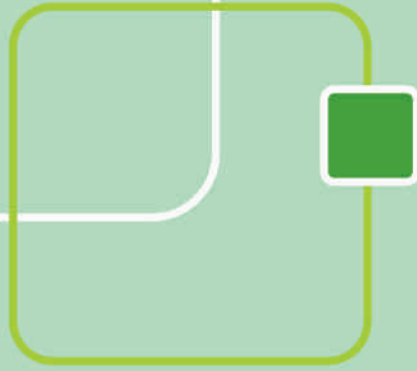


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SR. NO.	PARTICULAR		PAGE NO.
1.	<b>GLOBAL FINANCIAL CRISIS AND FINANCIAL MARKETS IN INDIA</b> M. MUTHUMANIKUMAR, W. RAJA CHELLIAH, D. PETER MARTIN, M. RAKNA	[PDF]	1-13
2.	<b>A STUDY ON APPLICATION OF BUSINESS INTELLIGENCE FOR RETAILING IN INDIA</b> DR.R.VENKATAPATHY, MRS.T.GIRIJA	[PDF]	14-25
3.	<b>DETERMINANTS OF FIIS IN INDIA (AN APPLICATION OF REGRESSION ANALYSIS)</b> RAJINDER SINGH VOHRA	[PDF]	26-45
4.	<b>CONTEMPORARY ISSUES AND CHALLENGES OF BASEL II ACCORD IN RISK MANAGEMENT FOR INDIAN BANKING INDUSTRY</b> RAGHAVENDRA RAO RENTALA	[PDF]	46-58





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## GLOBAL FINANCIAL CRISIS AND FINANCIAL MARKETS IN INDIA

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### ABSTRACT

*It is generally believed that the global financial crisis left India virtually unaffected. However, the events that unfolded especially after the collapse of Lehman Brothers showed the vulnerability of the Indian economy. In this paper we analyze the experience of the Indian economy during the crisis from a capital account prospective. Our analysis shows clearly that, because of the creased openness of Indian economy in the past two decade, the financial crisis spilled over to India through financial as well as real channels. After record capital inflows until 2007, a sudden reversal of the short-term capital flows thereafter affected Indian economy in many ways. The Indian stock market appeared to be highly dependent on the foreign institutional investors. The exchange value of rupee depreciated as a consequence of the capital withdrawals from India. Not only that, the global liquidity crisis squeezed*



*the external borrowings of the Indian corporate and banking sectors considerably. Signs of recovery can be noticed from second quarter of the 2009-10. However, the exposure of Indian economy has increased over time and there are still some areas of concern that will have to be addressed.*

## INTRODUCTION

Experience of recent financial crisis shows that with increased openness of Indian economy the 'decoupling theory' does not hold. Global crisis spilled over in India through financial as well as real channels. Because of negligible exposure of Indian banks to distressed assets, India was not directly affected by the financial crisis, but the indirect effects through trade and capital flows were severe. After record inflow of capital, sudden reversal in trends affected Indian economy through various channels, stock market heavily dependent on FII investments crashed, Indian companies found it difficult to raise money in international market, Rupee depreciated by 23 percent in just 11 months and to contain depreciation RBI increased dollar liquidity leading to reduction in its foreign exchange reserve. The 2008 financial crisis was felt across the world, including in India. As Foreign Institutional Investors (FIIs) withdrew, stock markets plummeted and the rupee tumbled. By June 2009 – nine months after the default of Lehman Brothers – the Sensex, India's benchmark stock market index, fell by 65 percent and the Indian rupee fell 30 percent over the same period.

## INDIAN FINANCIAL SECTOR

The Indian financial sector has been badly hit by the financial crisis. The currency market, stock market, money market, and the mutual fund industry have been hit by the crisis. The companies are finding it hard to raise fund from the financial market. Most of the companies are unable to give dividend to their share holders. At the time of crisis the Bombay stock exchange index which had touched a high of 21,200 in January, slipped to less than 10000. In other words the sensex has fallen down by more than 50 percent. The cumulative market capitalization of Indian shares which was 5.30 cores in January 2008, has slumped to 2.65 cores in December 2008. In other words, 50 percent of the market capitalization of the companies were dried up due to crisis

The companies are postponing their Initial Public Offer. 15 IPOs hit the primary market from April to June 2008, whereas not a single company approached primary market with IPOs during the period of July to September 2008

Withdrawal of money by mutual fund investors in a big way has created a liquidity crisis for Asset under Management companies, which are struggling to meet sharp increase in redemption requests. The valuation of assets held by the mutual fund companies saw a significant decline. The drastic fall in stock market triggered the Indian mutual fund industry fall. Assets under Management fell by 25 percent to Rs 432000 cores in October 2008. The decline in the value of AUM across various companies from Rs 284869 cores in the month of October 2008 took Rs 274571 cores for the month of November 2008. Diversified funds had a negative growth



of 24.51 per cent, sectoral funds 21.84, tax saving funds 22.1 percent and bond funds 15.84 percent.

Indian rupee was not good for the year 2008. The rupee was valued at Rs.46 in August 2006 and Rs. 41 in 2007<sup>th</sup> August. The rupee has touched a highest level of Rs 50.12 on 20<sup>th</sup> November 2008. Failure to arrest the depreciation of rupee due to crisis it has resulted into the shrinking of forex reserve by Rs.225000 cores.

### **CRISIS AND INDIAN SHARE MARKET**

The Indian financial system has deeply affected by the global financial crisis. The companies are finding it difficult to raise fund from the financial market. Most of the companies are unable to declare dividend due to financial crunch and Foreign Institutional Investors' withdrawing huge fund from the market. The global financial crisis has had a deep impact on the Indian stock market, as it was evident from the fact that Bombay Stock Exchange benchmark index slipped on September to 10000 from 21,200 of January. The cumulative market capitalization of Indian shares, which was Rs.5.30 crore in January 2008, slumped to Rs.2.65 crore in December 2008

The financial turmoil affected the stock markets even in India. The combination of a rapid sell off by financial institutions and the prospect of economic slowdown have pulled down the stocks and commodities market. Foreign institutional investors pulled out close to \$ 11 billion from India, dragging the capital market down with it. Stock prices have fallen by 60 per cent. India's stock market index—Sensex— touched above 21,000 mark in the month of January, 2008 and has plunged below 10,000 during October 2008 (Kundu 2008). This also has an effect on the Primary Market. In 2007-08, the net Foreign Institutional Investment inflows into India amounted to \$20.3 billion. As compared to this, they pulled out \$11.1 billion during the first nine-and-a-half months of the calendar year 2008, of which \$8.3 billion occurred over the first six-and-a-half months of the financial year 2008-09 (April 1 to October 16). The equity markets have seen a near 60 percent decline in the index and a wiping off of about USD1.3 trillion in market capitalization since January 2008 when the Sensex had peaked at about 21,000. This is primarily due to the withdrawal of about USD12 billion from the market by foreign portfolio investors between September and December 2008.

### **FALL OF INDIAN STOCK INDICES**

Following the global financial crisis, NSE and BSE saw fall in turnover. The turnover on the NSE fell by 22.5% in 2008-09 compared with 2007-08 and that on the BSE it fell by 30.3% over the same period. The average daily turnover on the NSE stood at US\$ 2 bn in 2008-09 compared to USD 3.5 bn in 2007-08.

The BSE 30 – share sensex declined 3,072.37 points or 23.89 percent to 9788.06 in a month. The S&P CNX Nifty lost 1035.6 points or 26.41 percent to 2885.60



The BSE Mid- Cap index fell 1598.27 points or 33.31 at 3200.02 and the BSE small cap index fell 1812.36 points or 32.49 percent at 3765.11 .The BSE Realty index fell 43.62 percent of October 2008. Bankex (down-25.07 %) BSE Health care (down -25.12 %) , BSE Auto (down 26.92- %), BSE consumer Durables (down -29.23%), BSE Oil & Gas (down – 30.69 %), BSE Power (down – 30.70 %)), Capital goods (down – 33.68 %)), BSE Metal (down – 40.70 %)) under performed the sensex.

India's largest private sector company by market capitalization and oil refiner Reliance Industries (RIL) slumped 29.57 percent to Rs 1370.75 in the month

Banking shares witnessed sell – off. India's largest private sector bank by market capitalization HDFC Bank fell 16.71 percent to Rs 1023.65 .India's second largest private sector Bank by market capitalization ICICI Bank fell 25.33 percent to Rs. 399.35.India's largest state - run bank State Bank of India (SBI) fell 24.30 percent to Rs . 1109.50

**Sensex, India's benchmark stock market index**



Source: Moneycontrol.com

## IMPACTS ON MARKET CAPITALIZATION

As the trends in turnover showed a fall in 2008-09 compared to 2007-08, the same was the case with market capitalization for securities available for trading on the equity segment of NSE and BSE. After witnessing enormous growth during 2007-08 in comparison to 2006-07, 2008-09 saw a fall in market capitalization in 2008-09 over 2007-08 levels. The market capitalization of NSE and BSE , which as at end March 2008 amounted to Rs. 48,581,217



million (US \$ 1215 billion) and Rs. 51,380,140 million (US \$ 1286 bn) respectively, were down to USD 568 bn on the NSE and USD 606 bn on the BSE as at end March 2009. As at end June 2009, there has been some increase in market capitalization, which stood at USD 926 bn for NSE and 992 bn for the BSE

## **TURNOVER AND MARKET CAPITALIZATION - GROWTH**

Trading volumes in the equity segments of the stock exchanges have witnessed a phenomenal growth over the last few years. The trading volumes saw a considerable increase in late 1990's. The compound annual growth rate of trading volumes on all stock exchanges taken together has been 8.91% over the period 2001-02 to 2008-09. NSE and BSE, were the only two stock exchange which reported significant trading volumes. With the exception of Calcutta and Uttar Pradesh Stock Exchange, not all other stock exchanges reported any trading volumes during 2008- 09 and 2009-10 (Apr-June). NSE consolidated its position as the market leader by contributing 71.43% of the total turnover in India in 2008-09 and 75.03% in first quarter of 2009-10. Since its inception in 1994, NSE has emerged as the favored exchange among trading members. The consistent increase in popularity of NSE is clearly evident from, which presents the business growth of CM segment of NSE. Not only in the national arena, but also in the international markets, NSE has been successful in creating a niche for itself.

Trends in turnover in NSE and BSE over 2007-08 to latest first quarter of 2009-10 one finds that 2008-09 saw fall in turnover on the exchanges mainly on account of weak sentiments following the global financial crisis. The turnover on the NSE fell by 22.5% in 2008-09 compared with 2007-08 and that on the BSE it fell by 30.3% over the same period. The average daily turnover on the NSE stood at US\$ 2 bn in 2008-09 compared to USD 3.5 bn in 2007-08.

## **THE CAPITAL MARKET**

The capital market (CM) segment offers a fully automated screen based trading system, known as the National Exchange for Automated Trading (NEAT) system. This operates on a price/time priority basis and enables members from across the country to trade with enormous ease and efficiency. Various types of securities e.g. equity shares, warrants, debentures etc. are traded on this system. The average daily turnover in the CM Segment of the Exchange during 2008-09 was Rs. 11,325 crore. (US \$ 2,223 million). But it was 3,551,038 for the year 2007 – 2008,

## **CURRENCY DERIVATIVES SEGMENT**

Currency Derivatives Segment (CDS) at NSE commenced operations on August 29, 2008. With the launch of Currency futures trading in US Dollar-Indian Rupee (USDINR). On the very first day of operations a total number of 65,798 contracts valued at Rs.291 crore were traded on the Exchange. Since then trading activity in this segment has been witnessing a rapid growth. During August 29, 2008 to March 31, 2009 the segment reported a trading value of Rs.162, 272 crore (US \$ 31,849 million). A total number of 518 trading members which includes 22 banks have taken membership in this market segment as at end March 2009.



## **FUTURES & OPTIONS**

Futures & Options (F&O) segment of NSE provides trading in derivatives instruments like Index Futures, Index Options, Stock Options, and Stock Futures. The futures and options segment of NSE has made a mark for itself globally. In the Futures and Options segment, trading in S&P CNX Nifty Index, CNX IT index, Bank Nifty Index, CNX Nifty Junior, CNX 100 index, Nifty Midcap 50 index, S&P CNX Defty and single stocks are available. The average daily turnover in the F&O Segment of the Exchange during 2008-09 was Rs.11010482 crore (US \$ 8,893 million). But it was 13090478 in 2007 – 2008.

