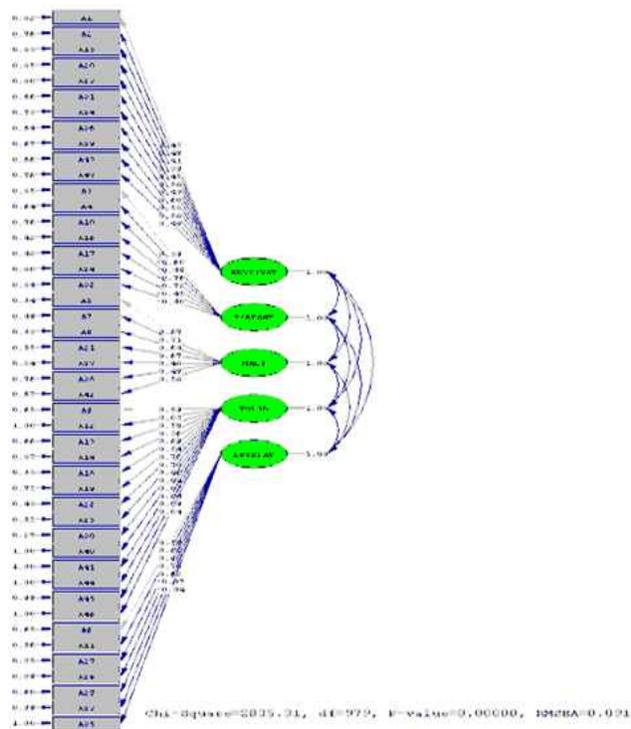
Table 1: The studied indexes

Factor	Factor
1. Quality	25. Quality of relationship with supplier
2. Transformation	26. Quality of relationship with supplier
3. Performance history	27. Higher market share
4. Guarantee and claim policy	28. Increase of competitive advantage
5. Manufacturing capacity and price	29. Innovation improvement
6. Price	30. Long term relation with buyer company
7. Technical capability	31. Inventory turnover
8. Financial capacity	32. Distance
9. Communication system	33. Cost level
10. Reputation and position in the industry	34. Attention to quality
11. Desire for business	35. Activity costs
12. Management and organization	36. Delivery timing
13. Correction and dispute resolution	37. Designing ability
14. Attitude and perception	38. Prototype timing
15. Ability and quality of packaging	39. Quality system
16. Experience in business	40. Joint designing
17. Geographical location	41. Technology level
18. Supportive objectives	42. Activity capacity
19. Compatibility with similar culture	43. Product diversity
20. Attention to product performance	44. Effective use of CAM/CAD
21. Fabrication and production costs	45. Effective use of ERP-MRP
22. Technology and information services	46. Effective use of the Internet in business
23. Responsiveness to customer	47. Optimization of supply chain by efficient response to customers
24. Supplier professionalism	

Based on the KMO Test with value of 0.791 and the Bartlett Test (2923/146) which is meaningful at the error rate smaller than 0.01, the attributes' correlation matrix is not an identity matrix i.e. from one hand, there is a high correlation between the

attributes inside each factor and from the other hand, there is not any correlation between the attributes of a factor with attributes of other factor.

Figure 1: Estimated standard values for the first order five-factor model



As it is indicated in analysis, 38 attributes from 46 attributes have a significant factor loading confirming the research main objective (Determining the key factors and criteria in selecting a 3PL logistic provider).

According to the results of factor analysis, the attributes are classified in different factors confirming the research second objective (Based on factor analysis, classification and importance of selection criteria for 3PL).

**Table 1: Attributes related to the first factor (Quality and operation)**

Attributes	Factor loading
Quality	0.43
Delivery	0.49
Ability and quality of packaging	0.41
Attention to product performance enhancement	0.39
Responsiveness to customer	0.45
Inventory turnover	0.58
Attention to quality	0.47
Delivery timing	0.50
Quality system	0.58
Product diversity	0.58
Optimization of supply chain by efficient response to customers	0.49

According to the Table 1 , inventory turnover, quality system, and product diversity have the highest factor loading.

**Table 2: Attributes related to the second factor (Experience and position)**

Attributes	Factor loading
Performance history	0.39
Guarantee and claim policy	0.50
Reputation and position in the industry	0.49
Performance and business experience	0.76
Geographic location	0.72
Supplier professionalism	0.45
Distance	0.40

As it is indicated in the table 2, performance and business experience have the highest factor loading.

**Table 3: Attributes related to the third factor (Technical and financial capability)**

Attributes	Factor loading
Manufacturing capacity and price	0.67
Technical capability	0.71
Financial capability	0.65
Fabrication and production costs	0.67
Designing ability	0.40
Prototype timing	0.49
Activity capacity	0.58

The results reveal that technical capability has the highest factor loading.

**Table 4: Attributes related to the fourth factor (Communication management structure)**

Attributes	Factor loading
Communication system	0.59
Correction and dispute resolution	0.58
Attitude and perception	0.36
Supportive objectives	0.69
Compatibility with similar culture	0.54
Technology and information services	0.72
Quality of relationship with supplier	0.70
Long term relation with buyer company	0.86

The results show that long term relation with the buyer company has the highest factor loading.

**Table 5: Attributes related to the fifth factor (Cost and resources)**

Attributes	33
Price	0.59
Desire for business	0.66
Higher market share	0.81
Increase of competitive advantage	0.78
Innovation improvement	0.63

The results indicate that higher market share has the highest factor loading.

### Research proposed model

There are numerous factors for the selection of 3PL logistic providers. Research literature and firms' experiences refer to some of these factors, but the present research proposes the factors in fig.2 for the selection of third party logistics providers (3PLs) in appliance manufacturing industry.

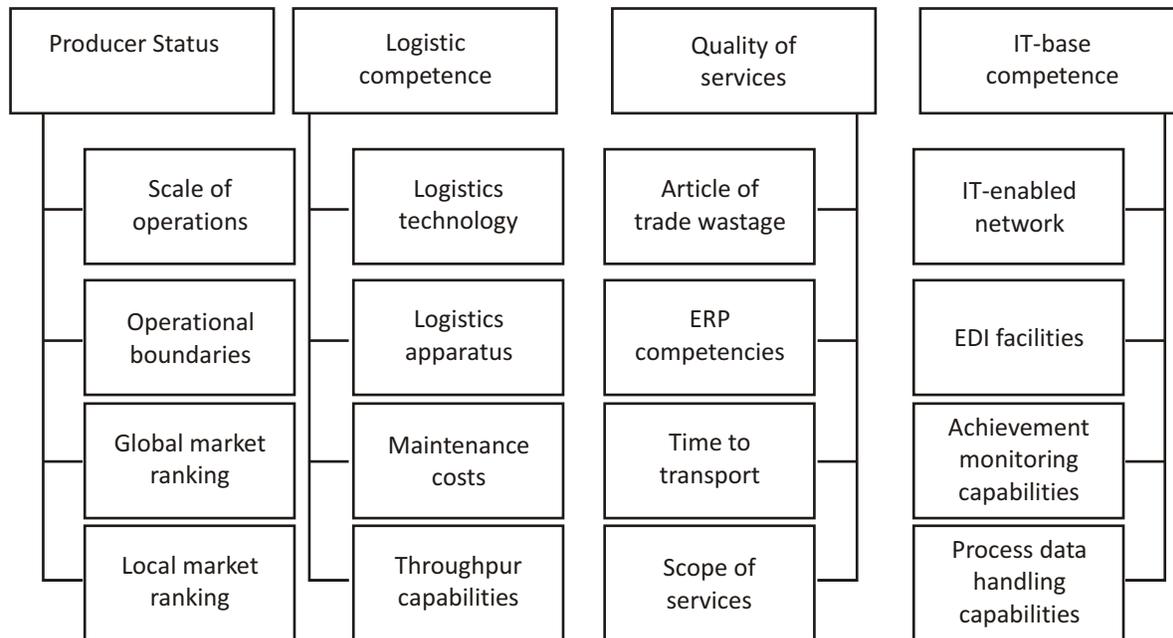


Figure 2: Proposed Model

### Recommendations for future researchers

The Multiple Attribute Decision Making (MADM) methods can be used for the selection and ranking of logistic criteria. A model for evaluation of 3PL logistic providers' performance is needed. Productivity and efficiency of 3PL logistic providers need further analysis. Opportunities and threats of using 3PL logistic providers should be evaluated more precisely. Competitive advantages and strategic facilities for employing 3PL logistic require deeper analysis.

### References

1. Davidrajuh, R., "Automotive supplier selection procedures" Ph. D Dissertation, Industrial Engineering at Narvik Institute of technology, Narvik, Norway, (2000), P. 12-80.
2. Esper, T. L. Clifford Defee. C and Mentzer, J.T. (2010), "A framework of supply chain Orientation", *The International Journal of Logistics Management*, Vol. 21, No. 2, pp. 161 - 179.
3. Fasanghari, M. Habibipour Roudsari, F. and Chaharsooghi, K. (2008), "Assessing the Impact of Information Technology on Supply Chain Management", *World Applied Sciences Journal*, Vol. 4, No. 1, PP. 87-93.
4. Javanmard, H. (2007), "An approach to partner selection in supply chain", *Global conference on supply chain partnership*, NITJ Jalandhar, India.
5. Khalaj, M. (2004), "Productivity optimization of maintenance based on using PM in an Iranian Chassis manufacturing company", *Master thesis, Islamic Azad University, Arak branch, Iran*.
6. Kun Cho, J. J. Ozment, J and Sink, H. (2008), "Logistics capability, logistics outsourcing and firm performance in an e-commerce market", *International Journal of Physical Distribution & Logistics Management*, Vol. 38, No. 5, pp. 336-359.
7. Lieb, R. Bentz, B. (2004). "The Use of Third Party Logistics Services by Large American Manufacturers: The 2004 Survey", *Transportation Journal*, Vol. 44, No. 2, pp. 5-15.
8. Porter, Susan (2003), "Chat: from the desk of a subject librarian", *Reference Services Review*, Vol. 31, Iss: 1, pp. 57–67.
9. Rajab Zadeh, A. et al. (2007), "Applied decision making", First edition, Tehran: Negahe-Danesh Publications.
10. Singh Bhatti, Rajbir; Kumar, Pradeep; Kumar, Dinesh (2010), "Analytical modeling of third party service provider selection in lead logistics provider environments", *Journal of Modeling in Management*, Vol. 5, No. 3, pp. 275-286.
11. Tseng, Y-yu. YUE, W.L and TAYLOR, M.A.P,(2006), "The Role of Transportation In Lgistics Chain", *Proceedings of the Eastern Asia Society for Transportation Studies*, Vol. 5, p.1657-1672.

