

## The subprime mortgage crisis and its blow on the financial performance: A case of Indian banking industry

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### Abstract

*Globalization has brightened the future of the Indian banking industry. But there is the darker side of the coin too; if globalization brings profit, it can bring losses too. The subprime mortgage crisis 2006 in the US impacted the whole world. A number of banks in the globe have been affected by this recent global recession. Many of the banks also got bankrupt due to the effects of recession. But Indian banks, due to their conservative approach, have not been much impacted. The banks in India remained resilient from the impact of the world's recession. The key idea of this article is to evaluate the impact of recent recession on Indian banking sector. The objective of the paper is to statistically test the impact of recession on Indian banking sector. The article hypothesized that the performance of Indian banking industry has not been much impacted due to world recession. This has been analyzed by evaluating the financial performance of Indian banking sector by using the four financial indicators- profitability, capital adequacy, management performance and liquidity. This study is based on secondary data analysis of the banks. Analysis is made at group level- state bank and its associates, nationalized banks, private banks and foreign banks will be analyzed for the time period 2006-2009. The paper has evaluated that whether there is positive, negative or no impact of recession on Indian banking sector and also which group of bank is highly impacted due to recession.*

**Keywords:** Recession, Indian banking sector, financial performance, profitability, capital adequacy, management performance, liquidity.

### Introduction

Banks play an important role in developing any economy. After liberalization, the Indian banking industry underwent a huge change. Since the financial reforms of 1991, there has been a drastic improvement in the Indian banking sector. The deregulations of deposit interest rates, deregulation of lending rates, lower CRR and SLR, increased competition etc. have strengthened the Indian banking sector. This has helped banks to have a control over their cost of deposits, to provide loans at a competitive pricing, availability of more funds for lending, to lower down their generation rate of Non Performing Assets, etc. RBI permitted new banks to be started in the private sector as per the recommendation of Narashiman committee (Mittal and Dhade ,2007). Foreign banks also were permitted to enter Indian banking industry. Because of the entry deregulation, more and more banks within and from outside are emerging in India. This has created huge competition among banks. Due to the increase in competition among banks in the Indian banking sector, the banks are diversifying its risk to different sectors (Shirai,2001). The new generation banks have gained a reasonably high position in the banking industry.

The improvement in the communication and information technology has also made banks to open their branches outside India. All these reforms brought globalization in the Indian banking sector. The globalization of the Indian banks has improved their customer base and brings more business to them. The globalization has brightened the future of the Indian banking

industry. But there is the darker side of the coin too – If globalization brings profit, it can bring losses too. The finest example of destructive nature of globalization is US subprime mortgage crisis 2006. The US subprime mortgage crisis has gripped the whole world due to the openness of the world's economy. The ultimate point of origin of the US financial crisis is the highly indebted US economy and high appetite for risk by investors and the collapse of real estate market is the closing point of origin of the crisis (Fратиanni and Marchionne, 2009).

The recession in the US is the result of lower interest rate environment which attracts large number of home buyers to take home loans. The banks in the US started reckless lending of the housing loans even to the customers who have lower ability to repay these loans. The new Business models were developed by the financial industry in order to expand the funds to increase the mortgage lending. Then the mortgage lenders sell these house loans made to the borrowers to the investment banks. Investment banks in turn sell these mortgage based house loans to the investors as mortgage backed securities. All the parties including banks started buying and holding these securities in order to earn higher returns. But as the interest rate starts increasing, the borrowers failed to repay the loans and ultimately the value of these securities starts falling. The more and more borrowers started to default and the investors started to demand their money back. This has pushed the banks to sell these securities at lower sale prices (Myers and Sendanyoye, 2009). As a result of this the banks suffered huge losses, bankruptcy, were forced to merge with other institutions in order to survive, and ultimately crisis began towards disaster.

Housing slump in the US and the overuse of credit cards has led the different US citizens to bankruptcy. As a result of this, the consumer spending in the US has slowed down. This has lowered the capacity of US to import goods from different countries and thus lowered the industrial production. Not only has this, the US investors started liquidating their investments from the financial markets. Due to this, the stock market around the world has slowed down. The year 2008 had marked the end of a growth cycle in international investment that started in 2004 and saw worldwide FDI down by more than 20% in 2008 (UNCTAD, 2009). The Americans lost their jobs and their incomes had shrunk. The recession has driven the unemployment rate to such a lower level that was not seen since 1993. All this has an indirect impact on the global banking sector. This situation also affected the ability of US banks to transact with the banks in different countries. The foreign banks in the US also get affected due to the US recession. The banking sector around the world gets affected by this global recession directly. There were reduction in jobs and salaries in the banking sector worldwide.