## **TRADES IN EQUITY SHARES**

According to the WEF report the turnover of equity shares in exchanges were significantly fell from 2008 December to January – June 2009. NASDAQ's trade fell from 3,779,392 of December to 2,240,242 in June 2009, NYSE Euronext's (US) trade in equity share fell from 4,050,573 to 1,641,340, Shanghai Stock Exchange's trade in equity shares fell from 1,278,881 to 983,849, NSE's trade in equity shares fell from 1,368,050 to 782,027, Shenzhen SE's trade fell from 658,047 to 561,010 and Korea Exchange's trade fell from 641,754 to 449,92

## **CRISIS AND MARKET MOVEMENTS**

The movement of few of the selected indices placed in table 4-9 brings out the trends witnessed in the Indian and foreign markets during 2007-08 and 2008-09. A global comparison of these selected indices, during these years, shows a varied kind of performance in 2007-08. However, during 2008-09, all these indices witnessed negative returns in the range of 30 to 40%. The period March 09 to June 09 saw some revival in index returns. BSE Sensex saw a maximum return of 49%, followed by Nifty with an increase in return of 42%. Comparing the movement of the Nifty, Sensex and Nasdaq over 2008-09 (all indices rebased for 1 April 2008), Nasdaq performed better than the Indian indices during most part of the year. The returns on the Nasdaq were negative 33% during 2008-09, while that on Nifty 50 and BSE Sensex were negative 36% and 38% respectively, over the same period.

## **IMPACTS ON STOCK PRICES**

### **STOCK PRICES OF REALTY INDEX**

The average decline in Bombay stock exchange realty during the period of July 2008 to January 2009 was 61.62 % as against the period January 2008 to June 2008. and the average decline in Delhi Land and Finance Ltd (DLF) share price was 51.29 % during the same period. It clearly gives a single that realty index in general and DLF in particular are the major victims of global financial crisis and the stock market down.





**STOCK PRICES OF BANKING INDEX**

The average decline in banking index during the period of July 2008 to January 2009 was 32.74 % as against the period January 2008 to June 2008. And the average decline in ICICI Bank share price was 44.15% during the same period.

**STOCK PRICES OF AUTO INDEX**

The average decline in BSE Auto index during the period of July 2008 to January 2009 was 32.11 % as against the period January 2008 to June 2008, and the average decline in Tata Motors share prices was 58.14% during the same period.

**STOCK PRICES OF METAL**

The average decline in BSE metal index during the period of July 2008 to January 2009 was 49.56 % as against the period January 2008 to June 2008, and the average decline in Tata steel share prices was 55.22% during the same period.

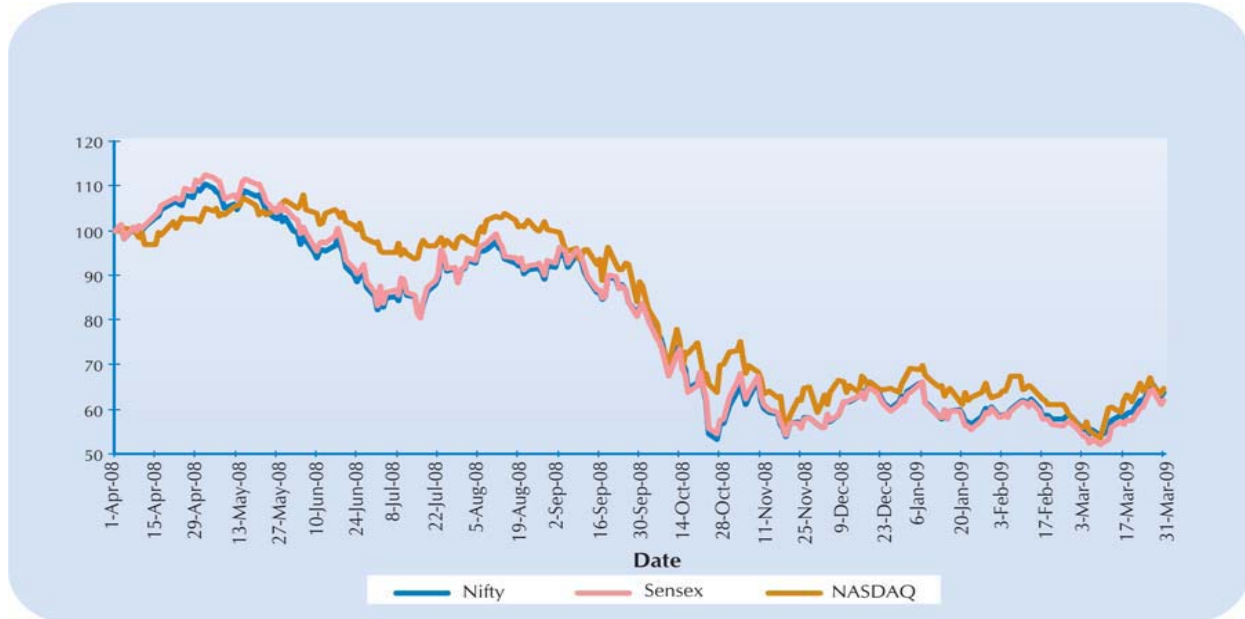
**STOCK PRICES OF IT**

The average decline in BSE IT index during the period of July 2008 to January 2009 was 26.44 % as against the period January 2008 to June 2008 ,and the average decline in Infosys share prices was 26.87% during the same period .

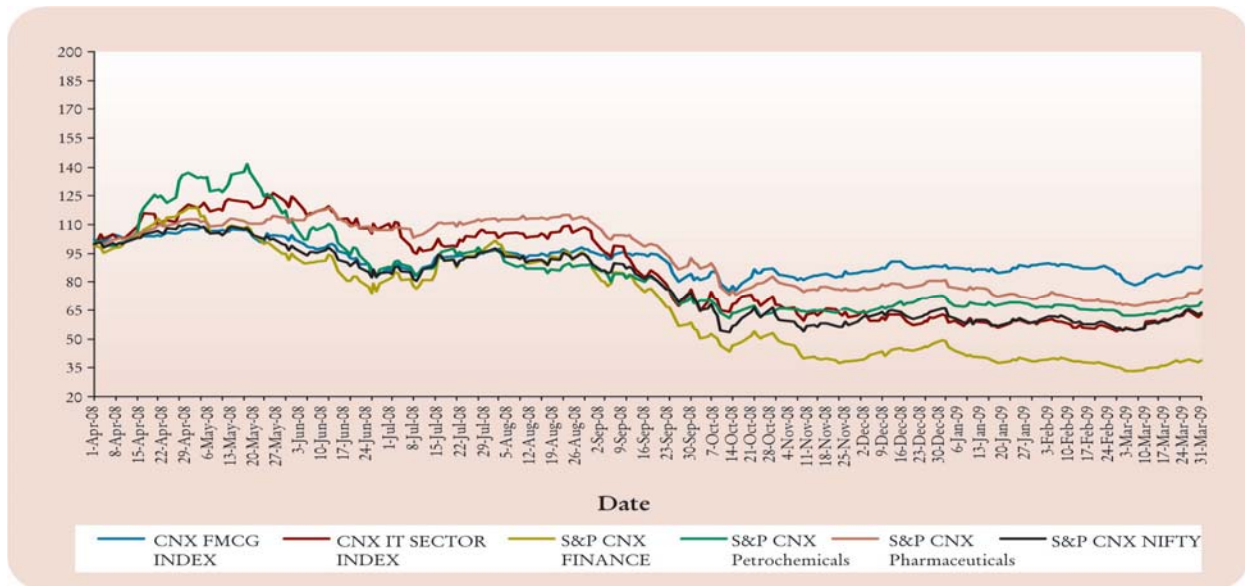
**STOCK PRICES OF FMCG**

The average decline in BSE FMCG index during the period of July 2008 to January 2009 was 10.72 % as against the period January 2008 to June 2008 ,and the average increase in HUL share prices was by 7.91%



**MOVEMENT OF NIFTY, SENSEX AND NASDAQ, 2008-09****CHART – 1**

Source: www.nseindia.com

**MOVEMENT OF SECTORAL INDICES: 2007-08****CHART -2**

Source: www.Nseindia.com



The S&P CNX Nifty accounted for 65.35% of total market capitalization as at end March 2009, while the CNX Nifty Junior accounted for 9.894% of market capitalization.

### **INDIAN PRIMARY MARKET**

During October 2008, Rs. 128 crore was mobilized through 3 issues in the primary market. There was one public issue (IPO) which mobilized Rs. 26 crore and 2 rights issues which mobilized Rs. 102 crore. During October 2007, there were 6 public issue. During October 2007, there were 6 public issues (all IPOs) which mobilized Rs. 266 crore and one rights issue which mobilized Rs. 106 crore. During 2008-09 (April – October), there were 20 public issues which mobilized Rs. 2,059 crore and 16 rights issues which mobilized Rs. 10,480 crore as compared to 58 public issues which mobilized Rs. 32,912 crore and 12 rights issues which mobilized Rs. 1,053 crore during the same period in the previous year. In October 2008, there was no QIP whereas in October 2007, there were 4 QIPs which mobilized Rs. 2,602 crore. During October 2008, 30 preferential allotments (Rs. 1,68,719 crore) were listed at BSE and 15 preferential allotments (Rs. 17,203 crore) were listed at NSE. During 2008-09 (April – October), 247 preferential allotments with issue value of Rs. 2,02,249 crore was listed at BSE and 203 preferential allotments with issue value of Rs. 34,867 crore was listed at NSE

### **INDIAN DERIVATIVE MARKET**

NSE's derivatives market witnessed an increase in volumes over the period 2003-2007. The market had achieved a growth of 522% over this period with volumes in the derivatives segment of NSE and BSE increasing from USD 494 bn in 2003-04 to USD 3336 mn in 2007-08. However, the year 2008-09 saw a drop (2,163,348 mn) in volumes in this segment largely due to the global slowdown in the derivatives segment as an aftereffect of the sub-prime crisis. The turnover in this segment on the NSE fell 16% (110,104,822) in 2008-09 as compared to 2007-08(130,904,779). The turnover on the BSE fall was a dramatic 97% over this period. The share of BSE in the total derivative markets turnover fell from 1.81% (2,423,080 mn) in 2007-08 to 0.11% (117,750 mn) in 2008-09.

The product-wise turnover on the NSE is seen that stock futures which accounted for the highest turnover 75,485,632 mn (58%) among the various products in 2007-08, saw its share fall to 32% (34,796,421 mn)in 2008- 09. On the other hand, the share of Index options increased dramatically from 10.4% in 2007-08 to 34% (37,315,018mn) in 2008-09. The share of Index futures' turnover in total turnover was 32% and that of stock options was 2% in 2008-09. Thus, it is seen that index options were more popular that stock futures during 2008-09. This trend continued in the first quarter of 2009-10.

### **MUTUAL FUND**

#### **GLOBAL FINANCIAL CRISIS AND MUTUAL FUND INDUSTRY**

Withdrawal of money by mutual fund investors in a big way has created a liquidity crisis for Asset Under Management Companies , which are struggling to meet sharp increase in redemption requests .The valuation of assets held by the mutual fund companies saw a



significant decline. In other words, the drastic fall in stock market has eroded the assets base of top Indian mutual fund companies substantially. Lackluster inflow of fresh cash has further added to their woes. Even new schemes launched in the recent past have failed to attract investors, which seem to have left the industry struggling for funds. Assets under Management fell by 25 percent to Rs. 432000 Crores in October 2008. The mutual fund industry is crying for liquidity support. There was a decline in the value of AUM across various companies from Rs.284869 Crores in the month of October 2008 to Rs.274571 Crores for the month of November 2008. The performance of various types of Mutual funds declined during the crisis. Diversified and sectoral funds are performing badly as there is negative growth of 21.51 percent and 21.84 percent respectively. Tax saving and bond funds are not behind in poor performance with negative growth of 22.1 performance and 15.84 respectively.

### PERFORMANCE OF INDIAN MUTUAL FUND INDUSTRY

CHART – 3



Source: [www.amfiindia.com](http://www.amfiindia.com)

### IMPACTS ON ASSET UNDER MANAGEMENT COMPANIES

Mutual funds have been a significant source of investment in both government and corporate securities. The year 2008 – 2009 was the year that spread bad signs not only to the share market but also to the Mutual fund industry. According to the AMFI, Assets Under Management fell by 25 percent to Rs. 432000 Crores in October 2008. There was a decline in the value of AUM across various companies from Rs. 284869 Crores in the month of October 2008 to Rs.274571 Crores for the month of November 2008.



**TABLE -RETURNS OF AUM FOR THE YEAR 2008 – 2009**

AUM	July	August	Sep	Oct	Nov	Dec	Jan
SBI	29151	29577	29248	24727	23168	25004	26942
UTI	46120	46947	44623	38284	38358	42548	46161
LIC	17499	17153	16168	13187	11684	14400	18732
KOTAK	18782	18413	18813	14916	14474	14278	14719
RELIENCE	84564	88616	86494	71094	67816	70208	76169
TATA	20443	21197	20778	17000	17537	17556	20141
BIRLA	37499	38184	37578	34187	31901	36565	42157
ICICI	55161	53093	49772	39182	37056	41878	47516
DSP	-	-	18512	14869	13384	13357	13769
IDFC	11742	12255	11856	10244	8686	8862	11427

Source: AMFI

**DROPS IN ASSET UNDER MANAGEMENT**

AVM of Indian Mutual fund industry registered a total outflow of Rs.97201.48 crore, i.e., a fall of 18.37% taking the AUM to Rs.4.31 lakh crore in October 2008 compared with Rs.5.29 lakhs crore in September 2008. AUM of fund of funds (FoF) was Rs.8865.7 Crore in October 2008.

