STUDY OF INTEREST RATE RISK AND ITS IMPACT ON PRIVATE AND PUBLIC BANKS STOCK RETURN: COMPARATIVE STUDY

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ABSTRACT

Banks profitable performance is pivotal for strengthening the growing economy of a country. Interest rate risk is one of the important forms of risk that banks faces. It is challenging for banks to monitor and manage interest rate risk and simultaneously maintaining profitable position. Banks profitability and performance influences its stock price; where both are affected by interest rate change. This study examines the effect of interest rate fluctuations on the selected public and private banks stock return during the period April 2015 to March 2017. The study considered stocks of selected banks and NSE nifty which reveals absence of effect of interest rate change on the banks stock return through event study methodology. Stock returns of neither public banks nor private banks have impact of interest rate change and cumulative average abnormal return of these banks showed almost the same pattern which specifies stock returns of the banks are not affected by the interest rate fluctuations. But private banks stock returns are affected in the event 1 by interest rate change.

Key words: interest rate risk, stock return, market return, abnormal return, event study

INTRODUCTION

Banks, financial institutions and stock market play a crucial role in accelerating the economic development and shaping the destiny of the economy. Banks, stock market and their performance influences economic growth of the country. Banks performance can be affected by various risks among which interest rate risk is the most important. Interest rate risk is the fluctuations in active and passive interest rates which rises risk to income and capital. Banks face challenges for improving their profitable performance along with managing the risks. Banks profitability is one of the indicators of countries growth and mainly depends on its interest earnings. Banks earnings, expenditure, assets and liabilities are exposed to the movements of interest rate. Interest rate is indirectly proportionate to banks financial performance by affecting the demand for loans and advances.Fluctuation in interest rate influences its net interest income and changes present value of future cash flow which affects banks assets and liabilities and net worth.Interest rates are always volatile due to monetary policy and others; banks need to manage them to make maximum profits. Stock market is influenced by macroeconomic variables which leads to alter the portfolio of investors, interest rate is one of those variables. Changes in interest rates can affect the cost of funding and stock returns. Banks should take risk and hedge accordingly for efficient management. It is essential for banks to monitor and manage interest rate risk for better asset liability portfolios and to improve the market value of bank. Previous studies reported the absence of relationship between interest rate and stock return. The present study is to assess the influence of interest rate variation on the stock return of banks in India.

INTEREST RATE FLUCTUATIONS AND ITS EFFECT

Banks performance is one of the important factors for countries growth, to exercise profitable performance they need to manage various risks like credit risk, interest rate risk, liquidity risk, currency forex risk and operational risk along with other economic activities, is challenging to them. Among those risks banks face the most important risk, interest rate risk in their role as financial intermediary. Interest rate is the cost paid to use the money for a period of time. Banks engage in wide range of activities which includes various kinds of deposits, loans and advances. Banks earnings from these activities depends on interest rate, any changes in interest rate directly affect banks earnings and capital. This is interest rate risk. The risk arises from the mismatch of maturity dates and repricing at different rates of assets and liabilities (repricing risk); from imperfect correlation between interest rates received and paid on different instruments (basis risk); from changing interest rates and shapes of the yield curve, have an adverse effect on financial flows (yield curve risk); and from interest rate related option embedded in banks products (option risk).

Fluctuation in interest rates directly affects banks earnings, assets and liabilities. Increase in interest rates makes banks cost of borrowing more expensive from RBI which in turn affects the companies borrowing from banks as it need to pay higher interest on their loans and affects individual customers. This reduces the banks interest income and affects the net interest margin. In case of decrease in interest rates vice versa. Changes in interest rate also affect assets, liabilities and off balance sheet instruments related to interest rate because present value of future cash flows also change along with interest rate and in some cases cash flows itself, is changed. Banks need to manage their cash inflows and outflows and its economic value. To achieve these objectives, it is essential for banks to manage and monitor interest rate risk. Banks need to accept and manage interest rate risk because it can be an important source of profitability. For measuring and managing interest rate risk, banks use various techniques such as repricing model, value at risk, gap analysis, duration gap method and simulation method. Banks can use derivative securities like forward contract, future contract, interest rate swap and option to hedge interest rate risk according to various scenarios. Other research studies say that using derivatives as strategies to minimize interest rate risk will ensure better financial performance.