Many of the banks also get bankrupt due to the effects of recession. Of the five large US investment banks, Lehman Brothers went bankrupt; Bear Stearns and Merrill Lynch were acquired by other banks. Out of these five banks only Goldman Sachs and Morgan Stanley have survived because both have changed their business models since the start of the crisis. But Indian

banks due to their conservative approach is not been much impacted. The banks in India remain resilient from the impact of world's recession because of strong financial fundamentals, strict vigil on risk appetite and firm monetary guidelines. The Indian banking rectors remain insulated from the factors leading to the financial crisis. The banking sector no doubt has faced the pressures of profitability due to higher funding costs, mark-to-market requirements on investment portfolios, and asset quality pressures due to a slowing economy. During the period of recession the global exposure of Indian banks is relatively very small, with international assets at about 6 per cent of the total assets. In the year 2009, the banking system had Rs. 36 lakh crore of deposits and Rs. 26 lakh crore of advances (Vidyakala and Madhuvanthi, 2009). The Indian banking sector has shown high economic growth and performance in the past, low default ratio, absence of complex financial products, time to time intervention by RBI, proactive steps for maintaining the liquidity in the market have favored the performance of Indian Banking in recent global financial turmoil. Role of finance ministry, Indian culture, effective control of RBI, strong base of nationalized bank, traditional working of Indian banks have made the shocks of recession not unbearable to Indian Banking Industry.

The present study analyses the impact of financial turmoil on the Indian banking sector. In particular, the paper has evaluated that whether there is positive, negative or no impact of recession on Indian banking sector and also which groups of banks show statistical difference with regard to the financial performance. The paper is divided into eight sections. The next section reviews the relevant existing literature on the reforms in Indian Banking sector and its financial performance. Section II and section IV mentioned the objectives and hypothesis. Section V discusses the research design and methodology and section VI presents the analysis of data. Section VII gives the discussion of findings and section VIII provides conclusion and recommendations.

### **Literature review**

A number of studies have conducted to study the background, causes and impact of financial crisis. Whalen (2008), Myers and Sendanyoye (2009) reviewed the background and causes of the financial crisis and effect of the financial crisis. Labonte (2008) found that the falling of housing prices, rise in commodity prices and increase in prices of crude oil have a cumulative effect to give rise to the recession. The crisis hit the financial performance of US citizens, financial performance of banks and also, the financial sector jobs. The FDI world wide has slowed down due to the financial subprime crisis. The two major factors for the slowing down of the FDI's are the capability of firms to invest and the propensity to invest, has been affected negatively by economic prospects, especially in developed countries that are hit by severe recession. The FDI flows hit the industries like financial services, automotive industries, building materials, intermediate goods and some consumption goods (UNCTAD, 2009).

Fратиanni and Marchionne(2009) illustrates the role of banks in the subprime financial crisis, what actions they have taken in reducing leverage, and how security markets have

penalized bank equity. The weakness that are unique to the financial crisis 2007 are the transfer of assets from the balance sheets of banks to the markets, the creation of complex and opaque assets, the failure of ratings agencies to properly assess the risk of such assets, and the application of fair value accounting. Shirai(2001) assessed that prior to the reforms 1991,high entry regulation of private and foreign banks, the prevalence of reserve requirements, interest rate controls, allocation of financial resources to priority sectors are the cause of financial repression in the country. After 1991 reforms, the deregulations of deposit interest rates, deregulation of lending rates, lower CRR and SLR, increased competition etc. have strengthened the Indian banking sector. The privatization of banks at the right time has helped banks to show high performance and profitability. Roland (2004) also evaluate the reforms that have occurred in the Indian banking sector by focusing on the changes in three policies namely interest rate controls, statutory pre-emptions, and directed credit. Kumar(2007) evaluates the financial performance of private sector banks in India from the year 2004 to 2006. The study has evaluated the banks on the basis of seven financial performance variables- Business per employee, return on assets, profit per employee, capital adequacy, credit deposit ratio, operating profit and percentage of net Non performing asset to net advance. Trehan and Soni (2003) appraise the efficiency of the efficiency of the banking industry and separate those banks that performed well from those that performed poorly. The results of the study shows that the SBI Bank and its associates are more efficient than Nationalised banks and the difference between the two groups are statistically significant. Vidyakala and Madhuvanthi (2009) explains that the prudential norms adopted by the Indian banking system and the better regulatory framework in the country have helped the banking system remain stronger even during the global slowdown. The banking industry is indirectly affected due to the decrease in exports and drying up of overseas financing. The Indian banks do not have big exposures to subprime market, thus the impact of recession on the Indian Banking sector is very small.