All 35 mutual funds houses recorded a fall in AUM in October 2008 over September 2008. There were 14 fund houses with AUM above Rs.10000 crore. All of them had a net outflow in October 2008 compared with September 2008.

**TABLE -DROPS DURING CRISIS**

S.No.	AUM	Drop in %
1.	Mirae Mutual fund	56.53
2.	AIG Global investment Group Mutual Fund	44.18
3.	Canara Robeco MF	33.65
4.	Reliance Mutual Fund	17.18
5.	HDFC	12.54
6.	ICICI Prudential	21.28
7.	UTI Mutual Fund	14.21
8.	Birla Sunlife MF	22.40
9.	Franklin Templeton MF	22.40

Source: www.amfiindia.com

The top three funds witnessing highest drop in the AUM included Mirae Mutual Fund (56.53%). AIG Global investment Group Mutual Fund (44.18%) and Canara Robeco mutual Fund (33.65%). Reliance Mutual Fund continued its run as the largest fund house with Rs.71093.71 Crore of AUM in October 2008- a dip of 17.81% over September 2008. It registered a net outflow of Rs.15400.75 crore in October 2008 over September 2008; HDFC



Mutual Fund retained its position as the second largest fund house in October 2008. AUM of HDFC Mutual Fund was at Rs.45479.37 crore in October 2008- a fall of 12.54% in AUM over September 2008. It registered net outflow of Rs.6518.92 crore in October 2008 from September 2008.

ICICI Prudential Mutual Fund stood at the third position posting AUM of Rs.39182.45 crore with net outflow of Rs.10590.04 Crore in October 2008 over September 2008-a fall of 21.28% in October 2008.

Public sector UTI Mutual Fund was at the fourth position, with an AUM of Rs.38283.63 crore-a fall of 14.21% over September 2008.

The other top mutual funds, in terms of AUM, were Birla Sun Life Mutual Fund (Rs. 34187.29 Crore) SBI Mutual Fund (Rs.24727 Crore) and Franklin Templeton Mutual Fund (Rs. 22003.86 Crore) in October 2008. The assets of Franklin Templeton Mutual Fund and Birla Sun Life Mutual Fund slumped 22.40% and 9.02% respectively, in October 2008.

Reliance Mutual Fund recorded the highest outflow of Rs.15400.75 crore in October 2008 followed by ICICI Prudential Mutual Fund, with a net outflow of Rs.10590.04 crore, HDFC Mutual Fund and Franklin Templeton Mutual Fund recorded outflows of Rs. 6518.97 crore and Rs.6352.15 crore respectively. UTI Mutual Fund recorded the net outflow of Rs.6339.56 crore in October 2008. SBI Mutual Fund had net inflow of Rs.4520.77 crore in October 2008.

## CONCLUSION

An eventful week of great turbulence has begun in the global financial scenario as stock prices dipped across much of the globe on news that investment bankers, Lehman Brothers Holdings filed for bankruptcy and Merrill Lynch & Co's forced sale to Bank of America. The investments in Indian firms by these U.S. investment bankers are a major worry for Indian investors. Indian stock market has seen its worst time with the global financial crises. Mostly all the industrial sectors experienced a consistent low in their stock prices. The IT sector has been badly hit. Nearly half of the IT sector firms' revenues come from banking and financial institutions. While the developed world, including the U.S, the Euro Zone and Japan, have plunged into recession, the Indian Economy is being affected by the spill-over effects of the global financial crisis (Chidambaram 2008). Great savings habit among people, strong fundamentals, strong conservative and regulatory regime have saved Indian economy from going out of gear, though significant parts of the economy have slowed down and there is a wide variance of opinion about how long it will continue. It is expected that growth will be moderate in India.

The most important lesson that we must learn from the crisis is that we must be self-reliant. Though World Trade Organization (WTO) propagates free trade, we must adopt protectionist measures in certain sectors of the economy so that recession in any part of the globe does not affect our country



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## A STUDY ON APPLICATION OF BUSINESS INTELLIGENCE FOR RETAILING IN INDIA

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### ABSTRACT

*Retailing plays a major role in the global economy. India has always been positive towards retailing. Currently many factors such as rapid economic growth, urbanization, rising per capita income, younger age group demographics, intensifying demand both in volume as well as variety in urban centers are fueling the growth of retail in India. There has been considerable growth in organized retailing business in recent years and it is poised for much faster growth in the future. Retailing has also become more competitive and the business has shifted from short-term transaction based selling to relationship selling. To maintain relationship with consumer requires more effort and information at different functions of retailing. Moreover organizations' focus have been on acquiring customers, increasing revenues and profitability, and outpacing the competition. As the organization grows, more time needs to be spent on analyzing the current happening and planning for the future rather than the employees concentrate on solving operational problems and putting out fires. At this point it is required to determine where to direct the efforts. The concentration should be on monitoring the operations and focusing on quickly finding and resolving potential problems and identifying and leveraging new opportunities. BI refers to application and technology that is used to gather, provide access to, and analyze data and information about the organizations' operations. BI is a computer-based technique used in spotting, digging-out, and analyzing 'hard' business data, such as sales*





*revenue by products or departments or associated costs and incomes. Thus Business Intelligence (BI) can play a crucial role in almost every function of retailing starting from vendors to the customer basket. This article examines different benefits that can be sought out of BI to retailing.*

**KEYWORDS:** *Business Intelligence (BI), benefits of BI, Retailing.*

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## INTRODUCTION

Retailing is the largest private industry in the world, with total sales of \$ 6.6 trillion. Retailing business can be clearly demarcated into organized and unorganized. India is an emerging retail market and its retail sales are increasing by an average of 10 percent per year. The India retail market is estimated<sup>1</sup> at US\$ 470 bn in 2011, accounting for approximately 35% of GDP. The organized retail market is estimated at US\$ 26 bn and accounts for approximately 6% of the overall retail market for 2011. The marketing emphases have shifted from obtaining market share to obtaining share in individual customer business. To obtain maximum share in individual business it becomes essential for the retailer to analyze the customer and gather maximum information to serve him better than his competitor. Business Intelligence helps retailing to turn data into useful, meaningful information and distribute the information to those that needed it and at the required time. Thus BI information can improve customer experience, allowing for the timely and appropriate response of the retailer to customer problems and priorities. This will provide satisfaction among the customer towards the retailer.

## OBJECTIVES

- To study the concept of Business Intelligence.
- To study the benefits of Business Intelligence to different organizations.
- To suggest the application of Business Intelligence for Retailing in India.

## STATEMENT OF PROBLEM

The globally accepted consultancy firm, A.T.Kearney has rated India as the most attractive emerging retail market for three years in a row and has observed that organized retailing from within and around the globe are on a spree to set up shop in the Indian market. This has intensified the level of competition among the players and the customers have the opportunity to experience a rapid exposure to brands. Due to increased competition and price pressures, understanding how to establish and sustain buyer-seller relationships is becoming paramount for marketers<sup>2</sup> (Peltier, Schibrowsky, & Davis 1998). These require huge information in short and appropriate time. The retailers compete with one another to identify the customers' problems and to offer solutions. Out of the competing retailers, the retailer possessing timely and quality information is like having a crystal ball as it can give an indication of the best decision to take. BI will help the retailers to obtain required information in very short time and provide it to



concerned people requiring it in different formats. This will enable the management to make fast, accurate and dynamic analysis quickly. This article studies the benefits of BI in general and for retailing in particular.

### **NEED FOR THE STUDY**

According to the Indian Council for Research on International Economic Relations (ICRIER), India is the seventh- largest retail market in the world, and is expected to grow at a CAGR of over 13% till FY12<sup>3</sup>. The current retailing is facing diverse group of customers, and they require personalized services and quick response to their changing demands. This requires systematic information generation from various angles in short span of time. BI is referred as decision support. It allows organizations to understand, analyze and even predict better. This study brings out the benefits of BI for retailing and that helps in the growth of the industry.

### **LITERATURE REVIEW**

#### **AN OVERVIEW ABOUT BUSINESS INTELLIGENCE**

Business Intelligence refers to application and technology that is used to gather, provide access to, and analyze data and information about the company operations. BI is neither a product nor a system. It is an architecture and a collection of integrated operational as well as decision-support applications and databases which provide the business community easy access to business data. It refers to use of technology to collect and analyze huge amount of data pertaining to the customers, vendors, markets, internal processes, and the business environment. BI helps the organization to turn data into useful and meaningful information and then distribute the information to those that needed it, when they need it so that they can make timely and better informed decisions. It allows organization to combine data from a wide variety of sources and see an integrated, up to date and 360 degree view. In other words BI represents the tools and systems that play a key role in the strategic planning process of the corporation. These systems allow a company to gather, store, access and analyze corporate data to aid in decision-making. Generally these systems illustrate business intelligence in the areas of customer profiling, customer support, market research, market segmentation, product profitability, statistical analysis, and inventory and distribution analysis to name a few. [Jonathan, DMR 2000]<sup>4</sup> explains that “Business intelligence is the process of gathering high-quality and meaningful information about the subject matter being researched that will help the individual(s) analyzing the information, draws conclusions or make assumptions.”

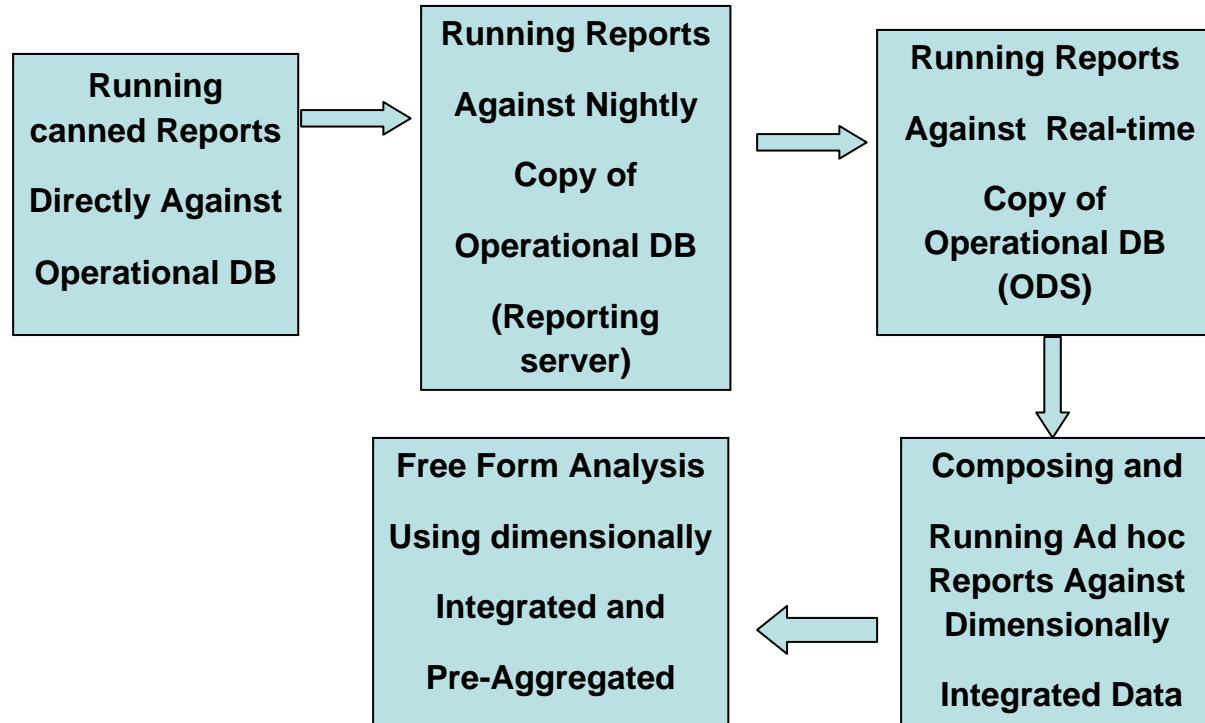
Stackowiak et al. (2007)<sup>5</sup> define Business intelligence as the process of taking large amounts of data, analyzing that data, and presenting a high-level set of reports that condense the essence of that data into the basis of business actions, enabling management to make fundamental daily business decisions.

Zeng et al. (2006)<sup>6</sup> define BI as “The process of collection, treatment and diffusion of information that has an objective, the reduction of uncertainty in the making of all strategic decisions.”



## EVOLUTION OF BUSINESS INTELLIGENCE

FIG:1 SHOWING THE EVOLUTION OF BUSINESS INTELLIGENCE



Business intelligence applications can be deployed either strategically i.e. across functional department or tactically i.e. within a functional department.

