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# Effect of Interest Rate Change on Probability of Banking Industry in India

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## ABSTRACT

***Interest rate risk represents one of the key forms of financial risk faced by banks it has given rise to an extensive body of research mainly focused on the estimation of the sensitivity of banks' stock returns to changes in interest rates profitability is a major concern for the banking sector the public sector commercial banks are the backbone of Indian economy and it supports many ways many sectors like agriculture, small business, small industries, big industries, directly in providing the finance every research have its base and the outcomes are based on the type of study in the process of review of literature in books, journals, annual reports, websites of banking sector it has been observed that there are many deficiencies in the performance of the banking sector. It is expected that banks have to monitor, maintain, and manage their assets and liabilities portfolios in a systematic manner taking into account the various risks involved in these areas. Profit and loss account and balance sheet risk of a bank can have a significant influence on interest rate risk the rise and fall in the interest rate have a great impact on the profitability return on equity and return on assets. The present research work focuses on the impact of interest rate changes on the profitability of the banking industry in India the study covers 30 years and a model that was developed was regression analysis to valid the study with a minimum of 0.05 level of significance is considered very important to justice the impact of an interest rate change on the profitability of the public sector and Commercial banks.***

**Keywords:** *Interest Rate Fluctuations, Bank Profitability, Indian Banking Industry, Panel Data Analysis.*

## 1. BANKING INTRODUCTION

A bank is a financial institution and financial intermediary that accepts deposits and channels those deposits turns into lending activities, either directly or through capital markets. Bank connects customers that have capital deficits to customers with capital surpluses. Due to their critical status within the financial system and the economy generally, banks are highly regulated in most of the countries. They are generally subject to minimum capital requirements which are based on an international set of capital standards, known as the Basel accords. Banking in India originated in the last Decades of the 18th Century. The First Banks Were the General Bank of India, Which Started In 1786, And Bank of Hindustan, which started in 1790; both are now defunct. The oldest bank in existence in India is the state bank of India, which originated in the bank of Calcutta in June 1806, which almost immediately became the bank of Bengal. This was one of the three presidency banks, the other two being the bank of Bombay and the bank of madras, all three of which were established under charters from the British east India company. For many years the presidency banks acted as quasi-central banks, as did their successors. The three banks merged in 1921 to form the imperial bank of India, which, upon India's independence, became the state bank of India in 1955. Structure of Indian banking as per section 5(b) of the banking regulation act 1949: "banking" means the accepting, for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise, and withdrawal by cheque, draft, order or otherwise." All banks which are included in the second schedule to the reserve bank of India act, 1934 are scheduled banks. These banks comprise scheduled commercial banks and scheduled cooperative banks. Scheduled commercial banks in India are categorised into five different groups according to their ownership and / or nature of operation.

Besides the nationalized banks (Majority Equity Holding Is with The Government), The State Bank of India (SBI) (Majority Equity Holding Being with The Reserve Bank of India) And the Associate Banks of SBI (Majority Holding Being with State Bank of India), The Commercial Banks Comprise Foreign and Indian Private Banks. While The State Bank of India and Its Associates, Nationalized Banks and Regional Rural Banks Are Constituted Under Respective Enactments of The Parliament, The Private Sector Banks Are Banking Companies as Defined in The Banking Regulation Act. These Banks, Along with Regional Rural Banks, Constitute the Public Sector (State Owned) Banking System in India. The Public Sector Banks in India Are Back Bone of The Indian Financial System. The Cooperative Credit Institutions Are Broadly Classified into Urban Credit Cooperatives and Rural Credit Cooperatives. Scheduled Co-Operative Banks Consist of Scheduled State Co-Operative Banks and Scheduled Urban Co-Operative Banks Regional Rural Banks (RRB) Are State Sponsored, Regionally Based and Rural Oriented Commercial Banks. The Government of India Promulgated the Regional Rural Banks Ordinance On 26th September 1975, Which Was Later Replaced by The Regional Rural Bank Act 1976. The Preamble to The Act States the Objective to Develop Rural Economy by Providing Credit and Facilities for The Development of Agriculture, Trade, Commerce, Industry and Other Productive Activities in The Rural Areas, Particularly to Small and Marginal Farmers, Agricultural Labourers, Artisans and Small Entrepreneurs. The Reserve Bank of India Is the Central Bank of The Country. Central Banks Are Relatively Recent Innovation and Most Central Banks, As We Know Them Today, Were Established Around the Early Twentieth Century. The Reserve Bank of India Was Set Up on The Basis of The Recommendations of The Hilton Young Commission. The Reserve Bank of India Act, 1934 (Ii Of 1934) Provides the Statutory Basis of The Functioning of The Bank, Which Commenced Operations on April 1, 1935.
The Bank Was Constituted To