# Surveying the Infrastructure and Capabilities for knowledge management Implementation in Supply Chain

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Mahdi Javanmard\*\*

## Abstract

*This study tries to find the operational status of the key factors of knowledge management implementation in supply chain at markazi Province in Iran. The samples are 250 employees. The Questionnaire used for data collection. The results show that, the conditions of technology infrastructure, culture and protection of knowledge is appropriate for the implementation of knowledge management, but the organizational structure, knowledge acquisition, knowledge conversion, and application of knowledge for the implementation of knowledge management is not appropriate.*

**Keywords:** Knowledge Infrastructure Capability, Knowledge Process Capability, Factors, Knowledge management, operational status.

## Introduction

Organizational knowledge management is one of the most important success factors of companies in the competitive circumstances and information era. The importance of this issue to the extent that today some organizations are measuring their knowledge and use it as a criteria for intellectual capital of the organization as well as an indicator for ranking companies in their reports (Mousavi, 2001,12-23). These entities consider the establishment of knowledge management as part of the organization strategy that is necessary (Hasanzadeh 2001, 82-85).

After introduce the concepts of re-engineering, total quality management, the concept of knowledge management and its systems will be established (Bonfield, 2009, 15-25). First, knowledge management focused on information systems then changed its force to the development of intellectual capital management and management skills. By analyzing the

characteristics of knowledge in performance within organizations, it has become an undeniable necessity. Especially when the change process of society is evaluated, it is resulted that today's post-industrial society is an information society in which position of amplifier technologies is changed with increasing knowledge of technologies gradually (Hariharan, 2008, 52-63).

Knowledge is an important factor of the third millennium as a tool to remove or reduce the gap between developed and developing countries, therefore international organizations and national governments focused on it. It is an essential element to get the development based on knowledge management. If the knowledge is not managed properly and individual knowledge does not change to collective knowledge, so it cannot be considered as basis of development (OECD, 2003). Knowledge is as the most important factor for competition in the government's entities. Personnel transferring, retiring, absence, and ... will create new challenges for the organization

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and training of new employees. So knowledge management to maintain institutional memory of the organization is full of knowledge by which preventing the loss of people knowledge and create creativity and innovation with combination of different knowledge of people. The HEPCO supply chain is not exempt from this. It should be responsive to all activities in the society as if the quality and quantity of services create satisfaction for customers.

An organization will be reach to this situation if it can find knowledge-oriented staff who steps up in the course of organization goals with new and innovative ways. Thus, the requirement of knowledge management system is necessary in supply chain, and it must provide to implement the system appropriate infrastructure for all suppliers.

## **Knowledge Management**

Converting data into information and then into knowledge, is the main subject of knowledge management (Afrazeh, 2005, 106-130). Data collection has affected by core value of organization, data will be catching the meaningfulness through human interaction, and IT processes. Then, through available processes in the field of data gathering environment, giving meaning to data, combination and thinking are converted to the knowledge, which is related to the decision making in organization (zaafarian, 2006, 75-102).

As Patrish research, comprehensive and more acceptable definition of knowledge management is as follow: knowledge management is true knowledge acquisition to the right people at the right time and at the right place, so that they are able to use the knowledge in best way to achieve organization goals (U.S. productivity and quality center, 1996).

When it comes to the relationship between IT resources and organizational performance the resource-based view (RBV) offers a useful lens for understanding this link. In essence, the RBV argues that "firms possess resources, a subset of which enables them to achieve competitive advantage, and a further subset which leads to superior long-term performance" (Wernerfelt, 1984, p.108). However, the RBV is void of a single definition of the term "resource" (Wade and Hulland, 2004) with many researchers using the terms "resources" and "capabilities" interchangeably (Christensen and Overdorf, 2000; Gold et al., 2001; Sanchez et al., 1996). However, Grant (1991) suggests that a firm's resource is the basic unit of analysis and provides direct input to the production process while the firm's capability represents an aggregation of resources or "the capacity for a team of resources to perform some task or activity" (Grant, 1991, p. 119). Thus "resources are the source

of a firm's capabilities, [and] capabilities are the main source of its competitive advantage" (Grant, 1991, p. 119). Consequently, both resources and capabilities can contribute to a firm's bottom-line (Grant, 1991). However, few resources are productive on their own and, it is the overall capabilities that are considered the true drivers of the firm's productivity (Grant, 1991).

The RBV also recognizes that while some resources may lead to performance enhancements, others do not, and that the combination may differ across industries and firms. As such, a key challenge for firms is to identify and leverage those resources that directly impact organizational performance (Wade and Hulland, 2004; Zack et al., 2009). Based on this understanding of the relationship between resources, capabilities and organizational performance, the next section examines knowledge management capabilities, the resources that make up these capabilities, and the theorized links between these resources and organizational performance. A decomposed model of knowledge management capabilities is then assessed vis-a`-vis organizational performance, and the results compared with a composite model of knowledge management capabilities. Implications for future research and practice follow Knowledge management is consist of management practices and to prepare context for knowledge conversion via collection and sharing and use of knowledge as an asset in order to achieve organizational goals (Khalili Farsangi, 2009, 19).

### **The necessities of knowledge management**

The number of key requirements, which caused to implement knowledge management by organizations, may be including:

High mean of expert staff age

Lack of training plan to help sharing and moving of knowledge among experts and approaches.

Number of knowledge-based employees leave the organization due to retired, finding better job, die and ...

Organizations do not perform the base works for establishment and maintenance of knowledge.

Different departments of organization know nothing about works of other departments, even during joint working (Akhavan, 1384,5)

### **Components of Knowledge Management**

Knowledge management supports the aggregation of resources into capabilities (Maier and Remus, 2002). Knowledge management capabilities can be categorized into two broad types - knowledge infrastructure capability and knowledge process capability (Gold et al 2001). Knowledge infrastructure capability. Prior research recognizes the importance of having a supportive and effective knowledge infrastructure to underpin

a firm's knowledge management initiatives (Davenport and DeLong, 2001; Davenport et al., 2007). Different elements make up a firm's knowledge infrastructure capability. This study adopts the Gold et al. (2001) typology which views technology, organizational culture and organizational structure as key components of a firm's knowledge infrastructure capability (Davenport and DeLong, 2001; Davenport et al., 2007). Knowledge process capability. Gold et al. (2001) suggested that knowledge process capabilities (required for storing, transforming and transporting of knowledge throughout the organization) are needed for leveraging the infrastructure capability. Four broad dimensions are identified - "acquiring knowledge, converting it into useful form, applying or using it, and protecting it" (Gold et al., 2001, p. 190).

### The key factors of knowledge management

**1. Technology.** The technology element of knowledge infrastructure comprises the information technology (IT) systems that enable the integration of information and knowledge in the organization as well as the creation, transfer, storage and safe-keeping of the firm's knowledge resource. Although an appropriate technology infrastructure is essential for effective knowledge management, studies that examine the link between information technologies and measures of organizational performance are often inconclusive, and fail to demonstrate whether IT is directly related to performance (Powell and Dent-Micallef, 1997; Webb and Schlemmer, 2006). For example, Powell and Dent-Micallef (1997) in their study of US firms, found that IT in and of itself did not enhance organizational performance, but could increase organizational performance when combined with other human and business assets. Teece et al. (1997) further suggested that the absence of an association between technology and performance could be because technology (e.g. IS resources) is easily copied, making it a fragile source of competitive advantage.

Although technology is not always linked directly to organizational performance, research shows that when combined with other resources IT can enhance performance and lead to sustained advantage (Clemons and Row, 1991; Powell and Dent-Micallef, 1997). So although the technology infrastructure may not contribute directly to organizational performance, it is an essential enabler of other knowledge resources such as knowledge acquisition and knowledge application processes, which may themselves enhance organizational performance (Seleim and Khalil, 2007).

**2. Organizational culture.** In the context of knowledge management is considered a complex collection of values, beliefs, behaviors and symbols that influences knowledge management in organizations (Ho, 2009). Hence, a knowledge-friendly culture is regarded as one of the most important factors impacting knowledge management and the outcomes from its

use (Alavi et al., 2005-2006; Davenport et al., 1998; Ho, 2009). Sin and Tse (2000) found that organizational cultural values such as consumer orientation, service quality, informality and innovation were "significantly associated with marketing effectiveness" (Sin and Tse, 2000, p. 305). More recently, Aydin and Ceylan (2009) also showed that cultural dimensions were related to organizational performance. Changes in corporate culture are also regarded as necessary for implementing knowledge management programs (Bhatt, 2001): "the ability of an organization to learn, develop memory, and share knowledge is [therefore] dependent on its culture" (Turban et al., 2005, p. 496). Thus, positive changes in culture are expected to impact organizational performance and add momentum to other improvements taking place elsewhere in the Organization (Richert, 1999).

