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CAMELS and Bank Performance Measurement: A Case Study of Bank of Baroda

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Abstract

Banking sector constitutes the backbone of the Indian economy and contributes significantly to her growth and development. India's prudent banking system helps the country to survive various national and global economic shocks and meltdowns. Bank of Baroda (BOB) is the second largest and one of the leading profit-making Public Sector Banks in India. This study looks at the financial soundness of BOB under globally accepted CAMELS framework. The study observes the behaviour of various parameters of CAMELS rating model and their consistency over the study period. The financial analysis finds the fundamental soundness of BOB with some minor flaws in certain areas. This research ultimately rates the performance of BOB with second grade.

Keyword: Basel Accord, Capital Adequacy; CAMELS; Market Sensitivity, Financial Risk

Introduction

Banking sector plays a vital role in the economic growth of India. It helps the economy a lot to survive or immune various national or global economic crises. When the global recession had affected the banking system across the world, India's financial system could sustain well. Even during the crisis times, the Indian banking sector showed progress in competitiveness, growth, efficiency, profitability and soundness, which made it one of the healthiest performers in the world banking industry. A progressively growing balance sheet, higher pace of credit expansion, expanding profitability and productivity at par with banks in developed markets, lower incidence of nonperforming assets and focus on financial inclusion have contributed to making Indian banking vibrant and strong (FICCI, 2010). Moreover, the regulatory system of Indian banking system rated better than those in advanced or other emerging economies that significantly help the system to maintain resilience, while continue to provide growth opportunities in coping with the vagaries of liberalisation and globalisation. On these backdrops, it is imperative to contemplate the prime forces, which contribute to the financial soundness of Indian banking system.

Among many techniques available today for evaluating the financial performance of banks, compared to traditional tools, the CAMELS rating model of financial analysis is considered more efficient in laying down clear risk assessment systems, developing and monitoring quality performance, identification of problems,and the correction of deficiencies. Today financial management operations hang around with various risks and the CAMELS model applies key ratios that help to identify the risk parameters. For bank operations, one has to do much not only with risk identification but also with its measurement and management. The CAMELS model parameters provide a simplified early warning information system. Therefore, the use of this model is significant in both performance measurement and monitoring review.

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Bank of Baroda (BOB) stands at second position among public sector banks in India.Operationally BOB is a global bank with a large network of branches in India, having its international presence in 24 countries. The BOB stood firm, while it was challenging for banks to remain immune to the disruptions created by economic shocks. It has been able to withstand the turbulence more effectively during the shocking years of recession mainly due to its strong business fundamentals. Despite ongoing global economic challenges, the bank's international operations continued to be stable and ensured the "trust and confidence" of its stakeholders.

The sustainable performance of Indian banking sector, even during the financial crisis, motivates the researcher to judge its soundness under regulatory banking supervision framework. CAMELS rating model has already proved effective in curbing reverberations of recession in advanced countries including US. Being a global bankwith strongfooting in domestic business BOB can produce the true reflections of the recent domestic as well as global scenario and trends alike in Indian banking system. Hence, this paper aims to assess the performance of BOB as the proxy for judging the financial health of Indian banking system using CAMELS rating model.

We organise the rest of the paper as follows: the second section reviews the existing literature; the third section first describes our methodology and then the variables used; the next section discusses the results, and the fifth and the last section concludes the paper with its practical implications and scope of further research.

Review of Literature

The measurement of the performance of banks has been the prime focus of banking research for the last decades. Many studies have already come out to determine the performances of banks on standalone base using relative measurement of performance. Financial ratios are much effective to diagnose the financial health of a bank (Maishanu, 2004). In addition to financial statement based offsite analysis, one should use the onsite examination for making better judgments (Thomson & Whalen, 1988)

Among various ratios that use to judge the financial state of a bank, Capital Adequacy Ratio (CAR) analysis seems to be more important. An increase in CAR leads to higher productive efficiency, which stems out of high profitability of banks and thus better soundness (Das *et al*., 2010). Almost similar observationswere made in the study by Gupta(2011).

CAMELS' framework, one of the popular frameworks used in performance of banks, encompasses all the related and important aspects, in addition to capital adequacy. One of the pioneer works using this model in rating bank performance is Cole & Gunther (1998). Later, studies by Gasbarro *et al.* (2002) and Baral (2005) proved the soundness of this model for analysing the performance of commercial banks and financial institutions. Gasbarro *et al*. (2002) also observed that the CAMEL framework reflects the bank soundness in stable times but deteriorated during financial crisis. In their study to find whether the CAMEL issufficient to capture the bank performance of a bank, Dzeawuni & Tanko (2008) found that CAMEL should be CLEAM to highlight the relative importance of the parameters included.

In Indian scene, Reddy & Prasad (2011) and Chowdhury (2011) assessed the financial soundness of banking sector using the CAMEL model. Their studies suggest that the Indian Banking is sound on overall basis. Capital adequacy analysis mainly stems out of Basel II accord in India. Raghavan (2003) and Sharma (2009) deal with Basel-II analysis in connection with risk management and explain its relationship with soundness. They observed that a higher CRAR (Capital to Risk weighted Assets Ratio) is a true indication of bank's soundness. Gupta (2011) deals with the introduction of Basel III norms during the post 2008 financial crisis and the challenges associated with their implementation. The study concludes that maintenance of financial stability requires continuous vigilance and upbeat measures. Chaudhry & Singh (2012) taking asset quality as the base, investigate the impact of the financial reforms of 1991 on the increase in soundness of Indian Banking. The research identifiedrisk management, NPA levels, effective cost management and financial inclusion as the key players that ensure the bank soundness in India.

Ghosh (2010) examines the interaction between credit growth, bank soundness, and financial fragility in Indian banks. The study found that high growth in the private sector credit augments bank soundness in India. Santha *et al.* (2006) highlight the importance of soundness on the economic development of a country.

Methodology

The study uses BOB's financial data of seven-year period, from financial year (FY) ending on 31st March 2007 to the FY ending on 31st March 2013. Bank's annual reports constitute the prime data source for financial information. Additional information on the ratios depicting the CAMELS parameters were calculated based on the publicly available information published at BOB webpage, Reserve Bank of India, Indian Bankers' Association and other related sources. The data analysis uses financial ratios included under CAMELS framework. Means have computed for summarising the ratio properties. Further details of our empirical methodology are detailed below:

CAMEL Model of Financial Analysis

Model Frame

CAMELS rating system is a six-factor internationally used tool to determine the soundness of a banking institution. This rating model designed and introduced by US as an Early Warning System to evaluate the strength of banks on a multifunctional frame.This framework uses six variants of ratios, namely capital adequacy (C), asset quality (A), management Efficiency (M), earning ability (E), liquidity (L), and sensitivity to market risk (S). S is the latest addition in 1996, jointly referred as CAMEL(S).

CAMELS' rating primly intends to determine the banks' overall financial, operational, and managerial conditions. Itidentifies the strengths and weaknesses of institutions under rating. The analysis uses inputs both from statutory and non-statutory records. Annual as well as interim financial reports, records of cash flow position, board composition, financial sources, and other related information constitute the base material for making analysis under this framework.

In reviewing ratios, the credit analyst needs to keep two concepts in mind. First, whether the stipulated ratios meet established benchmarks and second, what trend they show during the period of observation. In fact comprehensive financial analysis calls for evaluation of management practices combined with performance measures.