## RETAILING

Most retailing involves buying merchandise or a service from a manufacturer, wholesaler, agent, importer or other retailer and selling it to customers for their personal use. Retailing, one of the largest sectors in the global economy, is going through a transition phase in India. In the past five years, U.S based Wal- Mart, France – based Carrefour, U.K. based Tesco, and Germany-based Metro Group saw their revenues in developing countries grow 2.5<sup>7</sup> times faster than revenues in their home markets. The 2012 A.T.Kearney Global Retail Development Index , the 11<sup>th</sup> annual edition finds a wide array of possibilities for retailers seeking to capture an immediate impact and a growth advantage in developing countries. Possibilities are not only in the biggest markets, but also in many smaller countries around the world. The 2012 GRDI finds global retail expansion having a different profile compared to that of a decade ago. The world's largest developing markets particularly the BRIC nations Brazil, Russia, India and China are attractive for the largest global retailers and show no signs of slowing down, many smaller, untapped markets are providing new profit frontiers, particularly for regional and specialty players. Customers' expectations and behaviors are evolving, driven by both the economic climate and increased access to information through technology. Retailers' talent currently lies



in crucial differentiation in developing markets. Attracting and retaining talented workers is a core component of success for retailers in developing markets.

India remains a high potential market and expected to grow to 15 to 20<sup>8</sup> percent in the next five years. Growth is propped up by strong macroeconomic conditions, including a 6 to 7 percent rise in GDP, higher disposable incomes, and rapid urbanization. Yet, while the overall retail market contributes to 14 percent of India's GDP, organized retail penetration remains low, at 5 to 6 percent indicating opening for growth. Grocery maintains India's largest source of retail sales. India has obtained 6<sup>th</sup> rank in the Retail Talent Index. The information technology (IT) and business process outsourcing (BPO) industries have taken advantage of this talent pool, thus experiencing rapid growth for a decade. Though with excellent potential, India poses a complex situation for a retailer, as this is a country where each State is a mini-Country by itself. The demography of a region varies quite distinctly from others. In order to appeal to all classes of the society, retail stores should have to identify different lifestyles and requires lots of information with in short time.

During the last few years, The Indian retail market has seen considerable growth in the organized segment. Major domestic players like Reliance, Tata, Bharti, Aditya Brila enterprise have entered the retail arena and have ambitious plans to expand in the future years across verticals, formats and cities. Besides, a number of transnational corporations have also set up retail chains in collaboration with big Indian companies. India has the highest number of retail outlets in the world at over 13 million retail outlets and the average size of one store is 50-100 square feet. It also has the highest number of outlets (11,903) per million inhabitants. In this high competition successful retailers do not run their business to suit themselves. Retailers cater to the tastes and requirements of customers. Current scenario emphasizes that finding the right goods or services and creatively marketing them no longer assures that a retail firm will grow and prosper. To grow in this competitive market the retailer must have a constant eye on the consumer. The retailer must have a planned view of the business and focus on positioning, changing consumer lifestyles, technological advances and competitive business concepts which require collection of microscopic data and converting that data into information is correct time.

## **METHODOLOGY**

This study involves a descriptive approach that describes BI, Evolution of Business Intelligence, Retailing and Components of BI, benefits of BI to different organizations and application of BI to retailing is brought out. The study involves secondary data from journals, websites and published reports. Time constraint is the limitation of the study as in depth analysis could not be conducted on the area of implementation and cost involved in BI.



## ANALYSIS

### COMPONENTS OF BUSINESS INTELLIGENCE<sup>9</sup>

- **OLAP (ONLINE ANALYTICAL PROCESSING)**

OLAP is computer processing that enables a user to easily and selectively extract and view data from different points of view. OLAP can be used for data mining or the discovery of previously undiscovered relationships between data items. OLAP provides multidimensional, summarized views of business data and is used for reporting, analysis, modeling and planning for optimizing the business. OLAP techniques and tools can be used to work with data warehouses or data marts designed for sophisticated enterprise intelligence systems.

- **ADVANCED ANALYTICS**

It is referred to data mining, forecasting or predictive analytics. This takes advantage of statistical analysis techniques to predict or provide certainty measures on facts.

- **CORPORATE PERFORMANCE MANAGEMENT (CPM)**

Corporate Performance Management encompasses strategic planning, budgeting, forecasting, workflow, reporting, modeling, scenario planning, profitability analysis and consolidation. CPM addresses both operational and financial performance to include the process of collecting the data and performing analysis and reporting in a collaborative fashion for executives, managers and staff through all levels of an organization. Portals, scorecards and dashboards are output of CPM.

- **REAL TIME BI**

It allows for the real time distribution of metrics through email, messaging systems and/or interactive displays.

- **DATA WAREHOUSE**

The data warehouse is the significant component of business intelligence. It is subject oriented and integrated. The data warehouse supports the physical propagation of data by handling the numerous enterprise records for integration, cleansing, aggregation and query tasks. It can be defined as an updateable set of integrated data used for enterprise wide tactical decision-making of a particular subject area. It contains live data, not snapshots, and retains minimal history. Data sources can be operational databases, historical data, and external data for example, from market research companies or from the Internet, or information from the already existing data warehouse environment. The data sources can be relational databases or any other data structure that supports the line of business applications.



- **DATA MART**

A data mart is a collection of subject areas organized for decision support based on the needs of a given department. A data mart can support a particular business function, business process or business unit. Each functional area has their independent data mart such as finance has their data mart, marketing has theirs, and sales have theirs and so on. Similar to data warehouses, data marts contain operational data that helps business experts to strategize based on analyses of past trends and experiences. There can be multiple data marts inside an enterprise.

- **DATA SOURCES**

Data sources can be operational databases, historical data, external data or information from the already existing data warehouse environment. The data sources can be relational databases or any other data structure that supports the line of business applications. They can contain structured information such as tables or spreadsheets, or unstructured information such as plaintext files or pictures and other multimedia information.

The capabilities of BI include decision support, online analytical processing, statistical analysis, forecasting, and data mining.

## **APPLICATIONS OF BUSINESS INTELLIGENCE**

- **BUSINESS OPERATIONS REPORTING**

The most common form of business intelligence is business operations reporting. This includes the finding out the actual and also finding the difference from the target. This type of business intelligence is often evident itself in the standard regular reports that are required in different departments of retailing, starting from stock to Customer Relationship management. If well planned and data are collected different kinds of business operations report can be generated that will be helpful for the retailer in different operations of retailing.

- **FORECASTING**

Different forecast such as economic forecast, environmental forecast, market and product forecast, sales forecast are required in retailing. Business Intelligence can be applied for making forecast report as per the requirement of time and purpose.

- **DASHBOARD**

A dashboard is an easy to read, often single page, real-time user interface, showing a graphical presentation of the current status and historical trends of an organization's Key Performance Indicators (KPIs) to enable instantaneous and informed decisions to be made at a glance. This type of report that conveys information at a glance can be prepared with the help of BI. This will help the management of retail to take major decision.



- **MULTIDIMENSIONAL ANALYSIS**

Multidimensional analysis uses dimensions and measures to analyze data. Dimensions are hierarchies and have one or more levels. The user can look at the data at any level, for example in the case of area level, the total for all teams within that area can be obtained. Measures are usually quantities such as quantity sold, total revenue and so on. Once a measure is selected in the analysis the measure is aggregated to the level they are analyzed at. So if the analysis is at area level and total revenue has been selected as measure then results are obtained with respect to total revenue to that area level. This helps in comparison, analyzing, decision making segmenting etc., that are of great use for retailers to attract and retain their business. This requires a solid data warehousing / data mart backend, as well as business-savvy analysts to get to the necessary data. If data dimensions are modeled properly then BI can be applied for obtaining multi dimensional analysis.

**FINDING CORRELATION AMONG DIFFERENT FACTORS**

Correlation finds out whether there is any relationship between factors. BI can be applied to find different types of correlation and positive correlation results can be utilized for further growth of retail and negative correlation can be concentrated and analysis can be made if the negative correlation has negative impact in retail business and the reason with the solution to be found out.

**FINDINGS****FOLLOWING ARE THE BENEFITS OBTAINED OUT OF BI**

BI provides many benefits to organizations. It eliminates a lot of guesswork within an organization, enhances communication among departments while coordinating activities and enables companies to respond quickly to changes in financial conditions, customer preferences and supply chain operations. The various benefits that an organization acquires from Business intelligence are

- Business Intelligence helps organization to identify their most profitable customers.
- Analyze potential growth customer profitability and reduce risk exposure through more accurate financial credit scoring of their customers.
- Determine the combinations of products and service lines customers are likely to purchase and the time of purchase.
- Set more profitable rates for insurance premiums.
- Discover money- laundering criminal activities.
- Reduce equipment downtime by applying predictive maintenance in manufacturing unit.



- Determine with attrition and stir up analysis, the reason behind customers leaving for competitors.
- Gather information about the trends in the market place and provide innovative products or services in anticipation of customer's changing demands.
- Business Intelligence tells the actions taken by competitors. So better informed decisions are taken with one step a head of competitors.
- BI helps in forecasting for the future.
- The dashboard in BI conveys the information at a glance.
- Multi dimensional analysis of BI provides insight into the numbers at a more granular level.
- BI provides correlation among different factors.
- It provides information in a more enhanced manner.
- It compares information about customers, products, costs, profit centers and financial accounts.
- It compares the same type of information in different time periods.
- It checks actual performances versus formal and informal goals or constraints. This is more useful in monthly or weekly standard report.
- Little piece of information can be obtained out of a large volume of information through BI.
- BI Provides report or record as required.
- It confirms and discovers trends and relationships.
- BI helps to understand customer behaviour.
- BI uses customer data to meet and exceed customer expectations.
- It makes aware of emerging crisis.
- BI reduces resources and labor costs used for the collation, analysis and distribution of vital business data.
- BI improves collaboration and sharing of data with different departments and with common data base different departments are benefited.
- It helps in understanding of trends in depth through AD – HOC Analysis.





- BI helps streamline operations.
- BI delivers superior supply chain visibility.
- BI helps to develop and deliver better forecasting.

## **SUGGESTIONS**

### **BENEFIT OF BUSINESS INTELLIGENCE FOR RETAILING.**

- **MARKET BASKET ANALYSIS**

Business Intelligence can be used to study natural attraction between products. There are products that are purchased in combination that can be identified using BI. Unknown affinity of two or more products is brought out through BI. This is more useful for in- store product placement. It is also useful in product bundling, the information of BI can be used and the group of products to be sold in single package deal is identified and bundled. This will influence the sales of the entire product in the bundle. This information will also be useful for website designing inducing online purchase of products. BI enables collection of fast and consistent collection of marketing data from different sources that contributes a lot in decision making of the retailer.

- **GROUP MANAGEMENT**

BI gives the retailer an insight into the right number of SKUs to be stocked in particular category. Effective category management is important for a retailer's survival in the market. BI helps in best category management.

- **OUT OF STOCK ANALYSIS**

Out-of-stocks result in unrealized sales and dissatisfied customers. Out of stock analysis can be conducted using Business Intelligence. It probes into various reasons resulting into an out of stock situation and calculating the lost revenue due to product stock out and thus provides necessary information for retailer not to face out of stock in future. Alerts can be made to indicate if similar situation is forecasted in future so action can be implemented before occurrence of the situation.

- **DASHBOARD REPORTING**

Information like response rate, campaign cost, customer life time value can be presented in dash board reports to the management to facilitate decision making process. While similar decisions are to be obtained in future, the previous reports can be utilized for reference.



- **HUMAN RESOURCES**

Business Intelligence can significantly help in aligning the Human Resource strategy to the overall retail outlet. It presents an integrated view of the workforce and helps in designing retention schemes, improving productivity, and curtailing costs. Analysis such as staff movement, performance, staff attrition for each outlet, staff performance based on each outlet can be obtained from BI. Man power allocation based on demand projection can be done using BI. Accurate data about the skill sets of the workforce can be maintained in the data warehouse and this can be used to design training programs and for effective succession planning of the staff of the outlet.

- **PROFITABILITY ANALYSIS**

Profitability of individual outlets, product categories and brands can be obtained using BI. Customer profitability analysis can be obtained from BI that helps in understanding and analyzing customer profitability, maintaining and increasing customer profitability and turning unprofitable customers into profitable ones. This information helps management of the outlet to take major decisions.

- **SWOT ANALYSIS**

BI helps in understanding of retail outlets internal and external strengths and weakness. It detects of opportunities for innovation and cost reduction and optimal deployment of resources.

## **CONCLUSION**

Highly competitive environment forces retailer to adopt modern technologies to have accurate up to date information and Business Intelligence is one among them. BI has several benefits related to tracking the buying patterns of customers, financial information, decision making information, HR information etc.,. The main limitation of BI is cost factor and the requirement of the retailer need to be well explained to the developers of Business Intelligence to get the maximum benefit out of it. So Business Intelligence when well planned framed and utilized provides indications to make best decisions by the retailers.