**3. Organizational structure.** Comprises the organizational hierarchy, rules and regulations, and reporting relationships (Herath, 2007) and is considered a means of co-ordination and control whereby organizational actors can be directed towards organizational effectiveness.

Knowledge management theorists largely conclude that changes in an organization's structure, such as moving from hierarchical to flatter networked forms, are essential for the effective transfer and creation of knowledge in the organization (Beveren, 2003; Gold et al. 2001; Grant, 1996; Nonaka and Takeuchi, 1995). Such changes by extension have been positively associated with improved outputs in both service and financial terms (Richert, 1999). Thus it is expected that:

**4. Knowledge acquisition.** The term "acquisition" refers to a firm's ability to identify, acquire and accumulate knowledge (whether internal or external) that is essential to its operations (Gold et al., 2001; Zahra and George, 2002). Acquiring knowledge can involve several aspects including creation, sharing and dissemination. Knowledge acquisition reflects in part, a subset of a firm's absorptive capacity - more specifically, it can be viewed as a "potential capacity" that reflects a firm's ability to use its knowledge to create advantage, but does not guarantee that knowledge will be used effectively (Cohen and Levinthal, 1990).

Research suggests strong and positive links between knowledge acquisition and performance measures. For example, Song (2008) showed that knowledge creation practices were significantly related to organizational improvement. Further, when acquired knowledge is used appropriately, a significant and positive link is observed between knowledge acquisition and organizational performance (Lyles and Salk, 1996; Seleim and Khalil, 2007).

**5. Knowledge conversion.** Knowledge that is captured from various sources (both internal and external to the business) needs to be converted to organizational knowledge for effective utilization within the business (Lee and Suh, 2003). This conversion process, which takes place along the supply chain of data, information and knowledge, is transient in nature and so organizations must speedily convert data into information and information into organizational knowledge to maximize benefits from the conversion process (Bhatt, 2001). Thus, it is expected that the knowledge conversion process could influence performance outcomes.

**6. Knowledge application.** Bhatt (2001, pp. 72-73) stated that: “knowledge application means making knowledge more active and relevant for the firm in creating value”. For organizations to create value they need to apply knowledge to their products and services by various means such as repackaging available knowledge, training and motivating its people to think creatively, and utilizing people’s understanding of the company’s processes, products and services. For example, many organizations encourage organizational learning in which individuals and teams can apply the knowledge gained to initiatives’ such as new product

Development with the ultimate aim of improved performance in areas such as “speed to market” and innovation (Sarin and McDermott, 2003). Droge et al. (2003, p.544) also argues that “in the long run, firms that create new knowledge at a lower cost and more speedily than competitors, and then apply that knowledge effectively and efficiently, will be successful at creating competitive advantage”. For knowledge to impact organizational performance it has to be used to support the firm’s processes. Hence, it is through knowledge utilization that acquired knowledge can be transformed from being a potential capability into a realized and dynamic capability that impacts organizational performance (Cohen and Levinthal, 1990; Seleim and Khalil, 2007; Zahra and George, 2002).

**7. Knowledge protection.** Knowledge protection is necessary for effective functioning and control within organizations. This would typically include the use of copyright and patents along with information technology systems that allow knowledge to be secured by filename, user name, password and file-sharing protocols that ascribe rights to authorized users (Lee and Yang, 2000). However, knowledge protection is often challenging in part because the copyright laws that are intended to protect knowledge are limited in their treatment of the knowledge environment (Everard, 2001). Notwithstanding such limitations, the knowledge protection process should not be abandoned or marginalized (Gold et al., 2001) and protecting knowledge from illegal and inappropriate use is essential for a firm to establish and maintain a competitive advantage

(Liebeskind, 1996). Moreover, since knowledge is crucial for competitive advantage, storing and protecting knowledge is expected to create value for the organization (Lee and Sukoco, 2007).

## **Conceptual Model and hypotheses**

Knowledge management is quickly adapted to changes in order to improve efficiency and profitability in various organizations. In our research knowledge infrastructure capabilities (Technology, organizational structure and organizational culture) are independent variables.

### **Hypotheses:**

1. Condition of technology infrastructure is appropriate for knowledge management implementation
2. Condition of organizational culture is appropriate for knowledge management implementation.
3. Condition of organizational structure is appropriate for knowledge management implementation.
4. Condition of knowledge acquisition is appropriate for knowledge management implementation.
5. Condition of knowledge conversion is appropriate for knowledge management implementation.
6. Condition of knowledge application is appropriate for knowledge management implementation.
7. Condition of knowledge protection is appropriate for knowledge management implementation.

## **Methodology**

Data collected by questionnaire. The sample consisted of 250 managers and experts in 140 suppliers in HEPCO supply chain at Iran. The participants were randomly chosen from 600 managers and experts and we conducted a questionnaire survey on them. Completed questionnaires returned to us were 215 valid. The research try to provide a precise measurement by studying the theoretical and technical resource of management as well as enjoying the experience of expertise and researcher, use of related articles and research.

Research by Annette, et al (2010) is used for facility in evaluation and achieving the clear and unambiguous answers and classification and analyze in the study. So for ensuring and creating some reformation, it is distributed among 20 experts in statistical population and 5 professors in the field of knowledge management.

Five-point scales were used to measure the variables then the according to the number of questions relating to each hypothesis the respondents' total score has been calculated. Number of questions as Q1 to Qn was used in SPSS software.



In order to evaluate the reliabilities of the questionnaire, a coefficient was used. The coefficient was calculated by SPSS which for this scale is 0.952, indicating that this questionnaire has good validity. The  $\alpha$  for the scale of the survey questionnaire is shown in Table 1. Methods of data analysis in this study were both descriptive and inferential. In descriptive level, statistical characteristic such as frequency and percentage was used for data analysis and in inferential level in accordance with the measurement data and the underlying hypotheses; t test was used for statistical analysis.

**Table 1: Reliabilities for the scale of the survey questionnaire**

Variables	Questions	$\alpha$
Knowledge Acquisition	1-4	0.747
Knowledge Conversion	5-8	0.818
Knowledge Application	9-12	0.795
Knowledge Protection	13-16	0.779
Technology	17-20	0.869
Culture	21-24	0.883
Organizational Factor	25-28	0.866

## Results

Using mean comparison test and SPSS software, hypotheses were tested and results are presented in Table 2.

**Table 2: Results**

Hypothesis	t-value	Significant	df	95% confidence		Result
1. Condition of technology infrastructure is appropriate for knowledge management implementation	6.080	0.00	101	0.3187	0.6274	Approved
2. Condition of organizational culture is appropriate for knowledge management implementation	2.401	0.018	101	0.375	0.3939	Approved
3. Condition of organizational structure is appropriate for knowledge management implementation	-0.419	0.676	101	-0.2389	0.1556	Not Approved
4. Condition of knowledge acquisition is appropriate for knowledge management implementation	0.764	0.429	101	-0.0661	0.1543	Not Approved
5. Condition of knowledge conversion is appropriate for knowledge management implementation	1.905	0.060	101	-0.0065	0.3202	Not Approved
6. Condition of knowledge application is appropriate for knowledge management implementation	1.151	0.252	101	-0.0691	0.2603	Not Approved
7. Condition of knowledge protection is appropriate for knowledge management implementation	6.080	0.00	101	0.3187	0.6274	Approved

## Conclusion

According to the expert staff, organizational culture for knowledge management implementation is in good condition. Organizational culture is one of the key success factors of knowledge management. Culture motivation, belonging to the organization, trust and respect should takes place before development and use of knowledge (Akhavan, 2006, 97-113).

The protection of knowledge also was evaluated in good condition according to the staff vision. Organizational knowledge should be protected via coding and expanding of knowledge bank. Among the technologies used in the company, security systems with data encryption and user identification is so that only administrators have access to all information and

other personnel have access to related information via password.

Employees' vision to the technology infrastructure is positive. Technology in knowledge management creates solutions for achieving, sharing and managing of documents and work process (Mackdanel, 2005).

In this stage, type of computer equipment, communications hardware, costs to update the hardware, data volumes and filing system is considered. This company charges an informatics software system to support the software an organization intranet. Employees to perform tasks and other things can easily benefit from these systems. From the point view of organizational structure, knowledge acquisition,

knowledge conversion and application of knowledge haven't an ideal situation therefore effective mechanisms must provide during knowledge sharing in organizations for success of knowledge management systems (Mon Ford and Lykvana 2004: 71-163).

Database on the skills, expertise and storage of tacit and obvious knowledge is as important as the knowledge management system. (Akhavan, 2006: 113). Financing of knowledge management planning is considered as a driving factor. Therefore, organizations need a higher rate of funds allocated to the for organizational knowledge management. Because it still has not taken the first step toward knowledge management, it may require more funding.

We believe that the reason for lack of coherent and accessible knowledge base is:

Lack of staff familiarity to capacities, goals and result of knowledge management system Little attention pays to the importance of knowledge in vision and long-term plans to achieve the organization's strategic goals. However, when something is no or very light at the overall policy of the organization, less attention is being organized by top managers.

#### **Recommendation for Future Research:**

1. In order to establish knowledge management in HEPSCO supply chain in Iran, future research can examine the rate and condition of investment in this regard.
2. It could be interesting to further researchers to investigate the effective criteria in knowledge management in supply chain.
3. This research study was done just in suppliers as provider enterprises so the future study may be done about big size organizations as buyer.
4. In this study, only the seven factors of knowledge management have been proposed to be the key factors so it is very valuable to study the other key factors of knowledge management.