Composite Rating

Composite rating system reveals all pertinent business information, which one should, takes in to account while making his judgements. In addition, qualitative judgements of analysts also affect the evaluation. The CAMELS rating components have different weights, while the final judgement is on a scale from 1 to 5 and the meaning of each ratings are summarised below.

1. CAMELS rating grade 1 gives the impression of sound banking in every aspect. Strong performance and risk management practices enable the management to identify all risks and employ suitable strategies to mitigate concerns. The trend and projections for key performance measures are constantly positive and thebanks are in substantial compliance with laws and regulations.
2. CAMELS rating grade 2 means the bank is fundamentally sound with some moderate weakness. Again, the risk measures find fruitful in producing positive outcomes, which ensure consistent performance outcomes. Management identifies most risks and compensates accordingly. The performance indicators are positive and none of them could affect bank's sound business operations. The weaknesses are manageable and the banks are in substantial compliance with laws and regulations.
3. CAMELS rating grade 3 means there are functional weaknesses that cause to the superiority concerns to address deficiencies. The performance is not up to the expectations and its strategic risk moves do not find promising relative to the size and profile of the bank. Here also, the performance indicators impel the weak operational conduits. These banks may fail to comply with regulations and the management may lack the ability to address weaknesses efficiently.
4. CAMELS rating grade 4 indicates serious or moderate operational failures that can impair the future viability. Banks initiatives to monitor risks are generally at intolerable scale relative to the size and range of its business. Key performance measures are likely to be negative that could threaten the existence of the credit union. Noncompliance with laws and regulations are evident and management

is not satisfactorily resolving the weaknesses and problems. A high potential for failure is present but is not yet imminent or pronounced. Banks of this category are in need ofstrict supervisory review.

5. CAMELS rating grade 5 means critical financial weakness and there is high possibility of failure in the near future. Deficient and unsatisfactory performance threatens the viability of the credit union and demands serious financial restructuring. The volume and severity of problems are beyond management's ability. Banks in this group have the highest probability of failure.

The variables that use to constitute the six factor CAMELS rating are different in their significance and effects. There is no uniform way of deciding upon which indicators but there is considerable homogeneity over what characteristics are reliable indicators of financial distress (Sahajwala & Van den Bergh, 2004). Researchers have learned by experience, at the same time their observation and judgement may change throughout time and across different markets. Hence, one may choose his option based on the intuition and knowledge.

Parameter Description

Capital Adequacy

Capital adequacy is the most significant factor in the Basel framework that guarantee efficient banking system. Capital, really a buffer to volatile earnings and the banks need not suspend operations even during negative earning conditions. It also provides a measure of reassurance of stability and continuity. Capital is a support growth as a free source of funds, provides protection against insolvency, and enables meeting statutory capital requirements. Adequate capital is that quantum of funds that a bank should maintain in prudent business operations (Nwankwo, 1991). Banks with relatively large capital base tend to be more profitable (Kleff & Weber, 2008). Hence maintaining an adequate level of capital is a critical element.

Capital adequacy analysis of a bank starts with the qualitative judgement on variables that are crucial to the institutions sound financial state. The analysts evaluate how various lending norms affect the bank's capital position both now and in the future.

The five categories of capital adequacy rating are:

1. Capital adequacy rating of 1: well-capitalised and maintains a high level of capital fully matching with their current and expected risk profiles and can absorb any present or anticipated losses or significant problem in the other CAMELS parameters.
2. Capital adequacy rating of 2: adequately capitalisedand preservesits capital position completely in line with its today's as well as future risk profile and has the capacity to take up existing and likely losses.
3. Capital adequacy rating of 3:under capitalized and fails to meet the risk based net worth requirements and normally exhibit more than ordinary levels of risk in some significant segments of their operation and there may be significant problem in the other CAMEL categories.
4. Capital adequacy rating of 4: highly undercapitalized and do not have enough capitals, but the performance of other parameters help the bank to lag the negativesof fragile capital base in the next few months.
5. Capital adequacy rating of 5: critically undercapitalized and shall have major problem with the other CAMEL categories that may aggravate the issue more serious.

Even though we frequently use these risk-weighted capital ratios, they are not free from limitations (Poghosyan & Cihak, 2009). The ratios are subject to manipulation and give chances to misinterpret figures, while hiding the actual state of the bank. The school of economics is not in full accord whether the capital adequacy statutory requirement are early warning measures to prevent future failures or just misleading and can be manipulated by bank authorities. Some argue during the 2007-08 financial crisis that the CAR were indicating high to the banks that badly affected while showing otherwise to those who sustained and survived successfully. Nonetheless, these are the best tool we have in the CAMELS approach of financial analysis.

Assets Quality

The state and quality of individual asset groups can causepecuniary problems and significant in contributing weaken capital base.Assets quality reflects the financial

solvency of banks (Whalen, 1991). Asset quality is vital in management evaluation and performance rating of banks (De Young, 1997). The banks with poor performing assets are often exposed to big losses. Asset quality may ratebased on:

1. The quality of loan underwriting, policies, procedures and practices;
2. The internal controls and due diligence procedures in place to review new loan programs,
3. The level, distribution and severity of classified assets;
4. The level and composition of nonaccrual and restructured assets;
5. The ability of management to administer properly its assets and the existence of significant growth trends indicating erosion or improvement in asset quality.

The asset quality rating reviews the existing state of business and the potentials of betterment or threat of decline in performance in the light of past as well as ongoing practices. The analysts judge banks efficiency in managing credit risk, while making apposite factor rating of its asset quality.The bank's ratings of asset quality assesses are:

1. A rating with 1 excels in asset quality with least portfolio risk.
2. An institution of rate 2 definitely has very good assets in their portfolio, but the quality level is much less than that of a best rated one. Banks rated 1 and 2 expect to perform consistently with positive outcomes.
3. A rating of 3 indicates a significant degree of concern, based on either current or anticipated asset quality problems and may be inadequate loan underwriting, poor documentation, higher risk investments, inadequate lending etc.
4. A bank rated with 4 shall face significantly high level asset quality issues. It will threaten the institution's viability if left uncorrected i.e. relatively severe levels of classified assets problems combined with other significant problems.
5. Rating 5 signals that the banks performance declining on account of the caustic consequences of its diluting asset base on revenue and capital position.

Management Efficiency

The managerial efficiency of a bank is critical in judging its success.Higher managerial competency is an indication of lesser chance of making wrong decisions, hence low rate of business failures. Often, scholars borrow numbers of other CAMELS parameters to judge the management efficiency of the bank. It is difficult to find an independent indicator. However, Lane *et al*. (1986) and Wheelock & Wilson (2000) incorporate measures of management efficiency that are also frequently used in practice. While evaluating the management quality one should compute an efficiency ratio that reflects expenses as a percentage of revenue.

1. A management rating of 1 indicates that management and directors are fully effective. The bank is reactive to dynamic operating conditions and can adapt with any present and potential issues emerging in business.
2. A bank getting rating of 2 for its management performance should have only minor flaws in its operations. It is able to keep up relatively good performance profile.
3. If the operating performance of the institution is not up to the expected standards, one should rate management with grade 3. The strategic planning is relatively weak and the bank may fail to do the strict adherence of the regulations.
4. When the analyst notes severe flaws in management's ability to perform profitable business operations, he may rate the management with grade 4. Here problems arise by management flaws are more severe and the bank needs more consolidation.
5. We may rate management quality with grade 5, when the inefficiency is evident in bank's operations. At this level, the problems due to management incompetency are high and the bank should take prompt actions to bring back safe operations.