Changes in the interest rates not only affect the behavior of the consumers and business but also affect stock market. To evaluate the stock price, the sum of present value of expected future cash flows is divided by the number of shares available. Raising interest rates either leads to high debt expenses or less revenue from customers which can reduce the estimated future cash flows. Investors value the stocks on basis of current cash flows and anticipated cash flows. Thus reduced cash flow will lower the stock price.

OBJECTIVES OF THE STUDY

1. To study the impact of interest rate fluctuations on stock returns, pre and post announcement window.

2. To analyze stock returns of either public banks or private banks are affected.

LITERATURE REVIEW

Dr. B. Charumathi (2008), confirmed that ICICI bank is exposed to interest rate risk by measuring it through gap analysis.

John J. Vaz (2008), Examined the reaction of only Australian banks stock returns to the changes of RBA cash rates and found that in short term banks were not negatively impacted when rise in rates but significant when rates decreased, using event study methodology. They contrasted the response of these stocks with non-financial firms whose abnormal returns were insignificant to rate changes.

Md. Gazi Sala Uddin (2009), worked on 15 countries, used time series and panel regressions and showed that interest rate has negative relationship with share price and for six countries, changes in interest rates has significant negative relationship with changes in share price.

Amalia DI IORIO (2013), investigated the sensitivity of financial sector stock returns to interest rate and exchange rate risk with increasing time horizons in pre and post introduction of euro. Their result indicated that no impact of introduction of euro on stock returns and Interest rate, exchange rate sensitivity increases significantly with increasing time intervals.

C. Prabhavathi (2013), understands the interest rate risk, its sources. Changes in interest rates affect banks earnings and its economic value. Measurement of such risk using gap and duration analysis and RBI guidelines to manage it is discussed in this study and states that changes in interest rate is important to maximize profits.

James Ngwala (2014), investigated the sources the of interest rate risk and analysed banks exposure to such risk through gap analysis. The study revealed that listed banks in Kenya are more asset sensitive, change in market rates influenced net interest income.

Hamdan Ali (2014), interpreted the impact of interest rate on stock market in Pakistan. He showed that rise in interest rates, investors were less attracted towards stock market, as a result it had a negative impact using descriptive statistics, correlation and regression analysis.

Dr. T. Muthukumaran and Dr. V. K. Somasundaram (2014), examines the relationship between macroeconomic variables (bond interest rates) and stock returns in India. They Proves that no causality between interest rates and stock returns in short run, neither interest rates nor stock returns affect each other by using correlation analysis, unit root and granger causality tests to find this relationship. A later study by Archana Upadhyay (2016), also assessed the causality relation between weighted lending rates and stock returns in India and found no relationship.

Vishnu Nambiar examined the impact of stock splits on stock returns, understands that no excess return present due to stock splits but increased the volume of share traded. Used event study methodology and concluded that stock splits had no impact.

METHODOLOGY

This is descriptive a research which describes whether the announcement of interest rate change by RBI influences the security return. The data used for the study is secondary data. The source for stock and index data was NSE.Bank rate is considered as a proxy for the interest rate and are sourced from RBI. The impact of interest rate (bank rate) and stock returns in India is studied, by usingdata of aperiod of month whenever interest rate changed from April 2015to March 2017. Public banks and private banks

of five each ofIndia were included in the study which are listed in NSE. The public banks are: State Bank of India, Punjab National Bank, Bank of Baroda, Bank of India and Canara Bank, while the private banks are: Yes Bank, HDFC Bank, ICICI Bank, Axis Bank and IndusInd Bank. These banks are selected based on their performance in the stock market.NSE index returns is taken as proxy for market returns. Security returns of selected banks is calculated and analysed itsrelation with market returns.