#### **References**

1. Afraze, A. (2005), "Knowledge Management, concepts, models, measurement and implementation".
2. Hasanzadeh, M. (2006), "Knowledge management, concepts and infrastructures", Tehran, Ketabdar Publications.
3. Khalili Farsangi, R. (2009), MS Thesis, Tehran University, p.19  
Zafryan, R., 1999, "Entrepreneurship Development", First Year, Second Issue, pp. 75-102
4. Mohammadi, K. (2006), "Measuring organizational readiness for knowledge management through the development of a conceptual model", MS Thesis, Tehran University. 5
5. Mousavi, A. (2005), "Knowledge Management", Journal of Eslah and Tarbiat, No. 46, pp.12-23.
6. Annette M. Mills and Trevor A. Smith, (2010) Vol. 15 No. 1 2011 Journal of Knowledge Management, P.165.
7. Bhatt, G.D. (2001), "Knowledge management in organizations: examining the interaction between technologies, techniques, and people", Journal of Knowledge Management, Vol. 5 No. 1, pp. 68-75.
8. Bonfield, P (2009) knowledge management strategy of BT. Management Information, vol 15. No. 22 P-P 15-25.
9. Davenport T.; "Think tank. Making the most of an information-rich environment: the future knowledge management" <http://www.itconsultancy.com/extern/articles/futurekm.html>, 1999.
10. Gold, A.H., Malhotra, A. and Segars, A.H. (2001), "Knowledge management: an organizational capabilities perspective", Journal of Management Information Systems, Vol. 18 No. 1, pp. 185-214.
11. Grant, R.M. (1996), "toward a knowledge-based theory of the firm", Strategic Management Journal, Vol. 17, Winter Special Issue, pp. 109-22.
12. Hariharan, Arun, (2008) knowledge management: strategic tool, Journal of knowledge management practice, P-P: 52.63.
13. Herath, S.K. (2007), "A framework for management control research", Journal of Management Development, Vol. 26 No. 9, pp. 895-915.
14. Ho, C. (2009), "the relationship between knowledge management enablers and performance", Industrial Management & Data Systems, Vol. 109 No. 1, pp. 98-117.
15. Lee, C.C. and Yang, J. (2000), "Knowledge value chain", Journal of Management Development, Vol. 19 No. 9, pp. 783-93.
16. Lee, H. and Choi, B. (2003), "Knowledge management enablers, processes, and organizational performance: an integrative view and empirical examination", Journal of Management Information, Systems, Vol. 20 No. 1, pp. 179-22.
17. Lee and Suh, X. (2003), "knowledge and conversation with information technology of Korean companies", business process management Vol 9. No3 pp317-36.
18. Maier, R and Remus, U (2002), "Defining process-oriented KM strategies", knowledge and process management Vol9. No2. Pp103-18.
19. OECD. (2003). Conclusions from the results of the survey of knowledge management practices for ministries/ departments/agencies of central government in OECD member countries. OECD; Human Resources Management Working Party. Paris. February. No. JT00138295

20. *Paisittanand A, Digman, A and Lee S. M, (2007), "Management knowledge Capabilities for strategy implementation effectiveness", Journal of KM vol 13, No 4 pp: 84-110.*
21. *Webb, B.R. and Schlemmer, F. (2006), "The impact of strategic assets on financial performance and on internet performance", Electronic Markets, Vol. 16 No. 4, pp. 371-85.*
22. *Zahra, S.A. and George, G. (2002), "Absorptive capacity: a review, reconceptualization, and extension", Academy of Management Review, Vol. 27 No. 2, pp. 185-203.*

# Multiobjective Evolutionary Algorithms: A Survey

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## Abstract

*This paper reviews solving optimization problems having multiple (conflicting) objectives, which is a very difficult task. A number of Multiobjective Evolutionary Algorithms (MOEA) have been reported in the literature and applied to many real-world problems. Here we discuss Multiobjective Optimization Problems (MOPs) with related concepts, Evolutionary Algorithm (EA) and then discussion extends to how EA is used to solve MOPs which is called MOEA. Some of the MOEA designs are presented here.*

**Keywords:** Multiobjective Optimization Problems, Evolutionary Algorithm, MOEAs, Pareto optimality.

## Introduction

Nowadays Problems in business, medicine, engineering, and applied sciences are more and more complex, which are no longer linear, nor unimodal. The domain of the problems could involve many objective functions to be optimized simultaneously where optimal decisions need to be taken in the presence of trade-offs between two or more conflicting objectives. Minimizing weight while maximizing the strength of a particular component and maximizing performance while minimizing fuel consumption and emission of pollutants of a vehicle are examples of multi-objective optimization problems involving two and three objectives, respectively. In practical problems, there can be many objectives.

Our discussion's intent is to rigorously define MOPs and certain related concepts, present an MOEA classification scheme, and evaluate the variety of contemporary MOEAs. Current MOEA theoretical developments are evaluated; specific topics

addressed include fitness functions, Pareto ranking, niching, fitness sharing and mating restriction.

## Basic Concepts

### Formulation of MOP [1]

We are interested in solving constrained optimization problems, whose recognized common formulation can be written as follows:

$$\text{Minimize } \vec{f}(\vec{x}) := [f_1(\vec{x}), f_2(\vec{x}), \dots, f_k(\vec{x})] \quad (1)$$

$$\text{Subject to } g_i(\vec{x}) \leq 0 \quad i = 1, 2, \dots, m \quad (2)$$

$$h_i(\vec{x}) = 0 \quad i = 1, 2, \dots, p \quad (3)$$

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Where  $\vec{x} = [x_1, x_2, \dots, x_n]^T$  is the vector of decision variables,  $f_i: \square^n \rightarrow \square$ ,  $i = 1, \dots, k$  are the objective functions, and  $g_i, h_j: \square^n \rightarrow \square$ ,  $i = 1, \dots, m$ , and  $j = 1, \dots, p$  are the constraint functions of the problem.

To describe the concept of optimality in which we are interested, we will introduce next a few definitions.

**Definition 1:** Given two vectors  $\vec{x}, \vec{y} \in \square^k$ , we say that  $f(\vec{x}) \leq f(\vec{y})$  if  $f_i(\vec{x}) \leq f_i(\vec{y})$  for  $i = 1, \dots, k$ , and that  $\vec{x}$  **dominates**  $\vec{y}$  (denoted by  $\vec{x} \prec \vec{y}$  if  $\vec{f}(\vec{x}) \leq \vec{f}(\vec{y})$  and  $\vec{f}(\vec{x}) \neq \vec{f}(\vec{y})$ ).

**Definition 2:** We say that a vector of decision variables  $\vec{x} \in \chi \subset \square^n$  is **non-dominated** with respect to  $\chi$  if there does not exist another  $\vec{x}' \in \chi$  such that  $\vec{f}(\vec{x}') \prec \vec{f}(\vec{x})$ .

**Definition 3:** We say that a vector of decision variables  $\vec{x}^* \in F \subset \square^n$  ( $F$  is the feasible region) is **Pareto-optimal** if it is non-dominated with respect to  $F$ .

**Definition 4:** The **Pareto-optimal set**  $P^*$  is defined by  $P^* = \{ \vec{x} \in F \mid \vec{x} \text{ is Pareto-optimal} \}$ .

**Definition 5:** The **Pareto front**  $PF^*$  is defined by

$$PF^* = \{ f(\vec{x}) \in \square^k \mid \vec{x} \in P^* \} .$$

Optimization problems involving multiple, conflicting objectives are often approached by aggregating the objectives into a scalar function and solving the resulting single-objective optimization problem. In contrast, in this study, we are concerned with finding a set of optimal trade-offs, the so-called Pareto-optimal set. In the following, we formalize this well-known concept and also define the difference between local and global Pareto-optimal sets. A multi-objective search space is partially ordered in the sense that two arbitrary solutions are related to each other in two possible ways: either one dominates the other or neither dominates.

## Evolutionary Algorithm

An Evolutionary Algorithm (EA) [2] is a generic population-based metaheuristic optimization algorithm. EA uses

reproduction, mutation, recombination and selection, which are inspired by biological evolution. The role of individuals in a population is played by candidate solutions to the optimization problem, and the environment within which the solutions survive is by decided the fitness function. After the repeated application of the above operators, Evolution of the population takes place as shown in the figure 1. Some of the EA techniques are given below which differ in the implementation details [3, 4].

- **Genetic algorithm (GA)** - selection, recombination and mutation are applied on the candidate solution one seeks the solution of a problem in the form of strings of numbers.
- **Genetic programming (GP)** - computer programs whose ability to solve a computational problem determines their fitness.
- **Evolutionary programming (EP)** - the structure of the program is fixed and its numerical parameters are allowed to evolve.
- **Evolution strategy (ES)** - works with vectors of real numbers as representations of solutions, and typically uses self-adaptive mutation rates.
- **Differential evolution (DE)** - numerical optimization problems because it is based on vector differences.

A comparison of EA with the classical methods is shown in table 1.