Earning Ability and Strength

This factor contemplates the continual of bank operations with positive results. Increased profit levels must help banks to get upstanding performance profile. Consistent earnings help banks to win public confidence through sufficient provisioning of losses (Grier, 2007). In general,

there is negative relationship between profitability and the likelihood of distress. Inability of the bank to maintain earnings leads it to make losses. The key factors to be considered when assessing the bank's earnings are:

1. Level, growth trends, and stability of return on average assets;
2. Quality and composition of earnings, net interest margin, net worth level, quality and composition of assets, and
3. Net non-operating income and losses and their effect on earnings

Since banks are required to disclose key figures of profit and loss statements, there are many possible ratios to use. We should adjust earnings for risks, otherwise return indicators may fail to make sensible comparison. Most research base a distinct group of performance indicators, but the prime focus is profitability. Cost-to-income-ratio or Return on Assets/Return on Equity are more versatile among the measures of profitability.This study uses return on asset to judge the earnings efficiency of the bank. The main ratings are:

1. A bank which gets its earnings rated 1 can make profits sufficient for growth as well as capital formation.
2. A bank with consistent positive earnings may be assigned rate 2, provided its earnings position sufficiently cover operating risks. The analyst should give due consideration to other factors like stability of earnings, its quality etc., while assigning the exact rating.
3. One should rate 3, if the present and potential earnings are not adequate to either cover the losses or strengthen the capital base to meet the performance standards. Fluctuating revenue trends and improper use of assets often get in the way of the bank to make profits.
4. Temperamental wavering in earnings with declining trend rate earnings conditions of the bank with grade 4. Here one can expect substantial drop in future earnings of the bank. One should also take into account all other significant performance parameters to decide whether rate 4 is apt or not.
5. We should assign rate 5 to bankswhich experiencing consistent losses. The accumulated losses suck considerable amount of its capital and thus pose a marked threat to banks' solvency. A bank rated at this level is definitely unprofitable and depletion of capital occurs in the immediate future.

Liquidity

Liquidity indicates the banks' capacity to meet the surprise claims of its financiers. Liquidity risks affect both performance and reputation (Jenkinson, 2008). The relation between the size of liquid assets and risk of distress is strictly inverse (Chaplin *et al*., 2000). Arif & Anees (2012) provide empirical evidence on this. Liquidity, also known as asset/liability management (ALM), sufficiently deals with financial risk emerging out of interest rate fluctuations, loss of reputation and other related factors. Analysts will have regulatory concern if:

1. There is a policy, which fails to deal with the significant factors that contributing financial risks to the banks.
2. The board has established unacceptable limits on its risk exposure.
3. There are weaknesses in the measurement, monitoring, and reporting systems.

The main rating scales are:

1. A bank with rating 1 shall have least exposure to financial risk. The earnings and capital conditions provide sufficient cover for financial risks.
2. A rating of 2 impels that the institution's risk cover is substantive. However, despite its risk control measures, it needs further betterment. Here also earnings and capital position are good enough to compensate financial risks.
3. A rating of 3 convinces that the bank exposed to substantial credit risk and its risk monitoring mechanism strongly calls for immediate consolidation. Moreover, both revenue and capital position are inadequate to support financial risks.
4. Ratings of 4 and 5 also give an impression that the bank may struggle to find sources for meeting its fund requirements. The bank should initiate immediate action because the earnings and capital position definitely fail to make adequate cover for the risk exposure of the bank.
5. A rating of 5 would be appropriate for a bank with an extreme risk exposure. Its liquidity position

is decisively risky in the sense that it negatively affectsthe future continuity of business.

For assessing banks' liquidity studies,analysts follow diverging approach. Some research in the area links liquid assets likes marketable investments to total asset investments of the bank. However, some other studies relate different components of deposit or loan portfolio of the bank with its total assets. A third well-used idea is the loan-to-deposit (LTD) ratio. This popular measure explains the proportion of loan disbursements through the customer deposits of the bank. Our study follows the third approach to comment on liquidity of the bank. Obviously, it is only a good liquidity indicator for deposit-taking institutions.

Sensitivity to Market Risks

Sensitivity to market risk is the latest addition to CAMELS framework. However, it is the most difficult measurement area in any financial analysis. This parameter considers risk of interest fluctuations as well as the financial risk because of Priority Sector Lending (PSL), especially agriculture. Interest rate risk is the exposure of a bank's financial condition to adverse movements in interest rates resulting from the re-pricing or maturity mismatch risk, yield curve risk, basis risk and option risk.

While analyzing the sensitivity to market risk, the prime concern is to decide up to what extent the financial market volatility contributed by economic forces like exchange rate fluctuations, interest rate changes, inflationary pressures and stock market instability affects the bank performance.It is not merely price fluctuations but also often causes variations in lending efficiency of the bank. Holding of highly volatile assets in portfolio makes the bank more vulnerable to market distortions (Mayes & Stremmel, 2012).

Sensitivity to market risk today includes assessing, monitoring, and management of any credit concentrations and exposure to market based price changes. Integration of market sentiments with financial information seems to be complex. However, no one could leavemarket sentiments from the analysis.The most important issue here is how we should proxy this component in analysis. One usual procedure is to use the size of business to surrogate market sensitivity. Of course, sensitivity and business size relate to each other, but it is illogical to substitute sensitivity with the size factor. Studies like Mannasoo & Mayes (2009) and Whalen (1991) establish base-deposit ratios to surrogate the sensitivity and its impacts. Some others believe that it is logical to put a figure on sensitivity since the banks usually have obligations of volatile nature.

Financial Ratios/Variables Used

CAMELS model of our financial analysis has used below mentioned ratios.

Capital Adequacy

Capital adequacy conditions of BOB is judged on the basis of balance sheet measures like Capital Adequacy Ratios under BASEL I and II accord, Advances to Asset ratio, Advances to deposit ratios, Government security to total investments, and Debt/Equity ratio.

Assets Quality

Again, we compute position statement based measures - Net NPAs to Total Assets, Net NPAs to Net Advances, Total Investments to Total Assets, Slippage ratio, Gross NPAs to Advances, Provisions & Contingencies to Advances, and Provision Cover to Gross NPA for assessing the asset quality of the bank.

Management Efficiency

Total Advances to Total Deposits, Return on Net Worth, Net Profit per Employee (Rs. in lakhs), Average Business Per Employee (Rs. in crore), Cost to Income ratio, Operating Expenses to Average Asset, Business Per Branch (Rs. in crore), Gross Profit Per Branch (Rs. in crore), Net Profit per branch (Rs. in crore), Return on Equity, Overall CASA ratio and Domestic CASA ratio measure the managerial efficiency of the bank.

Earnings (Profitability)

Net operating profit/Average assets, Gross (Operating) Profit / Average assets, Return on Assets, Dividend Payout Ratio, Noninterest income/ average assets, Return on Average Assets, Yield on Advances, Cost of Deposits ,

Credit - Deposit Ratio andNet Interest Income / Average Interest Earning Assets assess earning conditions of the bank.

Liquidity: Financial Ratios

Liquid Assets to Total Deposits, Liquid Assets to Total Assets, G-Sec to Total Assets, Approved Securities to Total Assets, Customer deposits to total assets, and Total loan to customer deposits- evaluate the Liquidity or asset liability management (ALM) position of the bank.