### **Objectives**

The existing literature revealed that the housing slump in 2007 results in the US Sub Prime crisis. And the crisis gripped the whole world due to the trade relation of all the countries with the biggest economy i.e. United States of America. The banking industry of all the developed as well as developing economies also gets impacted due to the slowing down of the US economy. But the Indian banks are proved to be a promising bet due to its conservative approach towards business and this sector does not get affected due to the global slowdown. So, by reviewing all these literature, the study focused on the following objectives.

The objective of the study is to empirically find out the impact of recession on the Indian banking sector. The paper attempts to analyse the liquidity position of the banks during the recession period and to assess whether the management of the banks is successful in maintaining the performance of banks due to the onslaught of recession. The paper also analyses whether the banks are sufficiently equipped to absorb losses occurred due to global recession. Also to assess

that there is no variation exists among the different groups of banks with respect to their financial performance.

### **Hypothesis**

H1: There is no significant impact of recession on the financial performance of the Indian banking industry.

H2: There is no significant difference among the groups of banks with respect to their financial performance due to recession.

### **Research Design and Methodology**

The paper is based on secondary data analysis of the banks. Analysis is made at group level—state bank and its associates, nationalized banks, private banks and foreign banks are analyzed for the time period 2006-2009. This period has been chosen taking into consideration the following factors.

- The recession in the US starts from the year 2006.
- India feels heat of recession in the year 2007-08
- In order to analyse the after effect of recession on Indian Banking Sector, the period 2008-09 is taken.

The financial performance of Indian banking sector is analyzed by using the four financial indicators- profitability, capital adequacy, management performance and liquidity. The ratio return on assets and operating profit to total assets is used to measure the profitability of the banks. The capital adequacy ratio indicates the capital adequacy and the management performance is measured through the ratios- profit per employee, business per employee, credit deposit ratio, investment deposit ratio. The liquidity of banks is indicated by cash deposit ratio. To evaluate the impact of recession on Indian banking sector and to analyse that whether the different group of banks differ in their performance, the two way Annova test is carried out. For this purpose, 4\*4 matrix is constructed. The columns list the period for which impact of recession is to be studied and the rows list the group of banks. With the help of SPSS 16.00, two way Annova is applied and the analysis is made by comparing the calculated values and the table values.

### **Results and Discussion**

#### **i. Profitability**

The calculated values for both the ratios of profitability found to be less than the table value. Thus, it signifies that there is no variation among the group of banks during the slot of recession. Also there is no impact of financial crisis on the profitability of Indian Banking sector.

Table 1: Operating profit to total assets\*

| Groups of banks             | 2006             | 2007 | 2008          | 2009 |
|-----------------------------|------------------|------|---------------|------|
| SBI bank and its associates | 2.15             | 1.88 | 1.65          | 1.94 |
| Private banks               | 1.93             | 1.96 | 2.08          | 2.21 |
| Foreign banks               | 3.54             | 3.72 | 4.18          | 4.48 |
| Nationalised banks          | 1.87             | 1.94 | 1.77          | 1.87 |
| Two Way ANOVAs Test         |                  |      |               |      |
| Source of variation         | calculated value |      | table value** |      |
| Between years               | 1.288507         |      | 3.86          |      |
| Between banks               | 0.195754         |      | 3.86          |      |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in)

\*\*value at 5 % level of significance

Table 2: Return on assets\*

| Groups of banks             | 2006             | 2007 | 2008          | 2009 |
|-----------------------------|------------------|------|---------------|------|
| SBI bank and its associates | 0.85             | 0.86 | 0.86          | 0.97 |
| Private banks               | 0.8              | 0.97 | 1.11          | 1.1  |
| Foreign banks               | 1.56             | 2.06 | 2.7           | 2.26 |
| Nationalised banks          | 0.85             | 0.96 | 1.03          | 0.98 |
| Two Way ANOVAs Test         |                  |      |               |      |
| Source of variation         | Calculated value |      | Table value** |      |
| Between years               | 1.290487         |      | 3.86          |      |
| Between banks               | 0.0260547        |      | 3.86          |      |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in)

\*\*value at 5 % level of significance

## ii) Capital adequacy

Table 3: Capital Adequacy ratio\*

| Groups of banks             | 2006             | 2007  | 2008          | 2009  |
|-----------------------------|------------------|-------|---------------|-------|
| SBI bank and its associates | 11.93            | 12.16 | 12.61         | 13.4  |
| Private banks               | 12.77            | 13.6  | 15.27         | 15.98 |
| Foreign banks               | 41.98            | 39.87 | 37.53         | 45.4  |
| Nationalised banks          | 12.3             | 12.02 | 11.84         | 13.14 |
| Two Way ANOVAs Test         |                  |       |               |       |
| Source of variation         | Calculated value |       | Table value** |       |
| Between years               | 1.544856         |       | 3.86          |       |
| Between banks               | 0.632409         |       | 3.86          |       |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in)

\*\*value at 5 % level of significance

Capital adequacy ratio is calculated by dividing the capital by risk weighted assets. The table value is greater than that of the calculated value.