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**DETERMINANTS OF FIIS IN INDIA  
(AN APPLICATION OF REGRESSION ANALYSIS)**

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**ABSTRACT**

*Foreign funds are indispensable for the economic development of any developing country and India is no exception to it. A developing country like India which was heavily dependent on official assistance and debt capital for the want of foreign exchange, suffered from balance of payment crises in the early 1990s. This crisis forced the government agencies to look for an alternative source of foreign capital, consequently, economic reforms took place and foreign investors were allowed to invest in Indian financial markets. Since then, due to promising situation of Indian economy and its strong fundamentals, India has remained the favourite investment destination of FIIs. But these foreign investors are very sensitive towards the events which take place domestically and internationally. Therefore, their investment behavior changes with each event and they infuse billions of dollars with each positive happening and withdraw their money in bulk with each negative event. Hence, it becomes quite necessary to understand the factors affecting FIIs behavior. The present study is done with the objective of finding the probable determinants of FIIs flow in India from policy perspectives. In this study the regression analysis has been used to find out the determinants of FIIs in India. The findings of the study has revealed that BSE Sensex is positive determinant of FIIs inflow in India, whereas, the gold prices are the negative determinants.*

**KEYWORDS:** *Foreign Institutional Investment, BSE Sensex, WPI, Foreign Exchange Rate, Brent Crude Oil Prices, Regression Analysis.*



## 1. INTRODUCTION

Foreign investment refers to investments made by the residents of a country in the financial assets and production processes of another country. After the opening up of the borders for capital movement, these investments have grown in leaps and bounds. The effect of foreign investment, however, varies from country to country. It can affect the factor productivity of the recipient country and can also affect the balance of payments. In developing countries there has been a great need for foreign capital, not only to increase the productivity of labour but also because foreign capital helps to build up the foreign exchange reserves needed to meet trade deficits. Foreign investment provides a channel through which developing countries can gain access to foreign capital.

Before 1991 India was dependent on the Official financial assistance and foreign debts (both short-run as well as long-run) for fulfilling the requirement of foreign exchange reserves. However, due to heavy dependence on short-term foreign debts and interest thereon, India faced balance of payment crises in 1990s. Subsequently various committees were constituted to find out the probable solution of getting non-debt creating foreign capital. After getting the input from the findings of these committees and in due consultations with several concerned ministries, India decided to move on the path of liberalization. While delivering the budget speech of 1992-93, the finance minister disclosed about the intentions of the government to invite Foreign institutional investors in India. Subsequently from 14<sup>th</sup> September 1992, the FIIs were given the permission to investment in Indian stock markets. Foreign institutional investment is a short-term investment, mostly in the financial markets in form of portfolio investment. Presently FIIs have become the major source of non-debt creating foreign funds in India. At the end of financial year 2008-09 India has received a cumulative investment of \$ 56650 (Millions) from FIIs and at the same time 1635 FIIs have been registered with security exchange board of India (SEBI). Since FIIs is short-run investment which is made for harvesting the gains of share price differences, therefore it can have bidirectional causation with the returns of other domestic financial markets such as money markets, stock markets, and foreign exchange markets. Hence, understanding the determinants of FII is very important for any emerging economy as FII exerts a larger impact on the domestic financial markets in the short run and a real impact in the long run. The study of this topic has examined the determinants of foreign institutional investment in India, a country that opened its economy to foreign capital following a foreign exchange crisis.

## 2. TRENDS AND DEVELOPMENT OF FIIS FLOW IN INDIA:

Since the time the FIIs were first allowed to invest in the Indian markets, there has been a steady inflow of foreign funds in India. Figure 1 given below shows that there is an absolute increasing trend in the gross buy and sell by the FIIs since beginning. However, in 2008-09 there was a decreasing trend in the buy as well as sell due to the impact of global financial crises.



**FIGURE 1**  
**GROSS SALE AND PURCHASE BY FIIS**



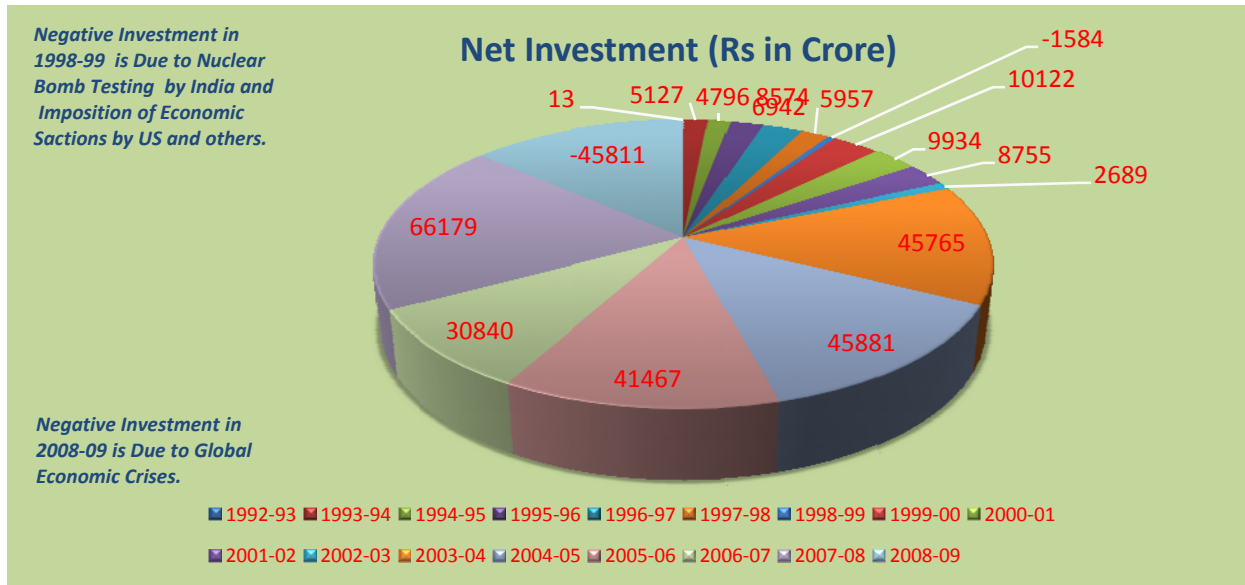
Source : Handbook of statistics of SEBI 2007-08, p. 51.and SEBI 2008-09, p. 175

As regard to net investment by FIIs in India (figure 2 on the next page), again an upward trend is noticed. But there are two exceptions to this upward trend i.e. firstly in 1998-99 when India tested nuclear bombs and the imposition of economic sanctions by US and other industrialized nations and secondly in 2008-09 due to the impact of global financial crises. Further, figure 3 (given extreme below) reveals the month-wise net investment by FIIs from April 2007 to March 2009. It may be observed from the data of this graph that in most of the months the net investment was negative (Especially in the months which are in between two vertical red lines) due to the impact of global financial crises.



FIGURE 2

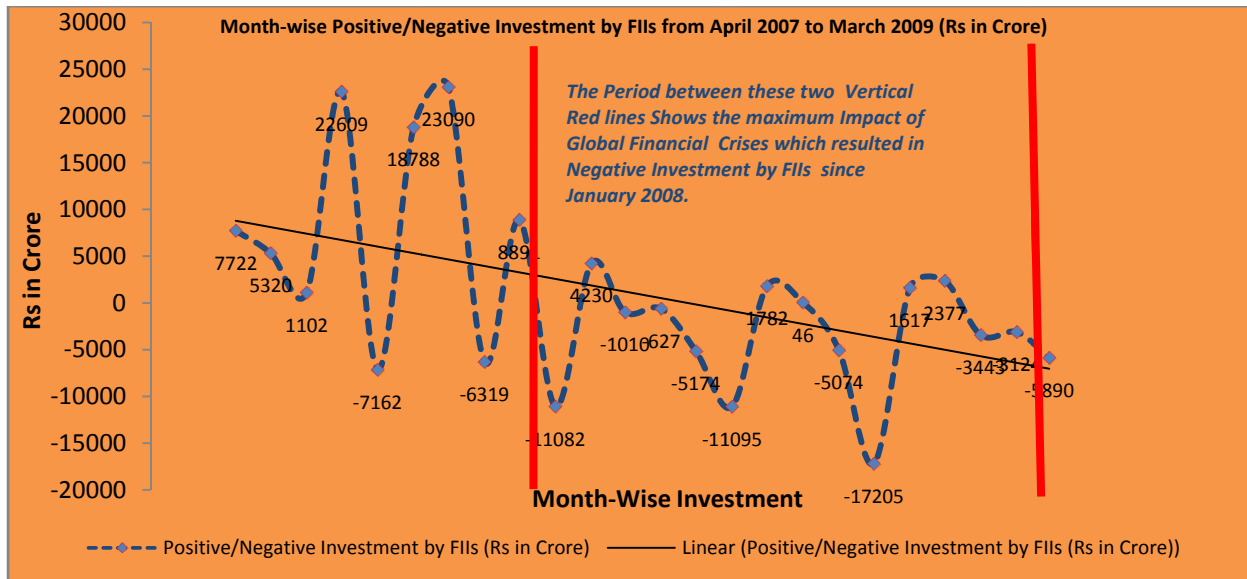
NET INVESTMENT BY FIIS IN INDIA



Source : Handbook of statistics of SEBI 2007-08, p. 51. and SEBI 2008-09, p. 175

FIGURE 3

MONTH-WISE INVESTMENT BY FIIS (APRIL 2007-MARCH 2009)



Source : SEBI bulletins May 2008, p. 377. & April 2009, p. 348.



In nutshell it can be said that in the wake of global financial crises certainly the net investment in India had come down, but this is in no way a question on the growth story of India. Rather, the heat of this global financial crisis was felt world-wide and India was no-exception to it. Moreover the impact of this crisis was much less in India due to less international exposure. At present the FIIs have again started investing in India with full zeal, which shows the faith of international investors in the fundamentals of Indian economy. But, the sudden withdrawal behavior of FIIs certainly put a question mark on the credibility of these foreign funds. Therefore a deep study of their behavior is must, so as to adopt a more cautious approach towards FIIs while framing policies for them.

### 3. OBJECTIVES OF THE STUDY

The study has been done by keeping the following objectives in the mind;

- a. To analyze the patterns of the investment by FIIs in India.
- b. To see the impact of Macroeconomic variables on the behavior of FIIs.
- c. To find out the Probable determinants of FIIs inflow in India from the policy perspective.

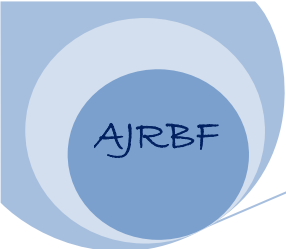
### 4. RESEARCH METHODOLOGY

For the purpose of realizing the objectives of the present research, the study under took the statistical investigation. In this statistical investigation the specialized software i.e. SPSS (statistical package for social sciences) has been used. In particular the study has undertaken full Regression analysis. For the purpose of analysis the secondary data has been used and is collected from various government sources such as SEBI, RBI, NSE, BSE, etc. In all eight variables have been used viz. Net FIIs Inflow in India, BSE Sensex, price earning ratio of Sensex, market capitalization of Sensex, WPI, gold prices, Brent crude oil prices & exchange rate. The period of the study is from April 1993 to March 2008, for which monthly data has been collected. Therefore there were in all 180 transaction of each variable. But, on analyzing the data related to FIIs it is found that the whole period of 180 months is not exhibiting the uniformity as regard to the quantum of investment. In the initial few months there was positive investment by FIIs, thereafter in the next few months a mix of positive and negative investment was found and ultimately in the last months a high level of volatility was noticed. Therefore, in order to make the analysis logical, the study has been divided in four parts i.e. results for All data, and for sub period-I, Period-II, and Period –III. The detail of total transactions and sub-periods is given below.

The total observations under the study are 180, which are divided in three parts, as under







**DISTRIBUTION ON THE BASIS OF ALL DATA**

Sub-Group	N	%
All data	180	100.00

**DISTRIBUTION ON THE BASIS OF SUB-PERIOD**

Sub-Group	N	%
Period-I	50	27.78
Period-II	73	40.56
Period-III	57	31.67

**5. DETERMINANTS OF FIIS – AN EMPIRICAL ANALYSIS**

This section contains the results of the Full Regression analysis. The regression analysis which explains the relationship between the dependent variable and independent variables has been done for ALL DATA (whole period of study) and for three sub periods of the study i.e. period – I, II and III, respectively.