Sensitivity to Market Risk

The sources of market risk are external to business. From literature, we have identified that the adverse change in exchange rate, inflation rate, interest rate and stock prices in an economy form the prime sources to the bank for market risk. Accordingly, the study at first used changes in USD-INR spot exchange rate, Indian Inflation rate and RBI Repo ratefor assessing market sensitivity. Then the likely impact of Interest rate on Net Interest Income (NII) in the Domestic and International Operations and on the derivative markets (both interst rate and currency derivative segments) along with stock market volatility during the period have observed to gain better insights regarding the market exposure of BOB.

Composite Rating Score

Six CAMELS rating components are summed up and averaged to determine the overall ratings of the bank. We consider the weighted average of the rates assigned against each of the CAMELS components to compute the composite rating score. US regulatory agency, Federal Deposit Insurance Corporation (FDIC) provides the weights to CAMELS parameters as capital adequacy (0.20), asset quality (0.20), management (0.25), earnings (0.15), liquidity (0.10), and sensitivity (0.10). In this research, we assign the same weights to the CAMELS components.While the final grade is assigned between 1 and 5, further judgement and needed level of supervisory advice inferred based on the grade are obtained. Mathematical expression of composite rating is given in the form of equation 1:

CAMELS Score = 0.2C+ 0.2A + 0.25M + 0.15E + 0.1L + 0.1S ----- (1)

Resultsand Discussions

Rating of Parameters and CAMELS Components

Capital Adequacy

The findings of Basel I capital adequacy ratio (Table 1) show that the overall capital adequacy of the bank is above the performance of the prescribed RBI norms.Based on the report of the BOB on Basel II ratios,the bank is also capitally adequate and well above the prescribed norms. However, both of these measures of CAR have shown a decline in 2013. Although no major crisis is evident by this measure, we cannot say that the capital adequacy the BOB stands in its best posture. Therefore based on the ratios the capital adequacy rating is more or less two. It means BOB is adequately capitalised and maintains a satisfactory level of capital fully commensurate with its risk profile both now and in the future and can absorb any present or anticipated losses but not as strong as on its best.

Relying only on the Basel ratios may be incomprehensible; hence further four ratios (reported in Table 2) have been used. The advance to assets ratio reveals whether the bank is aggressive in performing its lending function. The degree of aggressiveness in lending finally decides the profitability of the bank. The industry average of assets to deposit ratio is 80 percent. Asset deposit ratio of above 80 percent shows aggressive lending policy, while the ratio between 60 and 70 percent is considered inefficient and poor (conservative policy). Hence, we could see that BOB has used least as average 71.9 percent is not much. The advances to asset and advances to deposits have decreased during later years of study. The proportion of government securities in total investments of the bank is much high enough (at average 86.1 percent) to absorb any mishap in the proportion of investments. The debt equity ratio is synonymous to capital adequacy, which shows how much it can make up any loss in the system. The bank is reasonably safe with average of 14.4 percent of debt relative to ownership capital. However, both ratios indicate that the capital can support the growth, provides protection against insolvency, and meets statutory capital requirements. Hence, the bank is maintaining an adequate level of capital i.e. it is capitally adequate and sounds with no expected problem in the near future if the other components are fine.

Table 1: CAR Ratings

Capital Adequacy Ratios	*Rate*	*Capital Adequacy Ratios*	*Rate*
Basel I Capital Adequacy Ratios	2	Advances /deposit	2
Basel II Capital Adequacy Ratios	2	Govt. Securities/Investments	2
Advances /Asset	2	Debt to equity ratios	2
AverageCapital Adequacy Rate2			

Table 2: Asset Quality Ratings

Asset quality Ratios	*Rate*	*Asset quality Ratios*	*Rate*
Net NPAs to Total Assets	3	Gross NPAs to Advances	3
Net NPAs to Net Advances	3	Provisions & Contingencies to Advances	1
Total Investments to Total Assets	2	Provision Cover to Gross NPA	3
Slippage ratio	3		
AverageAsset Quality Rate	2.6		

Asset quality

The proportion of investment of BOB was high in the initials years, but gradually declined to its minimum in 2012 (Table 3). Later in 2013, it rose to 22.2 percent. The average of the past seven years is 22.1percent. The Gross NPA to Advances Ratio exposes to general decline with an average of 1.8 percent and which fails to meet the acceptable norm of less than or equal to 1 percent. Similarly, the ratio of Provisions and Contingencies to advances of BOB has slightly weakened. During the years ending in March 2012 and March 2013, the net NPA escalated by 95 percent and 171 percent which made significant impact on the earnings position of the bank.

The Slippage ratio movements in the past seven years have been volatile and in increasing trend, which signals the deterioration of the asset quality of the bank. Provision cover to Gross NPA also, exhibited the same trend. The management should seriously look in to this since the continuation of the trend brings damage not only to the shareholders, but also to the lenders and deposit holders.

The Asset Quality has weakened in 2012 and 2013. Mounting NPA position of BOB is a warning signal of any probable risk. We view the condition of BOB with significant degree of concern about its assets quality that indeed depends on the risk perception of the management. Therefore, the bank should seek of measures to devoid of its asset risks. Rating level is 2.6, which is closer to 3.

Management Efficiency

The management efficiency analysis of BOB (Table 4) noted some minor deficiencies and rated accordingly. However, the management may produce a satisfactory

Table 3: Management Efficiency Ratings

Management Efficiency Ratios	*Rate*	*Management Efficiency Ratios*	*Rate*
Total Advances to Total Deposits	2	Average Business Per Branch Rs. Cr	3
Return on Net Worth	2	Gross Profit Per Branch Rs. in Cr	2
Net Profit per Employee Rs. in lakhs	1	Net Profit per branch Rs. in Cr	2
Average Business Per Employee Rs. Cr	1	Return on Equity	3
Cost to Income Ratio	2	Overall CASA Ratio	2
Operating Expenses to Average Asset	2	Domestic CASA	2
Average Management Rate 2			

Table 4: Earning or Profitability Ratings

Profitability Ratios	*Rating*	*Profitability Ratios*	*Rating*
Net operating profit/Average assets	2	Cost of Deposits	3
Gross (Operating) Profit / Average assets	2	Yield on Advances	3
Return on Assets	3	Credit Deposit Ratio	2
Return on Average Assets	3	Net Interest Income / Average Interest Earning Assets	2
Dividend Payout Ratio	2	Non-Interest Income/ Average Assets	3
Average Earning Rate 2.5			

record of performance that ensures soundness in the bank's operations and compliance with applicable laws and regulations.

The BOB shows increasing trend of return on net worth. This signifies considerable betterment in bank's efficiency in managing its resources. The cost to income is at consistently decreasing rate, which also confirms the efficient management. The declining trend in cost to asset position also is an indication of the bank's efficiency in cost reduction. The gross and net profit per-branch have also excelled during the study period.

CASA ratio measures the proportion of demand liabilities of the bank in its total deposit commitments. The ratio shows a consistent declining trend perhaps due to the intense competition for the low cost source of money in the industry. However, the industry still ranks BOB at third position among public sector banks for its high proportion of CASA after SBI and PNB. Overall rating for management efficiency of BOB is 2 which imply a satisfactory record of performance even in the highly competitive conditions of Indian banking industry.

The financial profile of the bank cannot constitute the exclusive base for the evaluation of management efficiency. Based on the information from the annual reports, the management is efficient in its ability to identify, measure, monitor, and control the risks of the Bank.

Earnings

The rally of operating profit margin showed stability whereas slight increase is noticed in the trend in both ratios of net profit and gross profit to average assets of the bank (Table 5). However, there was sharp fall in 2013 in returns on assets ratios. We can observe a decreasing trend in dividend payout ratio. The net interest margin of BOB that has fluctuated abruptly earlier, started rising up by the end. Surging interest rate margins are either the outcome of favourable monetary framework or the result of portfolio shift of the bank from the low yielding investments to high yielding, but risky loan projects. The proportion of income from non-interest sources is decreasing and the bank should mend it soon to benefit from higher proportion of non-interest incomes.