### iii) Liquidity

Table 4: Cash Deposit Ratio\*

| Groups of banks             | 2006             | 2007 | 2008          | 2009 |
|-----------------------------|------------------|------|---------------|------|
| SBI bank and its associates | 5.59             | 7.14 | 9.74          | 6.93 |
| Private banks               | 5.93             | 6.95 | 9.2           | 6.84 |
| Foreign banks               | 9.9              | 9    | 12.53         | 8.62 |
| Nationalised banks          | 7.04             | 7.31 | 9.57          | 7.52 |
| Two Way ANOVAs Test         |                  |      |               |      |
| Source of variation         | Calculated value |      | Table value** |      |
| Between years               | 0.820915         |      | 3.86          |      |
| Between banks               | 0.023753         |      | 3.86          |      |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in) \*\*value at 5 % level of significance

Cash Deposit ratio is calculated by dividing the cash held in different forms by total deposits. The result shows that there is no variation in the cash held by banks during the slot of recession.

### iv) Management performance

Table 5: Profit per Employee\*

| Groups of banks             | 2006             | 2007  | 2008          | 2009 |
|-----------------------------|------------------|-------|---------------|------|
| SBI bank and its associates | 2.19             | 2.7   | 3.21          | 4.45 |
| Private banks               | 3.07             | 3.57  | 4.59          | 5.24 |
| Foreign banks               | 26.49            | 26.11 | 45.18         | 44.3 |
| Nationalised banks          | 2.75             | 3.28  | 4.19          | 4.79 |
| Two Way ANOVAs Test         |                  |       |               |      |
| Source of variation         | Calculated value |       | Table value** |      |
| Between years               | 6.52268          |       | 3.86          |      |
| Between banks               | 7.295323         |       | 3.86          |      |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in)

\*\*value at 5 % level of significance

Table 6: Business per Employee\*

| Groups of banks             | 2006             | 2007    | 2008          | 2009    |
|-----------------------------|------------------|---------|---------------|---------|
| SBI bank and its associates | 356.11           | 438.87  | 539.3         | 688.96  |
| Private banks               | 488.09           | 520.27  | 583.48        | 636.57  |
| Foreign banks               | 995.59           | 1037.55 | 1326.08       | 1430.01 |
| Nationalised banks          | 438.04           | 518.11  | 657.7         | 811.39  |
| Two Way ANOVAs Test         |                  |         |               |         |
| Source of variation         | Calculated value |         | Table value** |         |
| Between years               | 2.010282         |         | 3.86          |         |
| Between banks               | 0.257001         |         | 3.86          |         |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in)

\*\*value at 5 % level of significance

Business per employee and profit per employee are the tools to measure the efficiency of the employee of the banks. The ratio shows the productivity of the bank's employees and the financial health of banks. By using the two way ANOVAs test the results reveal that for business per employee ratio, the table value is greater than the calculated value. But for profit per employee, the calculated value is greater than the table value.

Table 7: Credit Deposit ratio\*

| Groups of banks             | 2006             | 2007  | 2008          | 2009   |
|-----------------------------|------------------|-------|---------------|--------|
| SBI bank and its associates | 67.68            | 74.73 | 75.4          | 74.83  |
| Private banks               | 66.5             | 68.74 | 68.54         | 68.45  |
| Foreign banks               | 111.42           | 98.54 | 100.43        | 109.29 |
| Nationalised banks          | 70.44            | 70.95 | 71.37         | 71.41  |
| Two Way ANOVAs Test         |                  |       |               |        |
| Source of variation         | Calculated value |       | Table value** |        |
| Between years               | 1.075754         |       | 3.86          |        |
| Between banks               | 0.048565         |       | 3.86          |        |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in) \*\*value at 5 % level of significance

The calculated F value and the table value between year's shows that there is no significant impact of recession on the Indian banking sector. Also there is no statistical difference among the group of banks.