**DEPENDENT VARIABLE:** NET\_FII

**INDEPENDENT VARIABLES:** EX\_RATE, WPI, GOLD, PE\_SENSX, CRUDE, SENSEX, MCAP\_SEN



**TABLE 1**

**FULL REGRESSION-ALL DATA (WHOLE PERIOD OF THE STUDY)**

**MODEL SUMMARY**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.417(a)	.174	.140	3631.0644

a Predictors: (Constant), EX\_RATE, SENSEX, WPI, PE\_SENSX, GOLD, CRUDE, MCAP\_SEN

**ANOVA(b)**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	477314095.383	7	68187727.912	5.172	.000(a)
Residual	2267756114.991	172	13184628.576		
Total	2745070210.374	179			

a Predictors: (Constant), EX\_RATE, SENSEX, WPI, PE\_SENSX, GOLD, CRUDE, MCAP\_SEN

b Dependent Variable: NET\_FII



## COEFFICIENTS(a)

Model	Unstandardized Coefficients B	Standardized Coefficients Beta	t	Sig.
1	(Constant)			
	-734.344		-1.195	.846
	SENSEX	.1275	2.239	.026
	PE_SENSWX	-.097	-.923	.357
	MCAP_SEN	-.599	-1.001	.318
	CRUDE	-.030	-.121	.904
	WPI	.031	.317	.751
	GOLD	-.298	-1.483	.140
	EX_RATE	.065	.642	.522

a Dependent Variable: NET\_FII



The regression analysis has been used to study the relationship between net FIIs inflow as dependent variable and other variables under study as independent variables. It is found that correlation coefficient between FIIs and independent variables is 0.417 and coefficient of determination R square is .174, which reveals that there is moderate degree of positive correlation between net FII inflow and independent variables. However the analysis of R square reveals that only 17.4% of the variation in net FII inflow is explained by the regression model. Further as per regression results, net FII is positively related to BSE Sensex, wholesale price index (WPI) and exchange rate, whereas it is negatively related to price earning ratio of Sensex, market cap of Sensex, crude oil prices ( Brent ) and gold prices,. But the relation of net FIIs with BSE Sensex is statistically significant at 3% level of significance ( $p=0.025$ ).

TABLE 2

## FULL REGRESSION PERIOD - I

## MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815(a)	.664	.608	246.3139

a Predictors: (Constant), EX\_RATE, SENSEX, CRUDE, WPI, GOLD, MCAP\_SEN, PE\_SENSX

## ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5028673.513	7	718381.930	11.841	.000(a)
	Residual	2548161.910	42	60670.522		
	Total	7576835.423	49			

a Predictors: (Constant), EX\_RATE, SENSEX, CRUDE, WPI, GOLD, MCAP\_SEN, PE\_SENSX

b Dependent Variable: NET\_FII



**COEFFICIENTS(A)**

Model	B	Std. Error	Beta	t	Sig.	
1	(Constant)	-1169.990	1632.402	-.717	.478	
	SENSEX	.286	.188	.411	1.521	.136
	PE_SENSWX	1.614	9.883	.051	.163	.871
	MCAP_SEN	-1.783E-04	.001	-.048	-.170	.866
	CRUDE	-52.543	21.019	-.335	-2.500	.016
	WPI	-80.691	16.623	-.712	-4.854	.000
	GOLD	.954	.286	.636	3.336	.002
	EX_RATE	-67.370	53.942	-.347	-1.249	.219

a Dependent Variable: NET\_FII



Table 2 of the full regression analysis of period – I of the study, shows the coefficient correlation between FII (as dependent variable) and other variables under study (as independent variables) is 0.815, which shows a high degree of positive relationship between FIIs and other variables during period – I of the study. The coefficient of determination R square is 0.664, which reveals that 66.4% of the variation in net FIIs inflow is explained by the variation in the related independent variables under study. Further, the full regression analysis for the period – I of the study revealed, that crude oil prices are the significant negative determinant of net FIIs inflows, which implies the inverse relationship of the crude oil prices and net FIIs inflows in India during period – I of the study. In fact this is also possible that prior to 1993, when the data of period – I starts, the crude oil prices may have remained as significant negative determinant of net FIIs inflows in India. But to declare the crude oil prices as an independent determinant of net FIIs inflows in India, it is quite necessary to analyse the results of period – II, period – III and for ALL data (whole period of study). Further, during period – I, the whole sale price index (WPI) is also significant negative determinant of net FIIs inflows in India, which implies inverse relationship between WPI and net FIIs inflows in India. We feel that the logic which was applied in case of crude oil prices above, same logic should be applied in case of WPI also. Finally gold prices are found significant positive determinant of net FIIs inflows in India during period – I, which shows direct relation between gold prices and net FIIs inflows movement. Whereas the usual relation between FIIs and gold prices is inverse, therefore, it is important to see that whether or not the same trend of having direct significant relatedness of gold prices with net FIIs inflows in India continues during period – II and period – III of the study also. Otherwise also, in order to arrive at a concrete decision regarding the nature of relationship between gold prices and net FIIs inflows in India, further, statistical investigations with comparative large set of data is needed, because up to period – I, the results are contrary to general belief.



**TABLE 3**

**FULL REGRESSION PERIOD - II**

**MODEL SUMMARY**

---

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468(a)	.219	.135	1014.2635

---

a Predictors: (Constant), EX\_RATE, WPI, MCAP\_SEN, GOLD, CRUDE, PE\_SENSX, SENSEX

**ANOVA(b)**

---

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18719548.859	7	2674221.266	2.600	.020(a)
	Residual	66867473.060	65	1028730.355		
	Total	85587021.919	72			

---

a Predictors: (Constant), EX\_RATE, WPI, MCAP\_SEN, GOLD, CRUDE, PE\_SENSX, SENSEX

b Dependent Variable: NET\_FII



## COEFFICIENTS(A)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-7270.796	3564.699		
	SENSEX	1.122	.725	.663	1.548
	PE_SENSWX	-158.458	70.270	-.639	-2.255
	MCAP_SEN	2.074E-03	.003	.219	.631
	CRUDE	9.904	33.222	.058	.298
	WPI	135.653	75.847	.228	1.789
	GOLD	8.272E-02	.240	.053	.345
	EX_RATE	87.279	63.882	.296	1.366

a Dependent Variable: NET\_FII

While analyzing the results of regression model period – II from Table 3, it is found that coefficient correlation between FIIs (dependent variable) and other variables (as independent) is 0.468, whereas the coefficient of determination (R square) 0.219, it reveals that there is low degree of positive association between FIIs and other variables during period – II and the investigation of R square reveals that 21.9% of the variation in the net FIIs inflow is explained by the regression model. In this model it is noticed that the price earning ratio of Sensex is significant negative determinant of net FIIs inflows in India, which implies that foreign institutional investors were considering the low price earning ratio for their investment in India during period – II of the study. However the same kind of significant negative relatedness was not found in the results of period – I, so it becomes quite useful to look for the results of period – III, in order to arrive at concrete decision, regarding the relation of price earning ratio of Sensex and net FIIs inflows in India. Another variable which is found significant positive determinant of net FIIs inflows in India, is WPI, but the WPI was found the significant negative determinant of





net FIIs inflows in India during period – I of the study and now in the period – II, it is opposite i.e. is having significant positive relation with net FIIs inflows in India. In order to declare a definite dependence of net FIIs inflow in India on WPI, it is needed that the results of period – III and of ALL data (whole period of study) should also be taken together.

**TABLE 4**

**FULL REGRESSION PERIOD – III**

**MODEL SUMMARY**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.453(a)	.205	.092	5994.1264

a Predictors: (Constant), EX\_RATE, WPI, GOLD, PE\_SENSX, CRUDE, SENSEX, MCAP\_SEN

**ANOVA(b)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	454469027.594	7	64924146.799	1.807	.107(a)
	Residual	1760548030.126	49	35929551.635		
	Total	2215017057.719	56			

a Predictors: (Constant), EX\_RATE, WPI, GOLD, PE\_SENSX, CRUDE, SENSEX, MCAP\_SEN

b Dependent Variable: NET\_FII



## COEFFICIENTS(A)

	Unstandardized Coefficients	Standardized Coefficients	t	Sig.		
Model	B	Std. Error	Beta			
1	(Constant)	15054.038	38183.735	.394	.695	
	SENSEX	2.848	1.407	2.090	2.024	.048
	PE_SENSWX	-139.457	762.371	-.066	-.183	.856
	MCAP_SEN	-3.474E-03	.005	-.893	-.731	.468
	CRUDE	-48.052	148.182	-.145	-.324	.747
	WPI	235.206	805.386	.046	.292	.771
	GOLD	-3.278	1.659	-.959	-1.976	.054
	EX_RATE	-13.427	881.387	-.005	-.015	.988

a Dependent Variable: NET\_FII

Regression analysis of period – III shows that a moderate degree of association exists between the dependent variable (FIIs) and the independent variable (other variables under study), as the coefficient of correlation between the dependent and independent variable is 0.453. The coefficient of determination (R square) is .205, which shows that 20.5% of the variation in the net FIIs is explained by the variation in the selected independent variables under study. Analysis of full regression period – III, reveals that BSE Sensex has emerged as significant positive determinant of net FIIs inflows in India, whereas gold prices are significant negative determinant of net FIIs inflows in India. The results of period – III, which start from July 2003, to March 2008, shows that in this last period of the study, FIIs moves in the same direction, in which BSE Sensex moves, whereas, FIIs inflows in India and gold prices move in opposite direction.



## 6. CONCLUSION

In conclusion it can be said that BSE Sensex is one of the strong determinant of FIIs, as it has remained positively related with FIIs during all the sub periods as well as for ALL DATA- Whole period of study (See Comparative table 5 given below). The BSE Sensex was statistically significant determinant for ALL DATA (whole period of study) and for period – III. This statistically significant positive relatedness of BSE Sensex with net FIIs inflows shows that net FIIs inflows moves in the same direction in which the BSE Sensex moves. The crude oil prices which were significant negative during period – I, could not sustain the same league during period – II, period – III and for ALL data (whole period of study). Hence the crude oil prices are the insignificant determinant of net FIIs inflows in India. The full regression model shows that wholesale price index was significant negative determinant for period – I of the study, whereas it was significant positive determinant for the period – II, which shows that during these periods the FIIs decision may have been influenced by the wholesale price index of India, in fact this influence on their decision may have persisted even before period – I of the study. But during period – III of the study, the WPI turned as insignificant determinant of net FIIs inflows in India. The results for ALL data (whole period of study) also show that WPI is the insignificant determinant of net FIIs inflows in India. While analyzing the movement of gold prices, it is noticed that in period – I of the study, gold prices were significant positive determinant, whereas during period – III, this relationship turned negative. This signifies that during period – III onwards this relation, has been and is expected to be inversely related with net FIIs inflows in India. Hence gold prices may also be taken as significant negative determinant of net FIIs inflows in India. As regard to other independent variables of the study, a mix response is seen with regard to their connection with the movement of net FIIs inflows in India, because sometimes they are positively related with net FIIs inflows and sometimes negatively. However market capitalization of Sensex and exchange rate were never proved to be statistically significant determinant of FIIs throughout the period of the study.



**TABLE 5**  
**COMPARATIVE REGRESSION MODEL (FULL REGRESSION)**

	ALL DATA	PERIOD - I	PERIOD - II	PERIOD - III
<b>R</b>	0.417	0.815	0.468	0.453
<b>R square</b>	0.174	0.664	0.219	0.205
<b>Variables positively related with FII</b>	BSE Sensex, WPI and exchange rate.	BSE Sensex, price earning Sensex and gold.	BSE Sensex, market cap Sensex, crude oil, WPI, gold and ex rate	BSE Sensex and WPI.
<b>Variables negatively related with FII</b>	Price earning Sensex, market cap Sensex, crude oil and gold prices	Market cap Sensex, crude oil, WPI and exchange rate	Price earning Sensex	Price earning Sensex, market cap Sensex, crude oil, gold prices and exchange rate.
<b>Statistically significant determinants of FII ( <math>p &lt; .05</math> )</b>	<b>BSE Sensex</b>	<b>Crude oil, WPI and gold prices</b>	<b>Price earning Sensex and WPI</b>	<b>BSE Sensex and Gold Prices</b>

Source: Author's Elaboration on the basis of statistical calculations of study

In crux the study finds that BSE Sensex is the positive determinant of FIIs inflow in India, whereas, the gold prices are the negative determinants.