The earnings of BOB have been observed to be good in all the parameters measured and the rating more closely to 2 which means the bank has a positive and relatively stable profitability/ earning with good trends and quality

Liquidity

The proportion of liquid asset to the total customer deposit has grown significantly (Table 6). Now the bank is in the right position in terms of liquidity in proportion to the total customer deposits. The presence of liquid assets in total assets of the BOB is also growing. The government securities to total assets of the bank shows slight decreasing trend over the past time but is still at a good figure. Although such investments yield less, it can boost the investors' confidence and will be a safety buffer. A declining trend in the proportion of customer deposit to total asset has observed, the continuation of which may cause liquidity stress to the bank. As a whole, the bank's liquidity risk exposure seems to be reasonable. The ability of management to discover, quantify, watch, control, and account risk is satisfactory, and the bank can perform up to the expected level. The earnings and capital conditions present ample cover for the scale of its financial risks. Hence, we rate the liquidity status of BOB with Liquidity grade 2

Table 5: Liquidity Ratings

Liquidity Ratios	Rating	Liquidity Ratios	Rating
LiquidAssetsToTotalDeposits	1	ApprovedSecuritiesTotalAssets	2
Liquid Assets To Total Assets	3	Customer deposits to total assets	3
G-Sec To Total Assets	3	Total loan to customer deposits	2
Average Liquidity2.3			

Sensitivity to Market Risks

Various risks, which can affect the performance and value of BOB, have to be considered in this section. Here the study deals with quantifiable and standard parameters like exchange volatility, interest rate risks, inflation, share prices, and their relative impacts.

BOB is found to be exposed to exchange rate risk. The USD-INR spot exchange rate appreciated significantly that is in the midst of wild volatilities during the last few years (Figure 1). The increasing trend of USDINR Exchange rates signifies the risk implied to BOB especially in the cases where it wants to cover dollar obligation from the market. A significant volume of business of BOB is from its overseas operations; hence, currency fluctuations definitely affect definitely affects the bank's profitability. Inflation steals a lot of wealth and deducts the value of the institution down. In India, the inflation is volatile but most of the time high so often above the healthy level with increasing trend (Figure 2). Similar is the trend in interest rate also (Figure 3).The impact of these changes will be discussed in relation to NIM and NII in other subsection ofthis section.

The net impact on Net Interest Income (NII) of the BOB against 100 bps movement in interest rates in the Domestic Operations grew steadily from Rs. 128.38 Crores in March 2009 to Rs. 335.2 Crores in March 2013. While in International Operations, the same impact grew from Rs. 34.57 Crores to Rs. 108.14 Crores during the same period (Figure 4). Total capital charged at 9 percent (including market risk premium) has almost doubled (Figure 5). When the magnitudes of a single percentile change in the interest rate derivatives was volatile during the period (Figure 6), the risk on hedging currency derivatives have contracted radically (Figure 7).

The value of BOB's stock went bearish for the period 2010-2013 and we could correlate the same with the loss of market confidence. One could observe an increasing trend on all indices while BOB moves steadily high until the mid of 2010, then declined gradually during the remaining years. On observing the price movement of BOB during the last three years and the current six months, we discover the value at loss (Figure 8).

BOB remains sensitive to various macro-economic factors and the trend is growing. The bank is not immune although it is practicing hedging and trading activities that can protect substantial loss and fetch profits. The bank is sensitive to the market risk and the market is risky. Unlike other components in CAMELS model, assessing market sensitivity is highly biased. This is because the public have not yet been exposed to sensitivity rating and the school is not in consensus as to whether to rank it as sensitivity rates 1 to 5 as the other components of CAMEL or use it as a single rate. However, the study rates various parameters contributing to the Bank's sensitivity on the normal 1to 5 rating scale. The base of the rating stems from both, the intuitive knowledge of the researcher and the empirical methodology pursued to evaluate the impact

Table 6: Sensitivity to Market Risks Ratings

Sensitivity to Market Risks	Rate	Sensitivity to Market Risks	Rate
The USD-INR exchange rate	3	Indian interest rate	3
Indian Inflation rates	3	100 bps IR on NII in Domestic B	3
BOB Stock market volatility	4	100 bps IR on NII in International B	3
Total capital charged @9% in the derivative market	3		
Impact of 100bps change on hedging currency derivatives	1		
Impact of 100bps change on hedging IR derivatives	3	Average Sensitivity	2.9

and implications of those factors that make the bank market sensitive.

Composite CAMELS Rate

We arrive at the composite score of CAMELS rating for BOB in the manner described earlier.On substituting the individual score of each component and the relative weights on Equation (1),

CAMELS Composite Score = 0.2C+ 0.2A + 0.25M + 0.15E + 0.1L + 0.1S

= (0.2*2) + (0.2*2.5) + (0.25*2) + (0.15*2.4) + (0.1*2.3) + (0.1*2.9)

= 0.4 + 0.5 + 0.5 + 0.36 + 0.23 + 0.29

CAMELS Composite Score = 2.28, approximately 2

We rate BOB with CAMELS rating grade 2, which means the bank is fundamentally sound with some moderate weakness. The overall performance of the bank is good and the existing measures to manage its risk profileindeed warrant safe operations. Management identifies most risks and compensates accordingly. Most performance indicators found positive with some exceptions. The weaknesses are manageable and have no immediate impacts on bank's profitable operations. The bank is in substantial compliance with laws and regulations.

Conclusion

The study on the financial performance of BOB with special emphasis on the CAMELS rating approach finds that the bank is performing at an acceptable level. The composite CAMELS rating were Satisfactory. The close observation on major parameters suggests that the CAGR of various growth parameters is vigorous and progressive which produces an impression that BOB is growing fast. Despite unprecedented volatilities in borrowing, net profit, NPAs the bank seems to endure and thrive.The year of year growth of these parameters shows normal variation and no serious alarming signal has observed.

The capital can support the growth and can protect against insolvency and it meets statutory capital requirements. The asset quality of BOB has shown small significant signals which the management should seriously look into; these include escalation of the NPAs and contraction of the profits. Regarding the management efficiency, we found BOB is efficient enough in mobilising the deposits to make good advances. The earning or profitability of BOB is positive and relatively stable with increasing trends. The liquidity status of BOB is quite satisfactory. The bank is capable to manage its risk and can rise up to the expectations of its stakeholders, including the shareholders. Both earnings and capital position of the bank is fundamentally good in terms of its sufficiency to accommodate the unexpected losses and credit defaults. BOB remains sensitive to various macro-economic factors and the trend is growing. Hence, the bank is not immune although it is practicing hedging and trading activities that can protect substantial loss and fetch profits. Thus, the bank is moderately sensitive to the market risk and the market is risky.

In summary, the study rates BOB with second grade that means the bank is fundamentally sound with some minor weaknesses. The risk management practices of the bank guarantees stable financial results in future. Management identifies most risks and compensates accordingly. The performance indicators are found positive and none of them could impact negatively the sound operation of the bank in the near future. These weaknesses are manageable and the bank can convert it in to strengths in the near future. The bank has substantial compliance with laws and regulations. The bank is doing well and there is no expected risk of failure in near future.