RBI interest rate change announcement dates are obtained and examined the changes in security return due to interest rate change.RBI changed the interest rate four times in the period of study. Table 1 lists the event dates used for our study.

To determine the impact of interest rate changes on bank stock returns, we employed event study methodology. This method involves calculating and analysing average securityand market returns for a period of 15 days prior to the event and comparing this to the average security and market returns for a period of 15 days after to the event to know the impact on security returns in relation to market return.

Table 1. RBI interest rate change event dates

Date	Rate change	Rate	Type
02-06-2015	-2.94%	8.25	Decrease
29-09-2015	-6.06%	7.75	Decrease
05-04-2016	-9.68%	7	Decrease
04-10-2016	-3.57%	6.75	Decrease

DATA ANALYSIS

For data analysis average stock return and market return is considered during the period of study which describes how mean stock return of selected banks before and after announcement of the interest rate change related to mean market return during the same period. Abnormal return is assessed to check the security returns of banks are affected by the event.
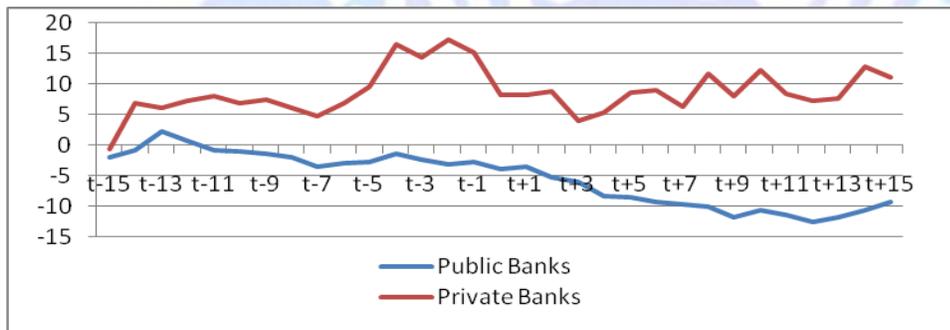
Event 1

FIG.1 MEAN STOCK RETURN AND MEAN MARKET RETURN
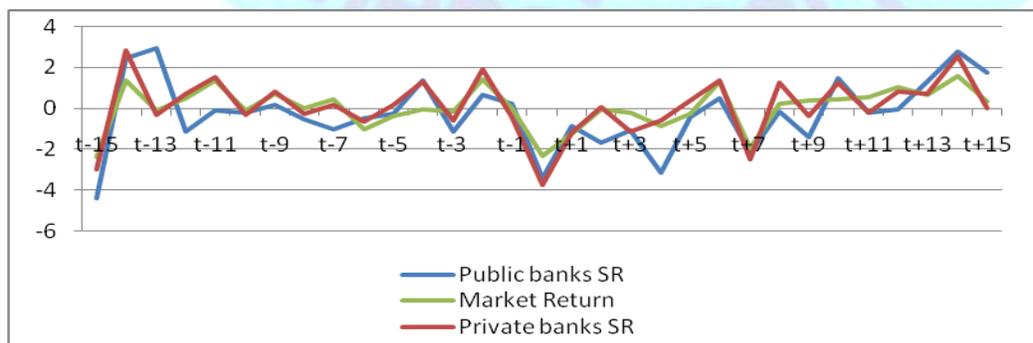
The above graph shows the mean values of selected public and private banks security return and market return. From this graph it is found that public bank security returns did not move along with market return both before and after announcement of the event. No changes were found in the security return of public banks after the event, so the event has no impact on public banks security return.