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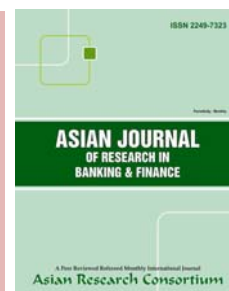
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## CONTEMPORARY ISSUES AND CHALLENGES OF BASEL II ACCORD IN RISK MANAGEMENT FOR INDIAN BANKING INDUSTRY

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### ABSTRACT

*The present Paper “Contemporary Issues and Challenges of Basel II Accord in Risk Management of Indian Banking Industry ” deals with various types of Risks that the banks are exposed to and rightly managed under the domain of Basel’s New Capital Accord ( which is well known as Basel-II). The term “Risk” indicates an exposure to a transaction with loss, which occurs with some probability and which can be expected, measured and minimized. Risk is inherent in any walk of life in general and the financial sectors in particular. In Financial Sector, especially, the banking industry is passing through a process of change, in most of the emerging economies including India. These changes include increasing deregulation, Global Competition, New Financial Reforms, Increased Volume of business, innovative products etc. have pushed the risk management to the forefront of financial landscape. These exposures led the bank to encounter various types of Financial and Non-Financial Risks. The main three categories of risks that appear in the banking parlance are Credit Risk, Market Risk and Operational Risk. This paper has made an attempt to study the various risk dimensions and also the structure and components of Basel II and throws light the challenges for implementation of Basel II in Indian Banking Industry.*

**KEYWORDS:** *Basel II Accord, Credit Risk, Market Risk, Operational Risk, Risk Management.*





## INTRODUCTION

Indian Banking Industry had proved itself a great advancement in terms of quality, quantity, expansion, technological adoptions, diversification, innovations of new financial products and services, better customer service, stability and thrust for a strong and sound based Financial System. Each transaction that a bank undertakes is associated with uncertainty and reflected by way of charge on the fundamental/basis, i.e., the capital, which is the cushion that protects the liability holders of an institution. This uncertainty which is reflected is called as "Risk". When we consider the term risk in terms of Probability, we can measure it on a scale with certainty of occurrence on one side and certainty of non-occurrence on the other side. These risks are inter dependent and events occurring in one area of risk can have ramifications and penetrations for a range of other categories of risks also. That is why the top Management of banks do attach due importance to the vital area of risk Management. The foremost thing in this is to understand the risks run by the bank and to ensure that these risks are properly confronted, effectively controlled and rightly managed. Every transaction of a bank changes the risk profile. Hence, providing real time risk information is one of the key challenges of risk management exercise. Till recently the banking activities were all regulated and hence operational environment was not so conducive to risk taking. This does not sound that banks were not at all exposed to risk. They were but the quantum was regulated. It is told that profiting in a business without exposing to risk is trying to live without being born. The same also happened in banking industry. Of late, banks have grown from being a financial intermediary into a risk-intermediary. In the process of financial intermediation, the gap becomes thinner and thinner, banks are exposed to severe competition and hence are compelled to encounter various types of financial and non-financial risks.

Reserve Bank of India (RBI) issued guidelines in Oct, 1999 and accordingly three types of risks were mainly identified with the banking industry namely, Credit Risk, Market Risk and Operational risk. Risk is the potentiality that both the expected and unexpected events may have an adverse effect on the bank's capital or earnings. The expected loss, is to be borne by the borrower and hence to be adequately priced through the risk premium and reserves created out of earnings. The unexpected losses, on the other hand due to Individual exposure and improper structure of portfolio to be borne by the Capital. Thus, a proper Capital Adequacy Ratio (CAR) was being felt to cover both losses. The objective of Risk Management is to facilitate, identifying, assessing, measuring, positioning, monitoring and mitigating the risk in the Institution. The following flow chart explains the types of risks that the banks are generally exposed to.



**TABLE 1: CHART COMPRISING THE VARIOUS RISKS ASSOCIATED WITH BANKS****OBJECTIVES OF STUDY**

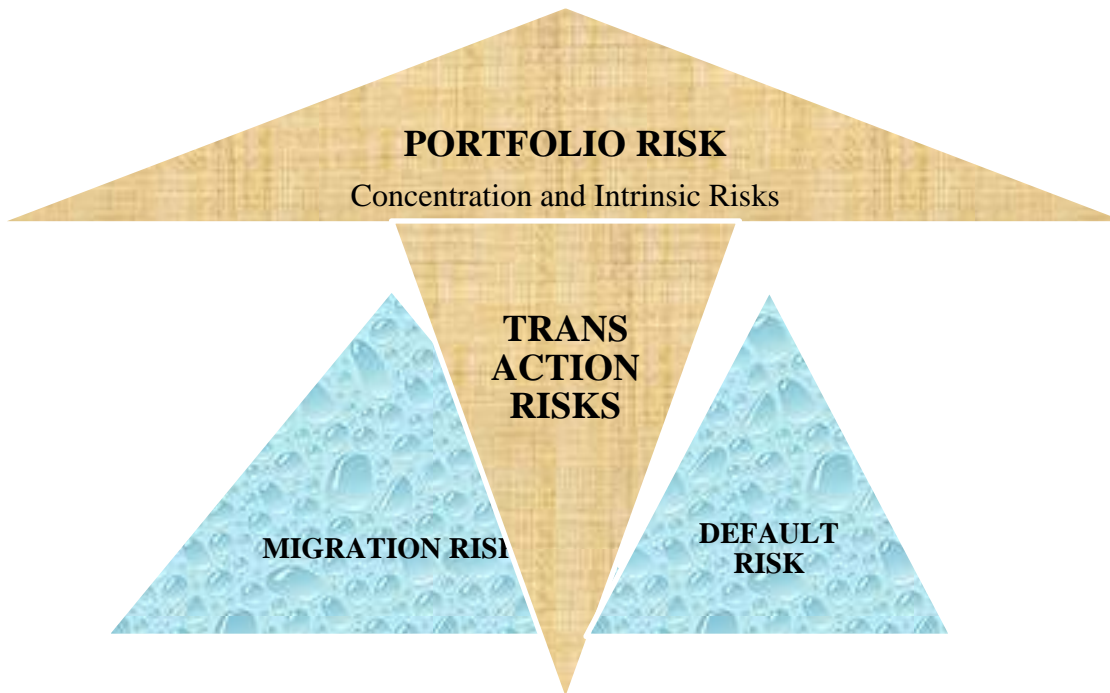
The present study has the following objectives to accomplish in -

- Understanding the Credit, Market and Operational risks Approaches and Framework in the light of Basel II
- Basel-II Accord Principles for Risk Management in Banks
- Identifying the implementation challenges of Basel-II Accord in Risk Management of Indian Banking industry.

**CREDIT RISK MANAGEMENT**

Credit risk is the potential that a bank borrower/counter party fails to meet the obligations on agreed terms. There is always a chance for the counterparty to make a default of his/her obligation due to one or the other reason which crystallises into Credit Risk. Credit risk generally consists of two components viz., Quantity of risk, which is nothing but the outstanding loan balance as on the date of default and the Quality of risk indicates the severity of loss defined by both probability of Default as reduced by the recoveries that could be made in the event of default. The objective of Credit Risk Management is to minimise the risk and maximise the bank's Risk Adjusted Rate of Return (RAROR) by assuming and maintaining credit exposure within the acceptable parametres. The Credit risk management is generally made up of Transaction Risk or Default Risk and Portfolio Risk. The credit risk of a bank portfolio depends upon various external and internal factors. The default risk arises from non-performance of the trading partners. It is generally viewed as a transient financial risk associated with trading rather than standard credit risk. The lender will always face this risk from counterparty for non-payment of principal/interest amount of loan on the due date. Hence, it can be also called as "Counter-Party risk". The various components of Credit Risk are enumerated with the help of the following figure.



**FIGURE 1: CREDIT RISK AND ITS COMPONENTS**

The management of Credit Risk includes the following components:

- a. Measurement through Credit Rating/Scoring
- b. Quantification through estimate of expected loan losses.
- c. Pricing on a scientific Basis
- d. Loan Review Mechanism (LRM) and Portfolio Management (PM).

The above can be explained with the help of the following tools and instruments in Credit Risk Management.

- ✓ Maintenance of exposure ceilings linked to Capital Funds not exceeding 6 to 8 times of the total bank capital funds
- ✓ Constitution of Credit Policy Committee (CPC) to be headed by the Chairman/CEO along with heds of Credit Department, Treasury and a Chief Economist.
- ✓ Designing the Risk Rating models which clearly define rating thresholds and review the ratings periodically.



- ✓ Building the historical data of default losses and allocating the capital to absorb the unexpected loss using RAROC framework.
- ✓ Credit Audit to be done independent of Credit department operations to check the sanction process, risk review rating, compliance status , pick up of warning signals and recommendation of corrective plan for a strong credit quality.
- ✓ Credit portfolio Management to diversify the risk of concentration of exposures to a particular individual/Industry/Sector.

## CREDIT RISK MANAGEMENT AND BASEL II

The new accord of Basel released in June 2004 has specified the following two approaches for arriving at the total Risk Weighted Assets (RWAs). They are enumerated below:

**STANDARDIZED APPROACH:** The standardized approach requires the institutions to set aside capital on the basis of ratings given by the External Credit Assessment Institutions (ECAIs) to obligors. In case of sovereign lending, the ratings of Export Credit Agencies (ECAs) along with review of RBI to be accorded before giving such rating. Once the risk weighted assets are calculated, they need to be multiplied with the conversion factor to compute the amount of capital required to be held by the Institution.

**INTERNAL RATINGS BASED (IRB) APPROACH :** The IRB approaches involve in assessment of the characteristics of both the borrower and the specific transaction. The core concept of the IRB approach is that the capital allocation is not based on the bank determined risk buckets. The components of IRB approach are as follows:

- Probability of Default (PD)
- Loss Given Default (LGD)
- Exposure at Default (EAD)
- Maturity of Exposure (M)

Credit Risk is measured through Probability of Default (POD) and Loss Given Default (LGD). Bank should estimate the probability of default associated with borrowers in each of the rating grades. How much the bank would lose once such event occurs is what is known as Loss Given Default. This loss is also dependent upon bank's exposure to the borrower at the time of default commonly known as Exposure at Default (EaD). The extent of provisioning required could be estimated from the expected Loss Given Default (ELGD) from the product of Probability of Default, Loss Given Default & Exposure & Default.



$$\text{ELGD} = \text{POD} * \text{LGD} * \text{EaD.}$$

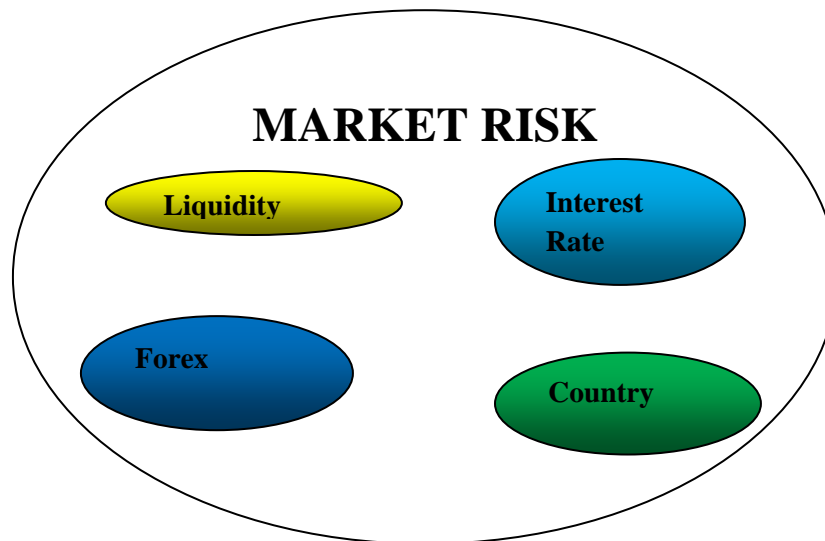
It has two sub approaches namely Foundation and Advanced approaches. Under the foundation approach ,banks need to quantify the probability of default (PD) and they can assign the risk weights based on the LGD and EAD.Under the advanced approach, banks can use their own estimates of PD, LGD and EAD that can be validated by the supervisors.

### MARKET RISK MANAGEMENT

*Market Risk may be defined as the possibility of loss to a bank caused by the changes in the market variables. It is the risk that the value of on/off-balance sheet positions will be adversely affected by movements in equity and interest rate markets, currency exchange rates and commodity prices. Market risk is the risk to the bank's earnings and capital due to changes in the market level of interest rates or prices of securities, foreign exchange and equities, as well as the volatilities of those prices.*

The various types of Market Risks are Liquidity Risk, Interest Rate Risk, Forex Risk and Country Risk.

**FIGURE 2: MARKET RISK AND ITS COMPONENTS**



### MARKET RISKS AFFECT BANKS IN TWO WAYS

1. The customer requirements are changing because of the changing economics scenario. Hence banks have to fine-tune/modify their products to make them customer friendly, otherwise the obsolescence of products will divert the customers to other banks thereby reducing the business and profits of the bank concerned.



2. The macro-economic changes in the national and international politic-economic scenario affect the risk element in different business activities differently. This aspect has assumed greater importance in the modern age, because of the increasing integration of global markets.

Since both these aspects are dynamic in nature, with change being the only constant factor, market risks need to be monitored on a continuous basis and appropriate strategies evolved to keep these risks within manageable limits. Again, given that one can manage only what one can measure, measurement of risks on a continuous basis deserves immediate attention.