The study assessed the performance of banking sector in an emerging economy like India, based on a single public sector bank BOB, using financial data relating to seven-year period of 2007-2013. The private sector shares a significant part of Indian banking system. Further research comparing financial performance of private sector with that of public sector banks definitely adds value to banking research in India. Banks from other emerging economies might have diverging performance during recession. Further research would assess their financial health and may capture the causes and consequences.

References

Arif, A., & Anees, A. N. (2012). Liquidity risk and performance of banking system. *Journal of Financial Regulation and Compliance*, 20(2), 182-95

Baral, K. J. (2005). Health check-up of commercial banks in the framework of CAMEL: A case study of joint venture banks in Nepal. *Journal of Nepalese Business Studies,* 2(1), 41-55

Chaplin, G., Emblow, A., & Michael, I. (2000). Banking system liquidity: Development and issues. *Bank of England Financial Stability Review*, 93-112

Chaudhry, S., & Singh, S. (2012). Impact of reforms on the asset quality in Indian Banking. *International Journal of Multidisciplinary Research,* 2(1),13-31

Chowdhury, S. (2011). An inquiry into the financial soundness of commercial banks in India using the 'CAMEL' Approach. *Journal of Banking Financial Services and Insurance Research,* 1(7), 88-121

Cole, R. A., & Gunther, J. A. (1995). A CAMEL Rating's Shelf Life.*MPRA Paper No. 24693*, Retrieved fromhttp://mpra.ub.uni-muenchen.de/24693/

Das, A., Nag, A., & Ray, S. C. (2005). Liberalization, ownership and efficiency in Indian Banking. *Economic and Political Weekly,* 40(12), 1190-97

DeYoung, R. (1998). Management quality and x-inefficiency in national banks.*Journal of Financial Services Research*, 13(1), 5-22

Dzeawuni, W. A., & Tanko, M. (2008). CAMELs and Banks Performance Evaluation: The Way Forward Retrieved fromhttp://dx.doi.org/10.2139/ssrn.1150968

FICCI, (2010). Indian Banking System: The Current State and Road Ahead.*Annual Survey*, February

Gasbarro, D., Sadguna, I., & Zumwalt, J. (2002).The changing relationship between CAMEL ratings and bank soundness during the Indonesian banking crisis. *Review of Quantitative Finance and Accounting,* 19(3), 247 - 260.

Ghosh, S. (2010). Credit growth, bank soundness and financial fragility, evidence from Indian banking sector.*MPRA Paper No. 24715*, Munich Personal RePEc Archive

Grier, W. A. (2007). *Credit analysis of financial institutions* (2nd ed.). Euromoney Institution Investor PLC.

Gupta, A. S. (2011). The current state of financial and regulatory frameworks in Asian economies: The case of India. ADBI *Working Paper* 303, Tokyo: Asian Development Bank Institute

Jekinson (2008). Strengthening regimes for controlling liquidity risk. *Euro Money Conference on Liquidity and Funding Risk Management*, Bank of England, London, 9

Kleff, V., & Weber, M. (2008). How do banks determine capital? Empirical evidence for Germany.*German Economic Review*, (9), 354-72

Lane, W. R., Looney, S. W., & Wansley, J. W. (1986). An application ofthe cox proportional hazards model to bank failure. *Journal of Banking and Finance*, 10(4), 511-31.

Maishanu, M. (2004). A univariate approach to predicting failure in the commercial banking sub-sector. *Nigerian Journal of Accounting Research*, 1(1)

Mannasoo, K., & Mayes, D. G. (2009). Explaining bank distress in Eastern European transition economies. *Journal of Banking and Finance*, 33(2), 244–53

Mayes, D. G., & Stremmel, H. (2012). The effectiveness of capital adequacy measures in predicting financial distress. Paper presented at the 2013 financial Markets and corporate Governance Conference. Retrieved from http//ssrn.com/abstract=2191861

Nwankwo, G. O. (1991). *Bank management: Principles and practice.* Malthouse Press Ltd. Lagos

Poghosyan, T., & Cihak, M. (2009). Detecting financial stability vulnerabilities in due time: Can simple indicators identify a complex issue? Retrieved fromhttp://www.oenb.at/de/img/fmsb_22_schwerpunkt01_tcm14-242143.pdf)

Raghavan, R. S. (2003). Risk management in banks. *Chartered Accountant*, 51(8), 841-51

Reddy, M., & Prasad, K.V. N. (2011). Evaluating performance of regional rural banks: An application of CAMEL model. *Researchers World,* 2(4), 61-67

Sahajwala, R., & Van den Berg, P. (2000). Supervisory risk assessment and early warning systems.*Basel Committee On Banking Supervision Working Paper No. 4*, Bank for International Settlement, Basel

Santha, V., Nair, M., & Samudram, M. (2006). Key drivers for the soundness of the Indian banking sector, lessons for developing countries. *Journal of Global Business and Technology,* 2(1), 1-11

Sharma, G. (2009). Indian banking sector, capital adequacy under basel II, *ASSOCHAM Financial Pulse Study, June*

Thomson, B. J., & Whalen, G. (1988). Using financial data to identify changes in bank condition. *Economic Review*, Federal Reserve Bank of Cleveland, 24(2), 17-26

Whalen, G. (1991). A proportional hazards model of bank failure: An examination of its usefulness as an early warning tool. *Economic Review*, Federal Reserve Bank of Cleveland, 27, 21-31

Wheelock, D. C., & Wilson, P. W. (2000). Why do banks disappear? The determinants of U.S. bank failures and acquisitions. *Review of Economics and Statistics,* 82(1), 127-38

Appendix

Table 1: Capital Adequacy Ratios According to BASEL I and BASEL II

Particulars (In %)	*Mar'07*	*Mar'08*	*Mar'09*	*Mar'10*	*Mar'11*	*Mar'12*	*Mar'13*	*Average*	*CAGR*
CAR (BASEL I)	11.80%	12.91%	12.88%	12.84%	13.02%	12.95%	12.09%	12.64%	0.41%
B I Tier - I	8.74%	7.63%	7.79%	8.22%	8.96%	9.56%	9.20%	8.59%	0.86%
B I Tier - II	3.06%	5.28%	5.09%	4.62%	4.06%	3.39%	2.89%	4.06%	-0.95%
CAR (BASEL II)			14.05%	14.36%	14.52%	14.67%	13.30%	14.18%	1.38%
B II Tier - I			8.49%	9.20%	9.99%	10.83%	10.13%	9.73%	-4.32%
B II Tier - II			5.56%	5.16%	4.53%	3.84%	3.17%	4.45%	15.08%

Table 2: Further Capital Adequacy Ratios

Particulars (In %)	*Mar '07*	*Mar '08*	*Mar '09*	*Mar '10*	*Mar '11*	*Mar '12*	*Mar '13*	*Average*	*CAGR*	*Criteria*
Advances /Asset	58.40%	59.40%	63.30%	62.90%	63.80%	64.20%	60.00%	61.70%	0.50%	
Advances /deposit	66.90%	70.20%	74.80%	72.50%	74.90%	74.70%	69.30%	71.90%	0.60%	≤ 80%
GOV Securities/Invest	-	91.50%	94.30%	80.80%	83.00%	83.10%	84.10%	86.10%	-1.40%	
Debt/Equity	14.43%	13.67%	14.80%	15.65%	14.31%	13.77%	14.50%	14.40%	0.10%	