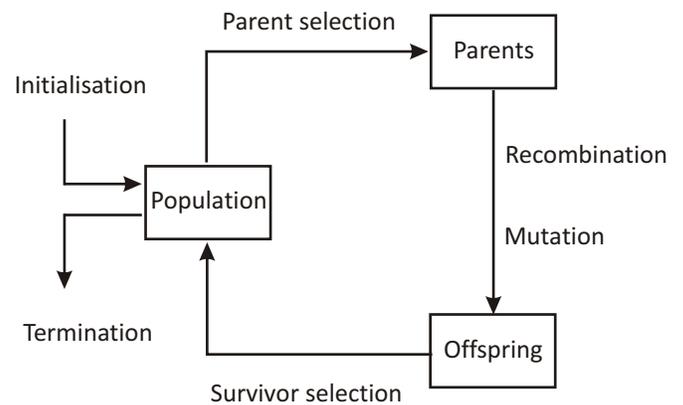


Figure 1

Table 1: Comparison of Evolutionary Algorithm with Classical Methods

Comparison Metrics	Classical Methods	Evolutionary Algorithm
Approach	Point-by-point, deterministic	Population based, Stochastic
Work with	Parameters itself	Encoded version of the parameters
Evolution	Done by Local information of the solution	Stochastically
Auxiliary Information	Use auxiliary information like gradient. That's why not applicable to non-differentiable or discontinuous problems	Do not use any auxiliary information, so can be applicable to any type of problems
Solution Found	Sub-optimal Solution	Optimal Solution
Single run	Single solution	Multiple solutions

## Multiobjective Evolutionary Algorithm(MOEA)

This section will discuss some popular MOEAs [5-8].

- **Weighted-Sum Approach**

In this approach stochastically generated weights have been used to assign the fitness value to each individual based on which parents are selected. A selected individual participate in crossover and on newly generated individual mutation is applied. Then stochastically selected individuals from external set are added to the current population to form the population of same size [5].

- **Multi-Objective Genetic Algorithm (MOGA)**

In MOGA [6], every individual's rank is the number of the chromosomes in the current population which dominates it and the highest possible fitness value is assigned to all non-dominated individuals and all of them can be sampled at the same rate so get same fitness, while according to the density of the population of the corresponding region to which they belong and the dominated ones get penalized which means fitness sharing is used to verify how crowded is the region surrounding each individual.

- **Niched-Pareto Genetic Algorithm (NPGA)**

In NPGA [7], tournament selection method is used with Pareto dominance. If any individual is dominated by the chosen ones and the other is not then the non-dominated one wins. All the other conditions are of tie and result of the tie is of the tournament is decided with fitness sharing.

- **Vector-Evaluated Genetic Algorithm (VEGA)**

VEGA [8] has modified the simple genetic algorithm with selection, crossover and mutation operator with independent selection cycles according to each objective, then apply crossover and mutation to thoroughly shuffled population through which mating of individual of different subpopulation is achieved. This algorithm doesn't fulfil the goal of diversity in multi-objective optimization.

- **Non-dominated Sorting Genetic Algorithm (NSGA)**

In NSGA [8], the population is ranked before taking the selection on the basis of non-domination: all non-dominated individuals are put into one category with fitness value proportional to the population size. For the density of the population, these classified individuals are shared with their dummy fitness values and process goes on until the whole population gets classified. This algorithm is not very efficient and the reason is Pareto ranking has to be repeated again and again.

- **Non-dominated Sorting Genetic Algorithm (NSGA-II)**

In this modified NSGA [9], one has to determine two counts for each solution: how many solutions dominate it and the set of solutions to which it dominates. Then we calculate the density of the solutions surrounding a certain solution in the population along each of the objective of the problem by calculating the average distance of the two points on either side of the point which is called crowding distance. Crowding distance is used during selection operation. Although non-dominated candidate are preferred over the dominated ones but when we have two non-dominated candidate with same non-domination rank, the candidate with less crowded region gets selected. This algorithm is very efficient.

- **Strength Pareto Evolutionary Algorithm (SPEA)**

This approach was combination of various EMOO algorithms. In SPEA [8], non-dominated individuals are copied at each generation to achieve non-dominated solutions (in external non-dominated set) which is then used and a strength value is calculated and assigned to each individual in the external set. This rank strategy is similar to MOGA discussed above. Taking under consideration both closeness to the true Pareto front and even distribution of solutions, fitness assignment process of SPEA takes place. During selection process of SPEA, the external non-dominated set takes part. That's why the size of the external non-dominated set has a direct effect on the searching and the selection. Large size of the external non-dominated set may reduce the selection pressure but also the search may slow down.

- **Strength Pareto Evolutionary Algorithm 2 (SPEA 2)**

With respect to SPEA[8]: It incorporated an improved fitness assignment strategy in which for each individual we have to take into account the number of individual by which it is dominated and the number of individuals which dominates it. For efficient search, it uses nearest neighbour estimation method.

- **Pareto Archived Evolution Strategy (PAES) Algorithm**

In PAES [8], a 1+1 evolution strategy is introduced which means a single parent that generates a single offspring. In addition to the historical archive which records the non-dominated solutions found previously, each mutated individual is compared against the archived reference set. Diversity as a special feature, which consists of a crowding procedure in which the objective space is divided in a recursive manner, is maintained in this algorithm.

- **Pareto Envelope based Selection Algorithm (PESA)**

This approach is a combination of SPES and PAES. This algorithm [8] uses two population concept like SPEA one EA population and another archive population. To update the archive with the newly bred offspring, PAES crowded concept and non-domination is used.

- **MOCeLL**

In this approach [10] an external archive is used to store the non-dominated solutions. In order to enhance the diversity preservation, a number of candidate solutions in the current population are replaced by randomly chosen solutions from the external archive for each generation. Two candidate solutions belonging to same neighbourhood participate in genetic operations. When the external archive is full, a crowding distance-based density estimator is adopted to determine if a new non-dominated solution should be included or not. This process allows production of an evenly distributed set of solutions.

- **MOEA Based on Decomposition (MOEA/D)**

In this algorithm [11] a multi-objective optimization problem is decomposed into N single-objective optimization subproblems through an aggregation method. These single-objectives are linked with each other through a neighbourhood structure. In order to control the spacing between a set of evenly distributed points approximating the Pareto front, the user set the parameter N. Then, MOEA/D solves these subproblems simultaneously by evolving a population of solutions and taking advantage of the solutions obtained for neighbouring subproblems.

## Conclusion

This paper has provided a review of the most popular Evolutionary Algorithm for optimizing multiple objectives, giving also some insight of Operational Research roots. Also how EA is better than Classical methods is shown in metric form. Together with a rich reference which should be enough to guide a new corner into this important and growing area of research.

## References

1. Antonin Ponsich, Antonio L'opez Jaimes, and Carlos A. Coello Coello, Fellow, IEEE. *A Survey on Multiobjective Evolutionary Algorithms for the Solution of the Portfolio Optimization Problem and Other Finance and Economics Applications*. IEEE TRANSACTIONS ON EVOLUTIONARY COMPUTATION.
2. Carlos A. Coello Coello; Gary B. Lamont; David A. Van Veldhuisen. *Evolutionary Algorithms for Solving Multi-Objective Problems*. Springer. ISBN 978-0-387-36797-2. Retrieved 1 November 2012.
3. Grosan. C. Oltean, *How to compare the multiobjective evolutionary algorithms performances?* Zilele Academice Clujene 2003.
4. Grosan. C. Oltean, M., Dumitrescu, D., *Performance Metrics for multiobjective Optimization Evolutionary Algorithms*, In *Proceedings of conference on Applied and Industrial Mathematics (CAIM), Oradea, 2005*.
5. Ashish Ghosh. *Evolutionary Algorithm for Multi-Criterion Optimization: A Survey*. *International Journal of Computing & Information Science*. Vol. 2, No. 1, April 2004.
6. C. M. Fonseca, P. J. Fleming. *Genetic Algorithms for Multiobjective Optimization: Formulation, Discussion and Generalization*. - In: *Proc. of the 5th International Conference on Genetic Algorithms, San Mateo, California, University of Illinois at Urbana-Champaign (Stephanie Forrest, Ed.)*, Morgan Kaufmann Publishers, 1993, 416-423.
7. J. Horn, N. Nafpliotis, D. E. Goldberg, *A Niche Pareto Genetic Algorithm for Multiobjective Optimization*. - In: *Proc. of the First IEEE Conference on Evolutionary Computation, IEEE World Congress on Computational Intelligence, Vol. I, Piscataway, New Jersey, IEEE Service Center, June 1994, 82-87*.
8. Vassil Guliashki, Hristo Toshev, Chavdar Korsemov, *Survey of Evolutionary Algorithms Used in Multiobjective Optimization, Problems Of Engineering Cybernetics And Robotics*, vol. 60, 2009.
9. K. Deb, A. Pratap, S. Agarwal, T. Meyarivan. *A Fast and Elitist Multiobjective Genetic Algorithm: NSGA-II*. - *IEEE Transactions on Evolutionary Computation*, Vol. 6, Apr. 2002, No 2, 182-197.
10. A. Nebro, J. Durillo, F. Luna, B. Dorronsoro, and E. Alba, *MOCeLL: A cellular genetic algorithm for multiobjective optimization*, *Int. J. Intell. Syst.*, vol. 24, no. 7, pp. 726-746, 2009.
11. Q. Zhang and H. Li, *MOEA/D: A multiobjective evolutionary algorithm based on decomposition*. *IEEE Trans. Evol. Computat.*, vol. 11, no. 6, pp. 712-731, Dec. 2007.