Market risk arises out of the dynamics of market forces, which, for the banking industry, may include interest rate fluctuations, maturity mismatches, exchange rate fluctuations, market competition in terms of services and products, changing customer preferences and requirements resulting in product obsolescence, coupled with changes national and international politico-economic scenario. Management of market risk should be the major concern of top management of banks. The Boards should clearly articulate market risk management policies, procedures, prudential risk limits, review mechanisms and reporting and auditing systems. The policies should address the bank's exposure on a consolidated basis and clearly articulate the risk measurement systems that capture all material sources of market risk and assess the effects on the bank. The operating prudential limits and the accountability of the line management should also be clearly defined. The Asset-Liability Management Committee (ALCO) should function as the top operational unit for managing the balance sheet within the performance/risk parameters laid down by the Board. The banks should also set up an independent Middle Office to track the magnitude of market risk on a real time basis. The Middle Office should comprise of experts in market risk management, economists, statisticians and general bankers and may be functionally placed directly under the ALCO. The Middle Office should also be separated from Treasury Department and should not be involved in the day to day management / ALCO / Treasury about adherence to prudential / risk parameters and also aggregate the total market risk exposures assumed by the bank at any point of time.

## **MARKET RISK MANAGEMENT AND BASEL II**

In 1996, Basel I introduced an amendment to the first capital accord, to require capital charge for market risk. The amendment defined two methodologies for calculation of capital, including a basic methodology (called as the standardized measurement method) and a more sophisticated methodology based on use of internal models. Broadly, the amendment covered the following categories of risk:

- Interest Rate Risk
- Equity Position Risk
- Foreign Exchange Risk
- Commodities Risk
- Risk from Options



The new Basel Accord places continued emphasis on the Basel I Market Risk Amendment (1996). Under the Internal Model Based Approach, banks are required to build up value-at-risk models for determining the potential loss with 99 percent confidence level and compute the total value at risk (VaR) / earnings at risk (EaR) and provide capital for the market risk by multiplying the amount at risk by application of a multiplication factor of 3 to 5, depending upon back testing results.

Basel II recommends that banks compute capital for interest rate risk and equity risk in their trading book, and commodities risk and forex risk across the balance sheet. The revised capital accord also requires banks to manage interest rate risk in the banking book also under supervisory reporting and market transparency requirements.

### **OPERATIONAL RISK MANAGEMENT**

Always banks live with the risks arising out of human error, financial fraud and natural disasters. Exponential growth in the use of technology and increase in global financial inter-linkages are the two primary changes that contributed to such risks. Operational risk, though defined as any risk that is not categorized as market or credit risk, is the risk of loss arising from inadequate or failed internal processes, people and systems or from external events. In order to mitigate this, internal control and internal audit systems are used as the primary means. Insurance cover is one of the important mitigators of operational risk. Operational risk events are associated with weak links in internal control procedures. The key to management of operational risk lies in the bank's ability to assess its process for vulnerability and establish controls as well as safeguards while providing for unanticipated worst-case scenarios. Operational risk involves breakdown in internal controls and corporate governance leading to error, fraud, performance failure, compromise on the interest of the bank resulting in financial loss. Putting in place proper corporate governance practices by itself would serve as an effective risk management tool. Bank should strive to promote a shared understanding of operational risk within the organization, especially since operational risk is often inter-wined with market or credit risk and it is difficult to isolate.

### **OPERATIONAL RISK MANAGEMENT AND BASEL II**

The revised capital accord requires the banks to maintain capital charge on their operational risks. For quantifying the operational risks, it provides a menu of the following three approaches:

#### **BASIC INDICATOR APPROACH**

The basic indicator approach requires institutions to set aside capital equal to 15 percent of the average annual gross income over the previous three years when gross income was positive.

#### **STANDARDIZED APPROACH**

The standardised approach requires institutions to set aside capital equal to the sum of capital required for eight identified lines of business that cover all banking activities of that institution. The capital for a particular line of business is calculated as the product of the average gross



revenues of that business line and a beta factor for that business line specified by BCBS. As an alternative to the Standardised Approach, BCBS has also defined an Alternative Standardised Approach (ASA) that allows banks, with the permission of the national regulator, to use total assets for computation of capital in the case of Retail Banking and Corporate Banking.

### **ADVANCED MEASUREMENT APPROACHES (AMA)**

Basel II has permitted banks having sophisticated operational risk management frameworks (both qualitative and quantitative) to develop internal measures of capital requirements, with the approval of the local regulator ( In our case, it is RBI). Institutions are using various techniques including regression type models based on key risk indicators for forecasting losses, and different statistical distributions for modelling probability and severity of loss events, including the Weibull distribution, Poisson distribution. For each of the above approaches, the Basel II document lays down both quantitative and detailed qualitative prerequisites for banks to comply with to qualify for the approach. The qualitative requirements relate to organisational structure, policies, processes, data and systems in the organisation. Basel II has also identified the principles for management of operational risk .

### **RISK MANAGEMENT IN BANK- BASEL II APPROACH AND STRUCTURE**

The Basel Committee on Banking Supervision (BCBS) was established in 1974 to facilitate information sharing and cooperation among bank regulators in major countries. It came out with the Capital Accord (Basel I) in 1988, which was very successful with more than 100 countries accepting it as a benchmark. Basel I was criticized due to its arbitrary nature of both the risk classes and risk weights. A Revised Framework, popularly known as Basel II Accord, was released on June 26, 2004.

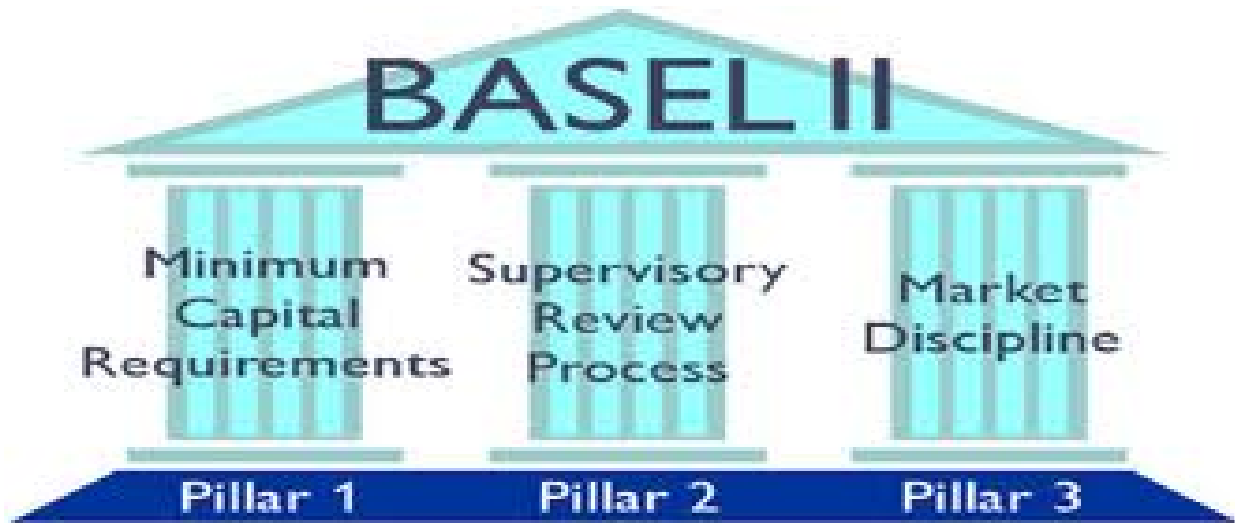
The main feature of Basel II is that its structure rests on a set of three "mutually reinforcing" pillars, namely,

1. Minimum Capital Requirements
2. Supervisory Review
3. Market Discipline





FIGURE 3: BASEL II PILLARS



**PILLAR 1** -- Capital requirements is based on the banks own measure of risks. There are three major types of risks associated with banks: -

- Market Risk
- Credit Risk
- Operational Risk

**PILLAR 2** --- Supervisory review is intended to ensure that banks have adequate capital to support all the risks in their business determined both by Pillar 1 and by supervisory evaluation of risks not explicitly captured in Pillar 1.

**PILLAR 3**----- Market discipline is intended to complement the first two pillars and to encourage market discipline by developing a set of disclosure requirements, which will allow market participants to assess the capital adequacy of the institution.

Through this approach Basel II aims to correct most of the deficiencies that Basel I had suffered from. The new standards are more risk sensitive to business type and assets classes. This approach is multi-dimensional and focuses on all the operations of the bank. Accordingly banks, which have a larger risk exposure, will have to set apart more capital to meet the unexpected losses that go with it. The new framework intends to improve safety, soundness in the financial system and enhance competitive equality.

Basel II will have a major impact on the banking industry. With capital requirements loaded in favour of larger banks having better systems and consequent ability to benefit from the lower



capital that goes with implementing more advanced approaches, the banking industry will witness a spate of large scale mergers, especially between internationally active banks, in their struggle to remain competitive.

### **IMPLEMENTATION CHALLENGES FOR BASEL II ACCORD**

Risk management functions are in place in most banks and financial institutions. However, it would appear from all the evidence that in many institutions, this initiative was motivated by compliance to regulatory requirements, rather than an internal recognition of the strategic role that a dedicated risk management function could play in optimising the risk return tradeoff for a bank. Moreover, only a handful of banks are doing risk management in the sense of assessing, positioning, modulating the risks not only at the macro level but also at the micro level, that is, at the level of transaction. However, there is no published data available regarding the status of the functioning of risk management departments. If detailed information in this regard is collected and analyzed, it may provide a firm basis for establishing comprehensive risk management systems. Based on the available information, certain challenges have been identified.

- There needs to be a keen awareness of the risks at the transaction level on the part of even the lowest functionary involved in the financial transaction in order that the bank or the financial institution gets compensated for the amount of risk it is assuming by performing a certain transaction. This implies embedding a risk culture across all activities of an institution. As Governor Bimal Jalan had pointed out in his address to bankers, “Ultimately risk management is a culture that has to develop from within the internal management systems of the banks”.
- Another issue is operation of the risk function. Each bank has a unique risk profile depending upon multiple factors including scale of business, geographical focus/break-up, segmental focus/break-up, risk profile, products offered, organizational culture, underwriting/control environment and growth rate. A risk solution designed for one institution or geography cannot therefore be indiscriminately applied to another institution.
- The new norms will increase the capital requirements in all the banks due to introduction in multiple risk weights with preferential treatment for high rated assets. Although the capital requirement for credit risk may go down due to adoption of more risk sensitive techniques such as securitization, derivatives, melting services, equity holdings, venture capital and guarantees etc.
- Another requirement for establishing risk management system is trained and skilled manpower. Sophisticated risk management requires employees with knowledge and skills commensurate with the complexity of the policies, processes, models and systems required. A quantitative orientation across the organization also needs to be developed (in addition to emphasis on processes) so that all people are sensitized to the importance of the information, accuracy and consistency



- In India, credit rating is restricted to issues and not to the issuers. While Basel II gives some scope to extend the rating of issues to issuers. This would be an approximation and it would be necessary for the system to move to the rating of issuers. Encouraging rating of issuers would be a challenge
- The new capital accord assigns risk-weight of sovereign at 0-50%. These 13 also a higher risk weight to the small and medium enterprises. In India, the PSBs have more than 40 percent of their lending to priority sector. The implementation of Basel II can adversely affect the priority sector lending.
- The Board of Directors and the Management should be in a position to identify the risk appetite of the bank. Since the goal of a bank or a financial institution is maximization of the shareholder value, there is a need to ascertain and identify the stance of the shareholders in regard to the risks to be assumed by an organization. This can be done through greater disclosures to the shareholders and more meaningful discussions at the annual general meetings and by establishing a continuous interaction system with the shareholders. Perhaps, this is the reason why Basel Accord considers market discipline as a third pillar of supervision.
- Risk management is extremely data-intensive. Accurate, reliable and timely availability of data is crucial for proper risk management. Banks need to implement substantial changes to their internal systems to prepare for appropriate data collection and revised reporting requirements. These changes may require systems integration, modification and introduction of new software.

## CONCLUSION

The banking industry is exposed to different risks which can adversely affect its profitability and financial health. Risk management has thus emerged as a new and challenging area in banking. Basel II intended to improve safety and soundness of the financial system by placing increased emphasis on bank's own internal control and risk management process and models. As in the international practice, a committee approach may be adopted to manage various risks. Risk Management Committee, Credit Policy Committee, Asset Liability Committee, etc are such committees that handle the risk management aspects. Basel proposal provides proper starting point for forward-looking banks to start building process and systems attuned to risk management practice. Given the data-intensive nature of risk management process, Indian Banks have a long way to go before they comprehend and implement Basel II norms in total. The essential functions of risk management are to identify, measure and more importantly monitor the profile of the bank. While Non-Performing Assets are the legacy of the past in the present, Risk Management system is the pro-active action in the present for the future. While new avenues for the bank has opened up they have brought with them new risks as well, which the banks will have to handle and overcome.



“Managing risk is nothing but managing the change before the risk manages.”

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