* Regulate The Issue of Banknotes
* Maintain Reserves with A View to Securing Monetary Stability.
To Operate the Credit and Currency System of The Country to its Advantage.

## 2. REVIEW OF LITERATURE

AVN Murty, e Roshma Chowdary IOSR journal of business and management (IOSR-JBM), 20 (2), 82 91, 2018 abstract interest rate risk represents one of the key forms of financial risk faced by banks it has given rise to an extensive body of search mainly focused on the estimation of sensitive of banks stock returns to changes in interest rates profitability is a major concern for the banking sector the public sector commercial banks are the back bone of Indian economy and it supports many ways many sectors like agriculture, small business, small industries, big industries, directly in providing the finance every research has its own base and the outcomes are based on the type of study in the process of review of literature in books, journals, annual reports, websites of banking sector it has been observed that there are many deficiencies in the performance of the banking sector. It is expected that banks have to monitor, maintain, and manage their assets and liabilities portfolios in a systematic manner taking in to an account the various risk involved in these areas. Profit and loss account and balance sheet risk of a bank can have a significance influence on interest rate risk the rise and fall in the interest rate has great impact on the profitability and return on equity and return on assets. The present research work focuses on the impact of interest rate changes on profitability on the banking industry in India the study coves a period of 30 years and a model that was developed was regression analysis to valid the study a minimum of 0.05 level of significance is consider very important to justice the impact of interest rate change on the profitability of the public sector and commercial banks. Journal of social commerce 2 (1), 1-10, 2022 the study designed the impact of an interest rate change on the profitability of the banking sector in India. In this work comparative analysis of various profitability performance ratios like ROA, ROE, ROCE, net profit margin ratio, eps, etc… and also find out the impact of interest rate on banks profitability with the help of correlation and regression analysis of selected nine nationalized banks in India. The data is collected through various annual reports of selected respective banks from 2011-12 to 2019-20. For the analysis, the data researchers have used various statistical tools like mean, ratio, correlation analysis, and regression analysis. This study concluded that out of all selected ratios, ROA, ROCE, net profit margin ratio, net interest income/total assets, net interest margin ratio and capital adequacy ratio indicated that null hypothesis is rejected which means there is a significant difference between these ratios of selected nationalized banks during the study period and also found that bank rate has significantly impacted on net profit margin ratio in all selected nationalized banks in India. Sangeeta d Misra international journal of Indian culture and business management 10 (2), 193-211, 2015 this study makes an attempt to examine the determinants of bank profitability in India taking panel data of 121 banks from the year 2000 to 2011. Two measures of profitability have been considered, namely return on assets (ROA) and return on equity (ROE) and two fixed effects regression equations have been run taking ROA and ROE as dependent variables. The regression results show asset quality; ratio of loans to total assets; net interest margin; and non–interest income as a percentage of total assets emerging as significant determinants of both measures of bank profitability. For the ROE measure, apart from these indicators, two more variables have come out to be significant determinants of profitability, namely size of bank and capital adequacy ratio. Both regression equations also show that macroeconomic factors of the Indian economy are not significant determinants of bank profitability in India. Suzan Dsouza, Mustafa Raza Rabbani, Iqbal Thonse Hawaladar, Ajay Kumar Jain International Journal of Financial Studies 10 (4), 93, 2022 This study aims to determine the impact of banking efficiency on the profitability of the Indian banking division. The ratios (key variables) used in the study are mentioned by the Reserve Bank of India—RBI (Central bank of India). Through a quantitative approach, pooled panel regression, univariate analysis, correlation, and descriptive statistics models are used by taking annual data of the Indian banking division from 2001 to 2020 available on the Thomson Reuters (Refinitiv) Database. Unbalanced cross-sectional data (panel data) comprising 527 bank-year observations for 33 Indian banks were studied. It was decided to evaluate the impact of efficiency (cost to income ratio and staff expenses to total expenses ratio) on the profitability (return on assets and net interest margin ratio) of the banks from the Indian banking division.