# Evolution of Social Entrepreneurship: in Shaping India's Future

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## Abstract

*This essay sets out to focus on Evolution of Social Entrepreneurship and the rise and reshaping of social entrepreneurship in India. The growth of modern economic systems has generated more numerous, complex and urgent social challenges. Although the use of the term social entrepreneur is growing rapidly, the field of social entrepreneurship lacks rigor and is in its infancy compared to the wider field of entrepreneurship. Success stories of individuals solving complex social problems are being used to legitimize the field of social entrepreneurship. The interest in social entrepreneurs stems from their role in addressing critical social problems and the dedication they show in improving the well-being of society (Zahra et al., 2008). Social entrepreneurship looked upon with high regard because of the multitude of social needs they satisfy and the changes it brings to affected societies. Social entrepreneurship means to identify under-utilized resources like people buildings and put them to use to satisfy unmet social needs. .They innovate new welfare services and new ways of delivering existing services. Social entrepreneurs who deploy entrepreneurial skills for social ends are at work in parts of the traditional public sector, some large private sector corporations and at the most innovative edge of the voluntary sector.*

**Keywords:** Social entrepreneurship, social entrepreneur. Modern economic systems

## Introduction

Social entrepreneurship is the process of pursuing innovative solutions to social problems. More specifically, social entrepreneurs adopt a mission to create and sustain social value. They pursue opportunities to serve this mission, while continuously adapting and learning. They draw upon appropriate thinking in both the business and nonprofit worlds and operate in all kinds of organizations: large and small; new and old; religious and secular; nonprofit, for-profit.

Social entrepreneurship involves the marriage of good business principles with the desire to solve social problems, improve the environment, and empower communities. It's all about creating double- and triple-bottom line companies that do well while doing well. Pioneers and innovators from all regions and walks of life are helping our world through socially motivated businesses ranging from the smallest and most localized efforts to large and ambitious enterprises. Social entrepreneurship has

become part of our own life. Social Entrepreneurship's role in the socio-economic development of countries is well acknowledged. Philanthropists, social activists, environmentalists, and other socially-oriented practitioners are referred to as social entrepreneurs. It is important to set the function of social entrepreneurship apart from other socially oriented activities and identify the boundaries within which social entrepreneurs operate.

## The Evolution of Entrepreneurship

The word "entrepreneur" is derived from the French verb "entreprendre". It means "to undertake" If you search "social entrepreneurship" on Google, most of the definitions and examples you will get will be from the Western world. Wikipedia quotes Bill Drayton, founder of "Ashoka: Innovators for the Public" as the "person responsible for the rise of the phrase 'social entrepreneur', a concept first found in print in 1972".

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## **Characteristics of Social Entrepreneurship**

Although the use of the term social entrepreneur is growing rapidly, the field of social entrepreneurship is emerging as an interesting area. Success stories of individuals solving complex social problems are being used to legitimize the field of social entrepreneurship. For example, in 2004, Stanford University launched Social E Lab as part of its Entrepreneurial Design for Extreme Affordability course, which promotes the use of entrepreneurship principles to solve social and environmental problems. Other examples of well-established organizations that are frequently referenced in the literature on social entrepreneurship like Ashoka, OneWorld Health, The Skoll Foundation, and the Schwab Foundation for Social Entrepreneurship. However, the field is arguably phenomenon-driven (Mair and Marti ´ , 2005). The public often hold social entrepreneurs in high regard because of the multitude of social needs they satisfy and the improved life quality they bring to affected societies. Because they are primarily motivated by social benefit. It creates innovative solution to immediate social problems and mobilizes the ideas, capital and social arrangement required for sustainable social transformation. The concept of Social Entrepreneurship has also been included as a separate branch of management courses. Even youth is also looking forward to volunteering their services and brilliant ideas to bring a social change through social entrepreneurship.

## **History**

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23. Datta, Punita Bhatt; Gailey, Robert-Academic journal article from *Entrepreneurship: Theory and Practice*, Vol. 36, No. 3

#### **Online Media Coverage**

<http://www.nextbillion.net/blogpost.aspx?blogid=2657>

<http://www.nextbillion.net/blog/nsef-a-net-impact-for-india->

<http://www.mybangalore.com/article/0910/being-the-change-yashveer-singh-takes-social-entrepreneurship-to-students-and-universities.html>

<http://sankalpforum.com/national-social-entrepreneurship-forum-joins-hands-with-sankalp-forum-announces-launch-of-flagship-program/>

<http://www.yourstory.in/entrepreneurs/social-entrepreneurs/4214-yashveer-singh-founder-national-social-entrepreneurship-forum>

<http://www.coolavenues.com/bschools/040809/iiml-entrepreneurship-social-samriddhi.php>

Hindu <http://www.thehindubusinessline.in/2005/11/14/stories/2005111402200202.htm> |url= missing title

Times of India [http://articles.timesofindia.indiatimes.com/2007-06-22/international-business/27962233\\_1\\_selco-green-oscars-green-oscars](http://articles.timesofindia.indiatimes.com/2007-06-22/international-business/27962233_1_selco-green-oscars-green-oscars) |url= missing title

Harish Hande of SELCO India: *Shedding Light on India's Underserved Markets - India Knowledge@Wharton*

<http://sfa-pv.org/partners/social-enterprises/selco.html>. Missing or empty |title= (help)

<http://archive.cooperhewitt.org/other90/other90.cooperhewitt.org/Design/solar-home-lighting-system.html>. Missing or empty |title= (help)

"Bangalorean gets Ramon Magsaysay Award". *The Hindu*. July 28, 2011.

"Social Entrepreneur: Harish Hande".

Tech Museum Award 2005 "The Tech Awards Laureates 2005".

Youth Action Net Fellowship Award : <http://www.youthactionnet.org/index.php?fuse=meetfellows>

Punjab Engineering College Competition : <http://www.indianexpress.com/news/pec-invites-students-to-post-own-social-busi/777229/>

NSEF Bangalore Confluence : [http://www.dnaindia.com/bangalore/report\\_how-to-marry-social-impact-and-business-and-win\\_1457212](http://www.dnaindia.com/bangalore/report_how-to-marry-social-impact-and-business-and-win_1457212)

NSEF Authors of Change : <http://www.sunday-guardian.com/young-restless/intern-and-help-bring-about-social-change>

# A Study on Absenteeism of Employees in Textilemills at Vedaendur, Dindigul

S.R.Sharmilee\*

## Abstract

*Employee's absenteeism, being serious financial burden for the organization which wishes to continue their struggle in tough competitive conditions, has become a very important issue to be resolved. Absenteeism of employees of Textile mills at Vedaendur of Dindigul district, Tamilnadu in India has been analyzed. The aim of this paper is to analyse the relationship between demographic characteristics and absenteeism. As results of study, whereas absenteeism is related to Gender, educational level, caste of the employee, reason and membership in trade union, it is not related with absenteeism.*

## Introduction

Today, in the competitive world, businesses are required to increase productivity while decreasing their expenses. Absenteeism is the practice (or) habit of being absent regularly in the work field. An absentee is a person who habitually going on absent. Absenteeism is mainly due to lack of commitment on the part of the workforce. Since the absenteeism is affecting the labour turnover directly, it has to be taken as serious problem and necessary care to be taken to control the same, because labour turnover is major criteria, which decide on the growth of the industry, and which in turn has an impact in the growth of the economy. High absenteeism among Indian labour is due to rural orientation and its frequent urge for rural exodus.

Absenteeism is the failure of employees to report for work when they are scheduled to work. Employees who are away from work on recognized holidays, vacations, approved leaves

of absence, or approved leaves of absence would not be included.

James and Brian stated that, absenteeism takes two forms. These two forms are frequent offender and long-term absentee. Frequent offender is deliberate and planned and is usually the result of satisfying the urge for an attitude adjustment. This form places a temporary inconvenience on the manager who must find a substitute for the day or partition the absent worker's workload to other individuals. The second form, the long term absentee, is unplanned and usually results from a work of non-work injury and is not correlated to employee's attitude, abilities or value system. They found out, this second type has more prohibitive costs in terms of indemnity.

The attitude and practice of the management also contribute to absenteeism. Traditional management treats workers as

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hirelings. While, present enlightened management treat the employees as human beings. This difference in behavior leads, in the former situation to high absenteeism, and in the latter situation to close affinity with the organization, the result being lower absenteeism. A positive attitude and determination is vital.

### **Kinds of absentees**

1. Escapist Absentee
2. Immature Absentee
3. Chronic Absentee
4. Casual absentee
5. Seasonal absentee

The main direct impacts of absenteeism on productivity are:

1. Time spent by crew members (others) waiting for replacements.
2. Time spent moving replacements to and from other work locations.
3. Lost time by supervisory personnel in reassignment of work activities and locating replacements.

For turnover, the principal cost effects are:

1. All of the absentee-costs plus:
2. Payroll and clerical (administrative) costs associated with terminating and hiring.
3. Workers non-productive time (portions of the first and last day).
4. Disruption of other workers on the job site.

### **The causes of absenteeism:**

The causes can be broadly divided into two viz., personal causes and organizational causes. The personal cause includes indebtedness, sickness, child care, elder care and family problems on which the organization has very little control.

Organizational causes include the following

- Serious accidents and illness
- Low morale
- Unsuitable or poor working conditions
- Boredom on the job
- Lack of job satisfaction
- Inadequate leadership and poor supervision
- Poor physical fitness
- Inadequate nutrition
- Transportation problems
- The availability of income protection plans
- Stress
- Excessive workload
- Employee discontent
- Unfavorable mental attitude arising out of discontent with

wages, resentment against supervisors.

- Lack of provision for general welfare.
- Inadequate medical facilities
- Increased psychological distance between management and workers, specifically friction with supervisors.

### **Cost of Absenteeism**

Absenteeism may have repercussions, which include:

#### **Decrease in Productivity**

- Employees may be carrying an extra workload, or supporting new or replacement staff
- Employees may be required to train and orientate new or replacement workers
- Staff morale and employee service may suffer
- Financial Costs
- Overtime or agency cost for replacement workers
- Cost of self-insured income protection plans
- Premium costs may rise for insured plans Administrative Costs
- Staff time is required to secure replacement employees or to re-assign the remaining employees staff time is required to maintain and control absenteeism

#### **Curbing of Absenteeism**

In general, the absence rate indicates a certain cost to a given company, because employees simply cannot produce as much annually when absent rates are high. Any absence weakens the organization's goals and productivity; so in order to strengthen the organization's performance, absenteeism should be controlled.