Private Banks security return followed market return before announcement of the event but in the post announcement window it did not follow the market return to a lesser extent. Security return changed in the post event perioddue to interest rate change, therefore the event has less impact on private banks stock returns.
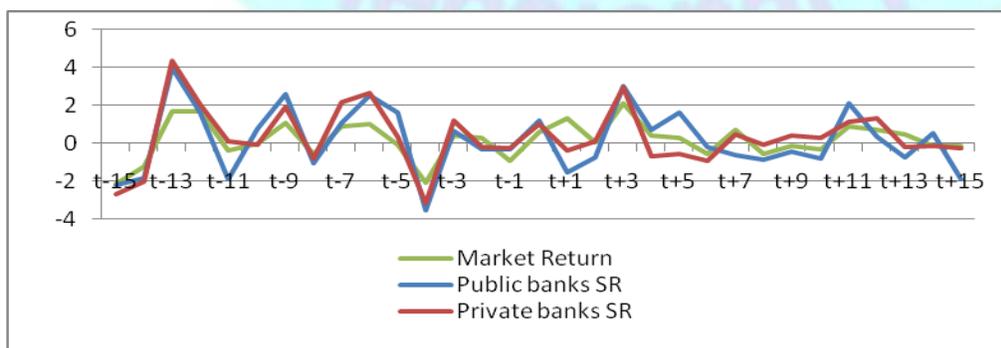
FIG.2 CUMULATIVE MEAN ABNORMAL RETURN

The above graph shows cumulative mean abnormal return. CMAR of private banks is greater in the pre announcement window, on the event day the returns dropped from 15.213 to 8.184 and in the post announcement window it did not rise higher than before the event but it followed increasing positive pattern of returns.

CMAR of public banks is negative both in pre and post announcement window except on t-14 and t-13.On the event day it did not rise high or fall low which signifies no impact of the event. The returns followed negative trend even after the announcement of the event.

It is understood that pre announcement and post announcement windows have almost the same pattern of abnormal return in both public and private banks but abnormal returns of private banks dropped high on the event day which specifies the return of private banks is less affected due to the event and returns of public banks is not affected.

Event 2

FIG.3 MEAN STOCK RETURN AND MEAN MARKET RETURN

On the event day mean values of selected public and private banks security return and market return increased. There is high fluctuation in the selected banks security return and market return in the pre announcement window compared to post event period.The security returns of selected public banks and private banks did not follow the market return both in pre and post announcement windows. There is no much difference in pattern of return of public and private banks and its fluctuation after the announcement of interest rate change. Therefore, the event impacted neither public banks nor private banks.

FIG.4 CUMULATIVE MEAN ABNORMAL RETURN
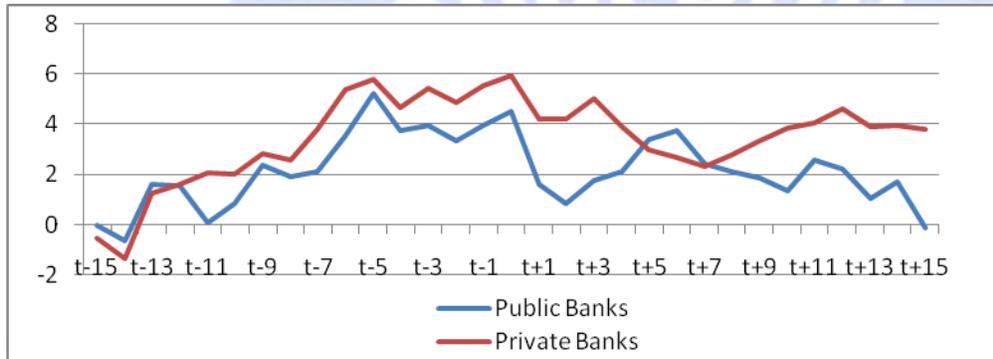
The above graph shows cumulative mean abnormal return. CMAR of public and private banks followed positive pattern both in pre and post announcement windows. The return of private banks is high compared to public banks. The returns of public and privatebanks are high in the pre announcement window and did not rise high as prior to the event in post announcement window. On the event day the returns neither increased high nor decreased low and the pattern of abnormal return is the same in pre and post announcement periods. The event has no significance on the returns of selected banks. Hence the returns of public and private banks are not affected by the event.