Table 8: Investment Deposit ratio\*

|                             |                  |       |               |       |
|-----------------------------|------------------|-------|---------------|-------|
| Groups of banks             | 2006             | 2007  | 2008          | 2009  |
| SBI bank and its associates | 39.27            | 32.24 | 32.31         | 31.67 |
| Private banks               | 36.65            | 34.65 | 34.79         | 37.09 |
| Foreign banks               | 73.39            | 74.85 | 65.85         | 88.37 |
| Nationalised banks          | 40.51            | 34.61 | 32.49         | 31.7  |
| Two Way Anova Test          |                  |       |               |       |
| Source of variation         | Calculated value |       | Table value** |       |
| Between years               | 1.222358         |       | 3.86          |       |
| Between banks               | 0.227565         |       | 3.86          |       |

\*Source: Statistical tables relating to banks 2006- 2009

Website: [www.rbi.org.in](http://www.rbi.org.in) \*\*value at 5 % level of significance

The table value for both the source of variation is greater than the calculated value. This shows that there is no impact of recession on the investments made by the Indian Banks. There is no variation among the banks with regard to their investment deposit ratio.

### Discussion of findings

- Though the Indian stock market have plunged to more than half of its value but the Indian Banking sector has managed to show profits in their balance sheets. There is no significant impact of recession on the profitability of Indian banking sector. Also, there is no significant impact on the profitability of different group of banks. In spite of the losses occurred due to the global recession, the Indian banks have shown high profits.
- The banks are in a comfortable position to absorb losses occurred due to the destructive attack of recession. Table 3 shows the strong capitalization of Indian banks. The average capital adequacy ratio of above 8 percent is a positive feature in their credit risk profile. The capital adequacy ratio shows the Indian Banks have greater incentives to lend prudently and remain well capitalized. The foreign banks are highly capitalized as compared to other three groups of banks.
- Table 4 suggests that there are more amounts of liquid cash present with the banks to meet its client's cash withdrawals. The cash deposit ratio reveals that the liquidity of banks has decreased from the year 2008-2009. Still, there is no significant impact of recession on the Banks during the studied recession period. Unlike the Banks in US who have faced the insolvency problems, the liquidity of Indian banks has cushioned them against bankruptcy.
- The test signifies that the profit generated per employee is impacted due to recession. But there is no impact on the business per employee ratio of banks due to financial recession. Table 5 shows that the profit generated per employee has increased during the recession period. Thus, it signifies that profit margin of the banks have increased during the period of recession. There is positive impact of recession on the productivity of the employees.

And also the group of different banks does not differ with respect to business per employee ratio but they do differ with regard to profit per employee ratio. It signifies that the groups of banks differ in their disbursements and expenses.

- The table 7 shows that there is no significant impact of recession on the loans generated by the banks to its customers. Thus, Indian Banks have maintained their lending practices inspite of global recession. There is no significant difference among the four group of Banks with respect to their credit deposit ratio. But it can be inferred from the table that foreign banks have relatively high ability to lend and have improved their income by expanding their lending operations over the years.
- Management of Indian banks has worked hard in maintaining the growth of Indian Banking industry. The Investment deposit ratio revealed that the investments of public sector banks have fallen and the foreign banks and private sector banks continued investing in government securities and other instruments. In spite of this, there is no significant difference between the groups of Banks with regard to the expansion of loans to the customers. Also, the recession has no significant impact on the lending practices of the banks and their investments

### **Conclusions and Recommendations**

Indian Banking industry remains resilient from the affects of the global recession. There is a trust among the people in the country about the strength of the banking system. With the analysis of the data, paper concluded that the banks are sufficiently equipped to absorb losses occurred due to global recession. The Indian banks have high liquidity which shows that the banks have effective cash management system. The Banks has best used the technology and have used the manpower in an effective manner. The Indian Banks are professionally managed and have made them to grow faster and stronger. Role of finance ministry, Indian culture, effective control of RBI, strong base of nationalized bank, traditional working of Indian banks have made the shocks of recession not unbearable to Indian Banking Industry (Ganapure and Gaikwad (2011).

The results have shown that the banks have high productivity, efficient management performance, and high liquidity and talented employees. So to maintain the growth of Indian banking industry, the paper recommends that banks should start exploiting the new technologies to enable their employees to have more clientage in order to increase the business and profitability. To remain competitive in this kind of environment, banks should try to retain the talented workforce who contributes most to the profitability goals of the banks. The management should further try to control the overhead expenses and disbursement cost in order to increase their profits. The banks should focus on the risk management while expanding its business internationally. The banks should offer the products to the customers according to their taste. The banks should create a friendly customer environment to satisfy their customers and to retain them. The banks should retain their conservative approach towards business because its conservatism has made the Indian Banks a reliable bet for its customers.

Banks' should have an ability to repeat and sustain such efforts in future, which would be critical in maintaining their profitability.

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