Table 3: Asset Quality Ratios

Asset Quality Ratios	*Mar'07*	*Mar'08*	*Mar'09*	*Mar'10*	*Mar'11*	*Mar'12*	*Mar'13*	*Average*	*CAGR*
Net NPAs to Total Assets	0.4%	0.3%	0.2%	0.2%	0.2%	0.3%	0.8%	0.3%	13.9%
Net NPAs to Net Advances	0.6%	0.5%	0.3%	0.3%	0.3%	0.5%	1.3%	0.6%	13.4%
Total Investments to Total Assets	24.4%	24.4%	23.1%	22.0%	19.9%	18.6%	22.2%	22.1%	-1.6%
Gross NPAs to Advances	2.5%	1.9%	1.3%	1.4%	1.4%	1.6%	2.4%	1.8%	-0.5%
Provisions&Contingencies to Advances	1.7%	1.4%	1.4%	1.1%	1.2%	1.2%	1.4%	1.3%	-3.1%
Slippages ratio in %	1.3	1.2	0.9	1.2	1.1	1.44	2.29	1.35	0.10
Provision coverage Ratio	0.76	0.75	0.75	0.86	0.85	0.8	0.68	0.78	-0.02

Table 4: Management Efficiency Ratios

Management Efficiency	*Mar'07*	*Mar'08*	*Mar'09*	*Mar'10*	*Mar'11*	*Mar'12*	*Mar'13*	*Average*	*CAGR*
Total Advances/Total Deposits	66.9%	70.2%	74.8%	72.5%	74.9%	74.7%	69.3%	71.9%	0.6%
Return On Net Worth	12.7	13.6	18.0	20.2	20.4	18.4	14.4	16.8	2.1%
Net Profit per Employee Rs. in lks	2.7	3.9	6.1	7.9	10.6	11.9	10.4	7.6	25.2%
Average business per Employee Rs in Cr	4.6	5.9	7.6	8.9	11.3	13.2	15.7	9.6	22.5%
Cost to Income Ratio	51.30%	50.89%	45.38%	43.57%	39.87%	37.55%	39.79%	0.4	-4.8%
Operating Expenses to Average Asset	1.78%	1.69%	1.57%	1.37%	1.29%	1.15%	1.09%	0.0	-7.9%
Return on Equity	12.4	14.6	18.6	22.19	23.5	19.04	14.59	18.4	9.0%
Business Per Branch Rs. in cr	89.25	113.11	112.86	132.24	156.27	169.8	184.98	136.9	12.9%
Gross Profit Per Branch Rs. in cr	1.01	1.45	1.45	1.57	2.04	2.17	2.08	1.7	12.8%
Net Profit per branch (Rs. in crore)	0.5	0.75	0.75	0.97	1.24	1.26	1.03	0.9	12.8%
Overall CASA Ratio	33.2	31.2	29.6	29.6	28.7	28	25.3	30.1	-4.4%
Domestic CASA	-	35.93%	34.87%	35.63%	34.4	33.20%	30.38%	7.2	-3.3%

Table 5: Earning (Profitability) Ratios

Profitability Ratios	*Mar'07*	*Mar'08*	*Mar'09*	*Mar'10*	*Mar'11*	*Mar'12*	*Mar'13*	*Average*	*CAGR*
Net operating income/AverageAssets		1.8%	2.1%	2.0%	2.2%	2.1%	1.8%	2.0%	-0.1%
Gross (Operating) Profit / Average assets	1.9%	1.9%	2.2%	2.0%	2.2%	2.2%	1.9%	2.1%	-0.5%
Return on Assets	0.7%	0.8%	1.0%	1.1%	1.2%	1.1%	0.8%	1.0%	2.2%
Return on Average Assets	0.8%	0.9%	1.1%	1.2%	1.3%	1.2%	0.9%	1.1%	2.0%
Dividend Payout Ratio	24.6%	23.8%	17.2%	20.9%	17.8%	16.2%	23.7%	20.6%	-0.6%
Cost of Deposits	4.8%	5.7%	5.7%	4.9%	4.6%	5.6%	5.8%	5.3%	3.3%
Yield on Advances	8.4%	9.5%	9.5%	8.6%	8.5%	9.4%	8.9%	9.0%	1.0%
Credit Deposit Ratio	74.4%	77.3%	81.9%	84.5%	86.8%	86.9%	82.0%	82.0%	1.7%
Net Interest Income / Average Interest Earning Assets		12.4%	12.0%	10.5%	10.8%	11.5%	11.4%	11.4%	-1.6%
Non-Interest Income/ Average Assets		5.6%	5.8%	5.5%	3.5%	3.8%	3.6%	4.6%	-8.4%

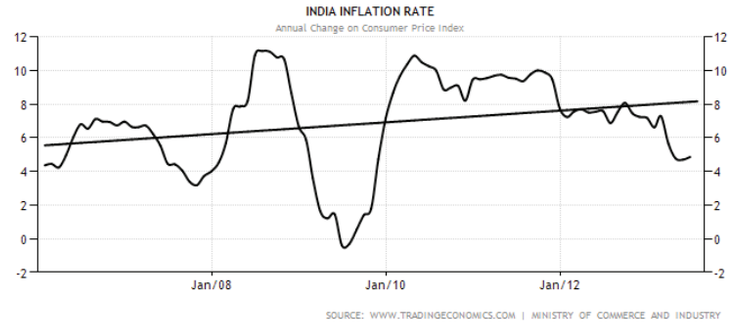
Table 6: Liquidity Ratios

Liquidity Ratios	*Mar '07*	*Mar '08*	*Mar '09*	*Mar '10*	*Mar '11*	*Mar '12*	*Mar '13*	*Average*	*CAGR*
LiquidAssetsToTotalDeposits		15.2%	13.1%	14.7%	16.3%	20.4%	22.5%	17.0%	8.1%
Liquid Assets To Total Assets		12.9%	11.1%	12.7%	13.9%	17.5%	19.5%	14.6%	8.6%
G-Sec To Total Assets		19.1%	18.0%	18.1%	16.8%	15.7%	18.9%	17.8%	-0.2%
ApprovedSecuritiesTotalAssets		0.6%	0.4%	0.3%	0.2%	0.1%	0.2%	0.3%	-24.2%
Customer deposits to total assets	87.3%	84.7%	84.6%	86.7%	85.2%	86.0%	85.7%	85.5%	-0.3%
Total loan to customer deposits	66.9%	70.2%	74.8%	72.5%	74.9%	74.7%	72.3%	73.2%	2.2%

Figure 1: USD-INR Spot Exchange Rate from 2006 to 2013 & it's Trend-Line

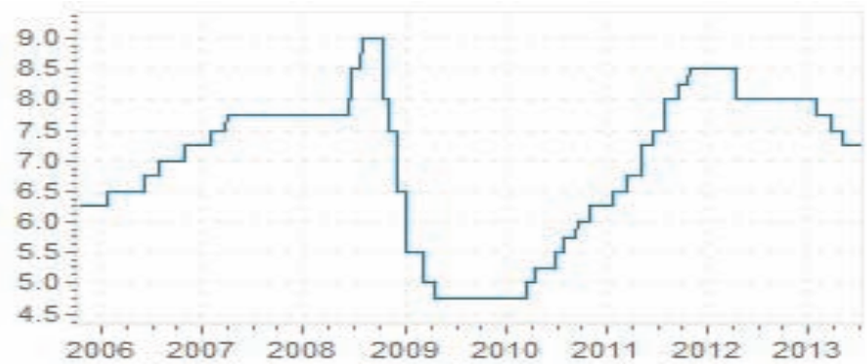
Source: http://www.tradingeconomics.com/india/exchange-rate