Event 3

**FIG.5 MEAN STOCK RETURN AND MEAN MARKET RETURN**
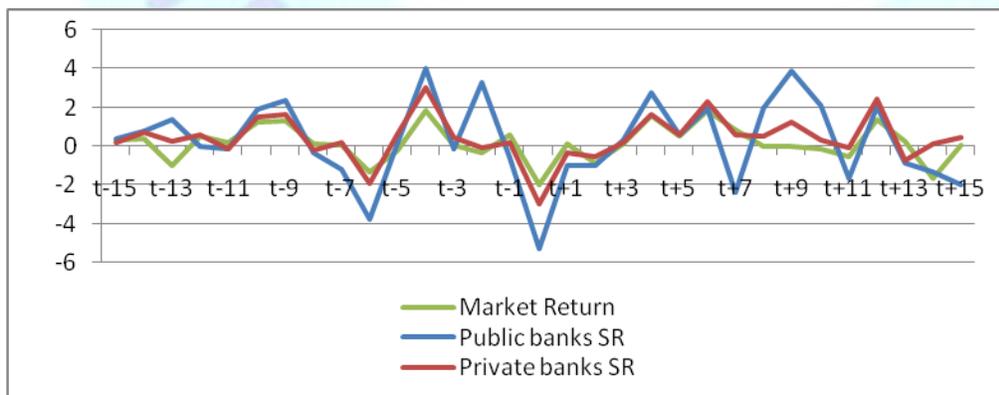
The average of selected banks security return and market return fell on the event day. The graph show that private banks security returns moved along with the market return in the pre and post

announcement windows except on t+9 and t+14. That is the market return and private bank stock return follow the same characteristics, therefore announcement of the event does not impact private banks stock return.

Public banks security returns did not follow the market return in pre and post announcement windows. It has more fluctuations compared to private banks stock return and market return. The event has no impact on public banks stock return.

FIG.6 CUMULATIVE MEAN ABNORMAL RETURN
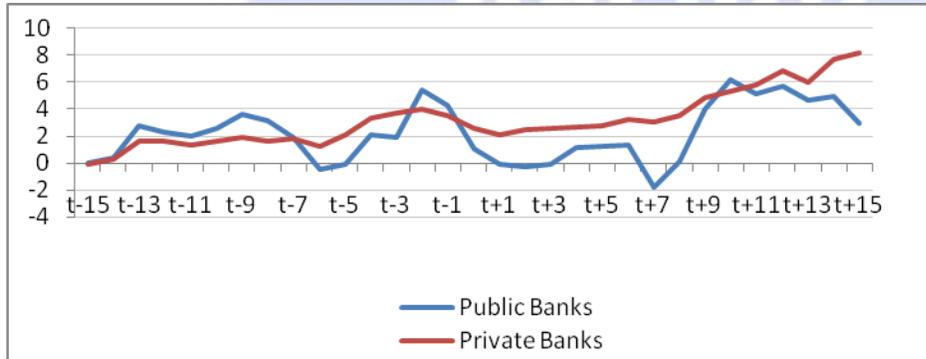
Private banks have increasing positive CMAR which is greater than public banks CMAR. On the event day CMAR neither increased high nor decreased low of private and public banks. CMAR of private banks followed positive pattern before and after announcement of the event but public banks have positive and negative pattern of CMAR in pre and post announcement window. According to the graph there is no changes in the selected banks abnormal return in period of study which indicates noeffect of interest rate change.