#### **Statement of the Problem**

Productivity in an industry frequently suffers as a result of high levels of absenteeism and worker turnover. There is evidence that all concerned-owners, contractors, and workers are interested in resolving this problem. This study examines the source and size of the problem, and makes recommendations to reduce it.

Many organizations are struggling to find the ideal remedy for increased unscheduled employee absenteeism. However, organizations are frequently discovering that their cultures are to blame. Traditional methods of absenteeism control exclusively utilizing disciplinary procedures have proven to be ineffective. It is almost impossible to create a fair disciplinary procedure, because even well run disciplinary systems, which treat similar actions with consistent repercussions, are usually seen as unfair.

A certain level of absence is to be expected, as employees may have to be absent from work as a result of illness. In the majority of cases, employees are acting responsibly by staying at home to recover, instead of coming to work and either passing on their illness to other staff, or returning to work too early and getting a more severe illness. Employers, however, have the right to expect responsible absence behaviour when a healthy working environment is provided.

There are certain factors, which affect employee absenteeism to our work. When the employee is forced to do the work and he may think about his superiors and subordinates to act accordingly. There is no right or wrong, so they try to reflect their genuine feelings about their job and his attitude even through absenteeism.

### **Review of literature**

Rabindra N. Kanungo and manual Mendoma (1986) in their research study "Work Rewards and Management of Human Resources" have discussed the objectives of the reward system and its evaluation. Intrinsic rewards are those that are built into or inherent in the job such as responsibility, feelings of accomplishment. Employees gain these rewards directly as they perform the job tasks. Extrinsic rewards are those that are external to the job: for example, pay, benefits, praise, pleasant working conditions, job security, etc. The intrinsic rewards generate in the employees a level of satisfaction which induces a high level of performance, for this reason intrinsic rewards are regarded as the real and only 'motivations'. His view is that if you want just happy employees, then provide extrinsic rewards. But if you want to increase employee productivity, provide intrinsic reward.

Punithavathy (1988) in her intra-firm analysis of the cotton textile industries examined both labour and capital productivity. According to her study, labour productivity had shown considerable increase over the years. The labour productivity index had increased by 77% in the year 1985 compared to the year 1975. The labour productivity index has registered a growth rate of 5.8% per annum. Increase in labour productivity was due to increased investment in capital employed. Capital productivity had declined over the years.

V. Manickavasagam disclosed in his study "Employees Morale in Neyiveli Lignite Corporation Limited" that the company is blessed with two third of its sample employees with high morale which is a satisfactory trend in the sphere of industrial relations. Morale is dependent on such personal factors as income, experience and educational qualification of employees.

Joshi J. Rama and Sharma R. Balden in their study "Determinants of Managerial Job Satisfaction in a Private Organization", examined the role of job and organization related factors on job satisfaction among managerial employees. The findings indicated that all the 15 jobs and organization related variables are positively and significantly related to managerial job satisfaction. Further, job content and training are the best predictors of job satisfaction.

Nagarajan. K, in his study on "Boss and Employee Satisfaction", this article throws light on the role played by the immediate boss in boosting the satisfaction of his subordinates. Nine out of ten expressed displeasure with the treatment met out to them by their immediate boss and reasons like insufficient monetary incentives, poor working conditions, unfavourable organizational climate and other such factors have been quoted only as complementary factors.

An article entitled Predicting teacher absenteeism by personal background factors by Rosenblatt and Shirom, studied to predict absenteeism by personal background factors. Prior absenteeism, age, education and supervisory position were found to be significant predictors of absenteeism frequency, accounting for about 50 percent of the variance in absence frequency.

A research article 'Absenteeism in the workplace: Results from Danish sample survey data' by Jensen and McIntosh, they found that days absent for both men and women are correlated with variables which describe their individual characteristics. These are gender, age, educational attainment, occupation, sector, the number of children living at home, health status, and job duration with organization for which they work and the duration within their occupation.

Cohen and Golan have examined the impact of prior absenteeism, demographic variables and work attitudes on absenteeism and turnover intentions. The findings of the study showed that those with fewer children under the age of 18 were absent more and marital status did not affect the absenteeism. In addition to this, the effect of age on absenteeism was not supported.

An article entitled, 'A study on employee absenteeism in Sundaram Brake Linings Ltd., Chennai, M.S.Vijaya Rao and Dr. S.Sheela Rani, The study analyses the various factors that lead to the employee absenteeism - like lack of raining, quality of work life, policies regarding promotion, incentives, benefits etc. Based on the study, the researcher has given suggestions to the company to reduce the attrition and absenteeism and to increase the productivity and turnover of the organization. In

the study, it was found that out of 100 respondents, 26% of the employees travel less than 2 kms 19% of employees travel between 2 to 5 kms, 13% of employees travel between 5 to 10 kms, 14% of the employees travel between 10 to 20 Kms and 28% of the employees travel more than 20kms. Again out of 100 respondents, 23% of the employees walk to the company, 15% come by bicycle and 29% come by bus and rest by train. These could be related to another important cause of man days lost viz., late coming. We did not study the aspect in our study and we suggest further studies could be taken up in this regard.

The present study is an effort to study employees absenteeism, variable and the various dimensions of absenteeism among the employees in textile mills at Vedaendur and to suggest suitable measures for reduce employees absenteeism.

### Objectives of the study

The specific objectives of the study are:

1. To study the profile of textile mills at Vedaendur.
2. To make a study on absenteeism by the various categories of employees working in textile mills at Vedaendur.
3. To offer suggestions for further improvement of job satisfaction and to reduce absenteeism of various categories employees working in textile mills at Vedaendur.

### Source of Data

The study is based on primary data collected through questionnaire and secondary data was collected from various books, records, internet and journal.

### Sampling Design

A sample is a small portion of a population selected for observation. The target population of the present study was identified as the employees in textile mills in Vedaendur, Dindigul district. The researcher has used simple random sampling method for selecting 170 respondents in textile mills at Vedaendur, Dindigul district. Random sampling was adopted to select the respondents. Every individual had an equal chance of being selected and that each choice is independent of any other choice.

### Framework of Analysis

The researcher in this study used the job absenteeism scale based on Likert Scale introduced in the year 1932. The scale aims at discovering the attitude of various human groups towards psychological phenomenon. The questionnaire measures absenteeism with the help of 43 statements. Each question is rated on a five - point scale.

The general plan of analysis ranges from simple descriptive statistics to 'F' test. The extent and variation of attitude derived by the respondents are measured through the scale and constructed on the basis of the scores of components.

### Factors Influencing Absenteeism

The primary data regarding the level of absenteeism related to work of employees, collected through interview schedule from the employees of textile mills at Vedaendur. A scale by name 'employee's absenteeism scale' has been constructed to measure the level of job absenteeism for their work of each employee-respondent. This scale contains 43 items relating to various factors in their mill and the scale has a maximum score of 215. The respondents have been grouped into three categories namely (i) Low (ii) Medium and (iii) High. This classification is done according to "Mean + SD" criterion. Employee's scoring up to 90 are treated as low, employees with total scores between 91 and 159 come under the medium level category and employees scoring above 159 are considered high level of attitude regarding absenteeism.

### Analysis of Data

The sample respondents divided into three categories based on their respective scores.

The distribution of respondents according to their levels of attitude regarding absenteeism is shown in Table 1.

**Table 1: Distribution of sample of respondents on the basis of their level of absenteeism**

Sl. No.	Level of absenteeism	No. of employees	Percentage
1	Low	33	19.42
2	Medium	89	52.35
3	High	48	28.23
	Total	170	100.00

It is observed from the table that 33 employees have low absenteeism. It works out to 19.42 per cent. There are 89 medium level employees (52.35%). High category employees are 48 (28.23%). It is found from the table that a majority of the respondents have medium high level of attitude towards absenteeism. The average score is 125 out of the maximum score of 215.

The variables and absenteeism are interrelated, to analyse further, whether the difference in the average score between the variables are significant, Analysis of Variance was applied and the results are presented in table 2.

**Table 2: Analysis of Variance**

<b>Age and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2	8568.31	4329.16	3.80*
		167	190228.70	1139.09	
Total	169	198887.01			
<b>Gender and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	1	1861.32	1861.32	1.59**
		168	197025.69	1172.78	
Total	169	198887.01			
<b>Education and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2	3226.31	1613.16	1.377**
		167	195660.70	1171.62	
Total	169	198887.01			
<b>Status of Employment and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2	9581.44	4790.72	4.23*
		167	189305.57	1133.57	
Total	169	198887.01			
<b>Monthly Income and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2	10975.60	5487.815	4.877*
		167	187911.40	1125.218	
Total	169	198887.01			
<b>Size of the Family</b>	Source	DF	SS	MS	F
<b>and absenteeism</b>	Between Groups	2	8621.02	4310.51	3.78*
	Within Groups	167	190265.99	1139.32	
	Total	169	198887.01		

<b>Residence and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	1 168	5799.60 193087.40	5799.60 1149.33	5.046*
	Total	169	198887.01		
<b>Caste of employees and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2 167	74.92 198872.10	37.46 1190.49	0.031**
	Total	169	198887.01		
<b>Experience and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2 167	10693.56 188193.45	5346.78 1126.91	4.74*
	Total	169	198887.01		
<b>Frequency and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2 167	434.77 198432.20	217.383 1188.337	0.183*
	Total	169	198887.01		
<b>Reason and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups Within Groups	2 167	826.216 198060.8	413.108 1185.99	0.348**
	Total	169	198887.01		
<b>Membership and absenteeism</b>	Source	DF	SS	MS	F
	Between Groups	1	575.48	575.48	0.488**
	Within Groups	168	198344.50	1180.126	
	Total	169	198887.01		

\*=Significant at 5% level

\*\*=Notsignificant at 5% level

The Simple correlation Analysis made in the pervious section is given in Table 14.