Figure 2: Indian Inflation Rates from 2006 to 2013 & it's Trend line



Source: WWW.TRADINGECONOMICS.COM/ MINISTRY OF COMMERCE AND INDUSTRY

Figure 3: Graph of Indian interest rate (RBI Repo rate)



Source: http://www.global-rates.com/interest-rates/central-banks/central-bank-india/rbi-interest-rate.aspx

Figure 4: Net Impact of 100 Bps Change in Interest Rates on NII of Domestic and International Operations

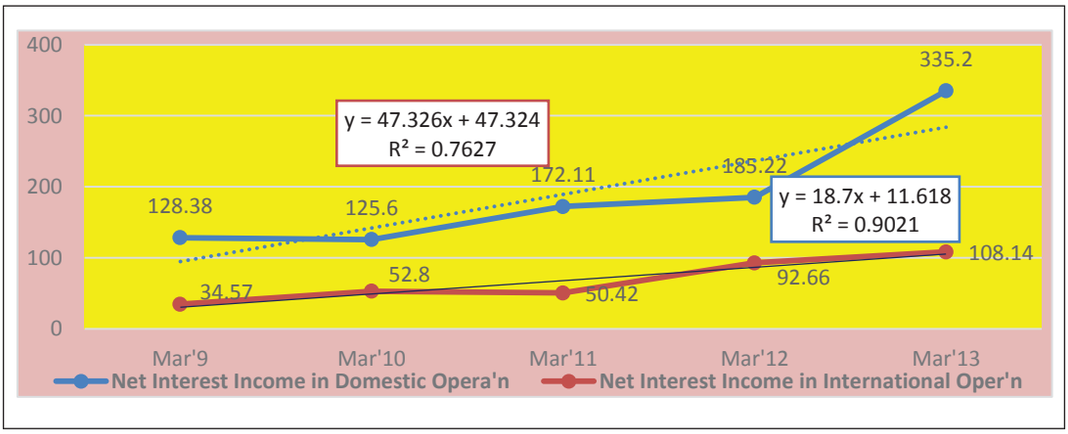


Figure 5: Total Capital Charged @9% in the Derivative Market

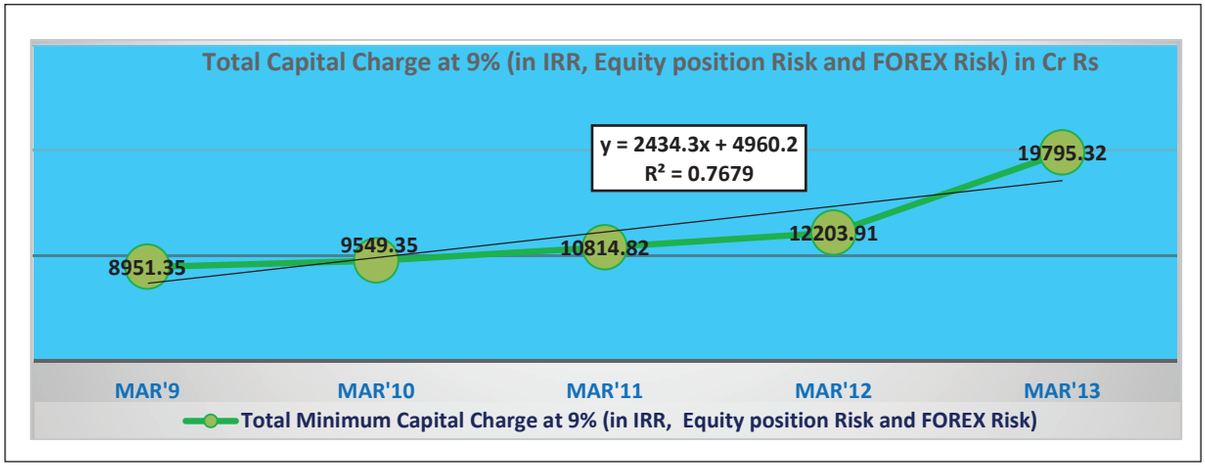


Figure 6: Likely Impact of 100bps Change on Hedging Interest Rate Derivatives

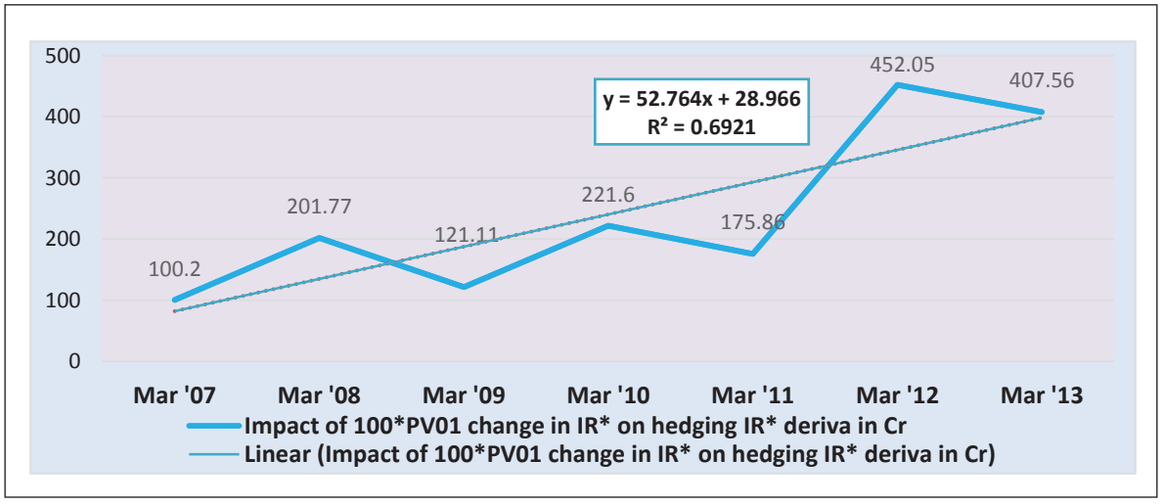


Figure 7: Likely Impact of 100bps Change on Hedging Currency Derivatives

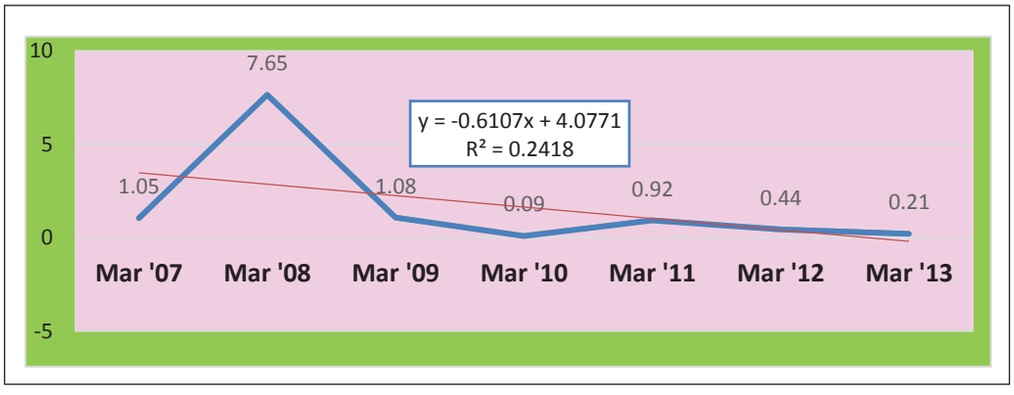


Figure 8: BOB Share Price Volatility in Comparison with Major Indices from July 15 2008 to July 16, 2013