Event 4

FIG.7 MEAN STOCK RETURN AND MEAN MARKET RETURN
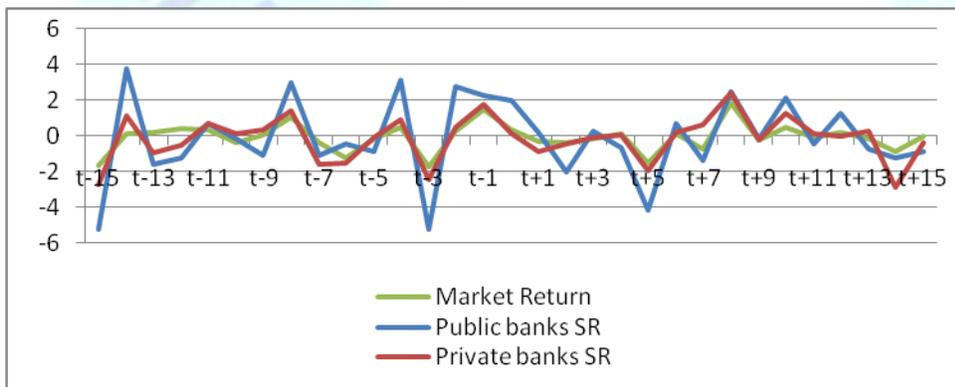
Public banks have high fluctuations before the event compared to post announcement period. On the event day it is found less fall in market return, public banks and private banks stock returns. From the above graph it is possible to understand that average stock return of public banks and private banks

moves opposite to market return. These banks return and market return do not follow the same characteristicsin pre announcement and post announcement window. No changes are found in the stock return of public banks and private banks due to interest rate change in the study period, that is the pattern of stock return in relation to market return is almost the same.This signifies the event has no impact on public and private banks.

FIG.8 CUMULATIVE MEAN ABNORMAL RETURN
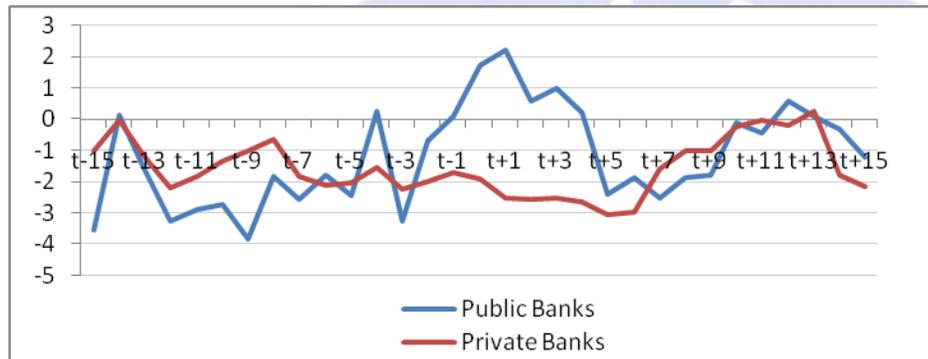
Abnormal returns of both public and private banks is negative, public banks have higher abnormal returns compared to private banks. CMAR of private banks is negative in the pre announcement window there is no presence of very high or low abnormal returns on the event day. In the post announcement period it followed the same negative pattern of abnormal returns.CMAR of public banks increased high on the event day. It is negative in the pre announcement window and started to rise in the post announcement window. since both public and private banks showed the same pattern of abnormal return in the period of study, none of the selected banks are affected by the change in interest rate.

CONCLUSION

This study tried to examine the impact on the security return of selected banks due to interest rate change, as measured by their average stock return, cumulative average abnormal return with market return. These returns were examined for 4 rate change events using event study methodology. Security return of public banks did not move along with market return in any of the events. None of the events impacted public banks stock return. In the event 2 and event 4 security return of private banks did not follow the market return and has no impact of interest rate change. In the event 1 private banks security return followed the market return in pre announcement window and changed in the post announcement window, signifies impact of the event. In the event 3 security return of private banks and market return followed the same characteristics,that is no impact of the event. Public banks and private banks have almost the same pattern of cumulative mean abnormal return in pre announcement and post announcement window. This proves that the change in interest rate has not affected the security return of public banks and private banks in any events except private banks in event 1 because it dropped high on the event day and followed increasing positive abnormal returns.

From this study it is understood that change in interest rates does not have any impact and affect the stock returns of public banks and private banks.

LIMITATION OF THE STUDY

1. Only private banks and public banks are considered for the study. Foreign banks and co-operative banks are excluded for the study.
2. On the event (interest rate change) day there may be other events which also have an impact on the security return. Those event's impact is not considered in the study.

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