It shows that there is a significant relationship between six factors with absenteeism.

**Table 3: Simple Correlation of selected factors with absenteeism**

S.No	Factors	Correlation Co-efficient	Table value "r"	Significance
1	Age	0.215	0.124	Significant
2	Gender	0.066	0.124	Not Significant
3	Education	0.107	0.124	Not Significant
4	Status of employment	0.137	0.124	Significant
5	Monthly income	0.213	0.124	Significant
6	Size of the family	0.188	0.124	Significant
7	Residence	0.162	0.124	Significant
8	Community	0.092	0.124	Not Significant
9	Experience	0.154	0.124	Significant
10	Frequency	-0.105	0.124	Not Significant
11	Reason for leave	-0.074	0.124	Not Significant
12	Membership in union	-0.113	0.124	Not Significant

Twelve factors are identified and their influence on absenteeism has been analysed. The influence of each factor has been tested with the help of the Correlation Co-efficient. The result of this analysis shows that the following six factors have significant relationship with the level of absenteeism.

- a) Age
- b) Status of employment
- c) Monthly Income
- d) Size of the family
- e) Residence
- f) Experience

**Suggestions**

The following are the some of the suggestions to improve the attendance.

- There should be proper non-monetary rewards to the employees.
- The management must provide for employees welfare measures
- Education and medical facilities for their children, etc. that will reduce the absenteeism.
- There should be two-way communication between the management and the employees as it exercise a profound influence.
- When employees are under a constant fear of losing the job, their job satisfaction can be low. Therefore reasonable security of job should be guaranteed by way of permanency that reduces the absenteeism.
- A sound procedure should be installed for quick impartial redressal of employee grievances. Such procedure will help

to avoid dissatisfaction and negative attitudes among employees.

- Counseling will create confidence among employees and improve their attitudes in turn reduce the absenteeism.
- Participation of employees in the process of decision. Making help to improve mutual understanding. It also promotes team sprit and sense of belonging among employees which reduce absenteeism.
- At the time of recruitment, the management should study the habits, behaviors, temperament, aptitude and family and social obligations.
- Provision for housing, transport, recreation, and facilities may be given adequate thought, which may help to reduce the level absenteeism.

**Conclusion**

Productivity loss due to absenteeism is a serious and growing challenge. In the textile mills at Vedaendur, Dindigul suffered the annual cost to employers for time lost and other unscheduled employee absences. Absence management is a growing body of knowledge and experience that managers apply to the control and reduction of these costs. Many organizations are struggling to find the ideal remedy for increased unscheduled employee absenteeism.

Absenteeism is one of the most important issues to be resolved by the textile industries, due to its serious costs. Absenteeism not only damages the workflow and manpower planning in the workplace, but also reduces production efficiency. Top management team needs to avoid these consequences, starting by identifying factors causing the absences and then must think ways to eliminate these factors determined.

The study concluded that providing positive incentives to employees in the custom of those motivational factors that normally influence the employees in textile industries to be absent is better than imposing penalties for discouraging absenteeism. The best reward for employees with low absenteeism is to grant additional time off or leave for personal matters. Employees are influenced to a lesser extent by restraints, loss of pay and benefits and loss of promotion opportunities and discharge, imposed for frequent absenteeism. A proper combination of motivational incentives and penalties is the most effective approach to reducing absenteeism in textile industries in Vedasandur, Dindigul.

## References

1. Applewhite, Phillip B., *Organsitional Behaviour*, Prentice-Hall, Englewood Cliffs, 1965, p.77. Aswathappa, *Human Resource Management*, Tata McGraw Hill, New Delhi, 2005.
2. Basudeva Sahoo "Wage, Price, Productivity and Industrial Planning" New Delhi: Asian Publishing House 1985.
3. Cohen, A. and Golan, R. (). *Predicting absenteeism and turnover intentions by past absenteeism and work attitudes*, *Career Development International*, 12(5), 2007, pp.416-432.
4. Davis, Keith, *Human Behaviour AT Work*, Tata McGraw Hill Publishing Co., New Delhi, 1975. p.65.
5. Harrell, Thomas W., *Industrial Psychology*, Oxford & IBH., New Delhi, 1967,
6. Jenson, S. and McIntosh, J. *Absenteeism in the workplace: Results from Danish sample survey data*. *Empirical Economics*, 32, 2007, pp.125-139.
7. Joshi J. Rama and Sharma R. Balden, "Determinants of Managerial Job Satisfaction in a Private Organization", *Indian Journal of Industrial Relations*, July 1997.
8. Manickavasagam, V., "Employees Morale in Neiyveli Lignite Corporation Limited", Unpublished Ph.D., Thesis, Madurai Kamaraj University, Madurai, 1995.
9. Muthu Velayutham C., "A Study on Employee Morale in Madurai Kamaraj University", Unpublished Ph.D., Thesis, Madurai Kamaraj University, Madurai, 1995.
10. Nagarajan.K, "Boss and Employee Morale", *The ICFAI University Press*, Sep 2005. Punithavathy. "An Interim Analysis in the Cotton textile Industry", Unpublished Doctoral thesis, Madurai Kamaraj University, Madurai, 1988.
11. Rabindra N. Kanungo and Manual Mendoma, *work rewards and management of Human Resources*, *Indian Management*, April 1986.
12. Raj Krishna and Mehta .S.S. "Productivity Trends in Large Scale Industries" *Economic and political weekly*, October 16, 1968.
13. Rosenblatt, Z. and Shirom, A. *Predicting teacher absenteeism by personel background factors*. *Journal of Educational Administration*, 43(2/3), 2005, pp.209-225.
14. Vijaya Rao M.S. and Dr. Sheela Rani. S, *A study on employee absenteeism in Sundaram Brake Linings Ltd.*, Chennai, *AMET International Journal of Management*, Jan -Jun 2012, pp.68-75.
15. Vroom, Victor H. *Work and Motivation*, John Wiley & Sons, New York, 1964, p.26.

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## MBA Batch 2014-16

### JIM Edge

#### The Programme

- Two years' regular full time Master's programme.
- Approved by AICTE and affiliated to Uttar Pradesh Technical University, Lucknow.
- Offering Dual Specialization in Finance, HR, IT, Marketing and IB.

#### Awards and Recognition

- Ranked A+ go-getter education survey 2014.
- Outstanding B-School North India Award 2014 by MBA By Choice.
- Ranked 1st amongst B-School in Delhi/NCR by Time Research 2012.
- Received CSR Academic Excellence Award 2012, 2013 & 2014.
- Ranking of promising B-School by CSR-GHRDC B-School Survey 2012.
- Ranked amongst Top 10 B-School of UPTU, Lucknow.

#### Focus on Communication and Employability

- Towards achieving excellence, we at our institute have taken various measures to develop good communication, business etiquettes and soft skills.
- To refine student's communication skill to the next level, all students are provided special English classes by industry professional which also covers areas like Language Enhancement Training, Interview preparation, etc.
- 100 Hrs. Corporate Communication Training Session by Professionals.

### Infrastructure

- The Jaipuria Institute of Management provides one of the finest management education infrastructures in Delhi/NCR which is spread over 5.5 acres of land in the heart of Delhi/NCR.
- Over 17000 books, 100 national and international journals are available in the Jaipuria Institute of Management library.
- Jaipuria Institute of Management provides gym and fitness center, ultra modern computer labs, language lab and other sports facilities.

### Placement

- 100% Placement of Batch 2012-14.
- 7000+ Alumni Association to Support the Students.
- Summer Internship with our Top corporate Partners.
- Regular Industrial Visits.
- Guest Lectures by Eminent Speakers from Industry and Academia.
- Special Personality Development Sessions.

### Moral and Ethical Value System

- Moral and Ethical value system have been formally introduced as an integral element of our teaching pedagogy. We try to inculcate among students the importance of ethical and moral value system in our life.

### Eligibility Criteria

- Minimum 50% Marks in Graduation
- A Valid UPSEE/CAT/MAT/CMAT Score

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## **Jaipuria Institute of Management:**

Jaipuria Institute of Management was set up by Seth Anandram Jaipuria Education Society in 2001. It has sprawling campus spread over 5.5 acres on Delhi-Meerut link road within NCR. During this short span of 13 years, under the able guidance of the President, Dr. Rajaram Jaipuria, JIM, is being acclaimed as a leading business school in Northern India.

Jaipuria Institute of Management, Ghaziabad, was established by fulfilling all the norms regarding academic, financial and social aspects set by concerned statutory bodies. The Institute started a full time 2 years master degree course in Business Administration (MBA), from the academic session 2001. The course is duly approved by AICTE, Ministry of HRD (Govt. of India) and affiliated to Uttar Pradesh Technical University, Lucknow (UP).

Jaipuria Institute of Management, Vasundhara, Ghaziabad aims to provide quality management education to transform individuals into Business Leaders, Skilled Manager and Entrepreneurs.

Jaipuria Institute of Management intends to provide and develop the capabilities of the young managers by raising their level of competence and intellect to face various challenges in the global environment. In pursuit of excellence, the institute provide training and development services, foster research and disseminate knowledge through publication of books, journals and magazines for the development of society at large. Jaipuria Institute of Management has established themselves as a leading management institute in Northern India.