The results revealed that the cost to income ratio has a significant negative impact on the bank return on assets and net interest margin ratio.

The staff expenses to total expenses ratio have a significant positive impact on the bank return on assets and a positive nonsignificant impact on the bank net interest margin ratio. Faozi A Almaqtari, Eissa A Al-Homaidi, Mosab I Tabash, Najib H Farhan International Journal of Finance & Economics 24 (1), 168-185, 2019 The current study examines the determinants of profitability of Indian commercial banks. The analysis is conducted over a period of 10 years in which the Indian banking sector has gone under different changes such as demonetization and issues related to banking sector sustainability and banking sector frauds. The analysis is based on balanced panel data over a period ranging from 2008 to 2017 for 69 commercial Indian banks. Profitability of Indian banks is measured by two proxies, namely, return on assets (ROA) and return on equity (ROE), whereas bank size, assets quality, capital adequacy, liquidity, operating efficiency, deposits, leverage, assets management, and the number of branches is used as bank-specific factors. Further, a set of macroeconomic determinants such as gross domestic product, inflation rate, interest rate, exchange rate, financial crisis, and demonetization are used as independent variables. Stationary test along with pooled, fixed, random effect models and panel correction standard error are used in this study. The results revealed that bank size, the number of branches, assets management ratio, operational efficiency, and leverage ratio are the most important bank-specific determinants that affect the profitability of Indian commercial banks as measured by ROA. Furthermore, among the bank-specific determinants, the results revealed that bank size, assets management ratio, assets quality ratio, and liquidity ratio are found to have a significant positive impact on ROE. With regard to the macroeconomic determinants, the results revealed that the inflation rate, exchange rate, the interest rate, and demonization are found to have a significant impact on ROA. However, in the case of ROE, the results show that all macroeconomic determinants except demonization have a significant impact on the bank's profitability as measured by ROE.

## 3. OBJECTIVES

**I. To Analyse the Historical Trends**

Examine historical data on interest rate changes in India over the past few decades.
Identify patterns and significant shifts in interest rates and their immediate effects on the banking industry.

**II. To Assess the Impact on Banking Profitability**

Evaluate the direct impact of interest rate fluctuations on key profitability metrics of banks, such as net interest margin (NIM), return on assets (ROA), and return on equity (ROE).

**III. To Examine Macroeconomic Interactions**

Study the interplay between interest rate changes, economic growth, and inflation, and their combined effect on the banking sector's profitability.
Assess how macroeconomic stability or volatility impacts the banking sector's response to interest rate changes.

## 4. RESEARCH METHODOLOGY

### A. MEANING OF RESEARCH:

Research methodology is a way to find out the result of a given problem on a specific matter or problem that is also referred as research problem. In methodology, researcher uses different criteria for solving/searching the given research problem. Different sources use different type of methods for solving the problem.

### B. DEFINITION OF RESEARCH:

Research comprises "creative work undertaken on a systematic basis in order to increase the Stock of knowledge, including knowledge of man, culture and society, and the use of this stock of Knowledge to devise new applications."

### C. OBJECTIVES OF THE RESEARCH METHODOLOGY:

1.To calculated interest rates determining by reserve bank of India on quarterly basics and converting it on annual basis.
2. As nationalized have opened its door's by floating the shares in the stock market, it's important to Know higher the return on equity more will be the equity price in the stock market.
3. When the banking industry is diverting its huge resources in the form of capital on different projects.

## 5. DATA ANALYSIS

**Hypothesis**

H1. The interest rate has a significant effect on return on assets of the bank.
H2. The interest rate has a significant effect on return on capital employed of the bank.
H3. The interest rate has a significant effect on return on equity of the bank.

**Significance of the study**

There are various issues in banking sector which influences the efficiency of the banking sector. In the present study the independent variable is interest rate and the study is its impact on the profitability of the commercial banks in India. The findings of the study can be taken as the guidelines to curb the falling profitability performances of the commercial banks India.

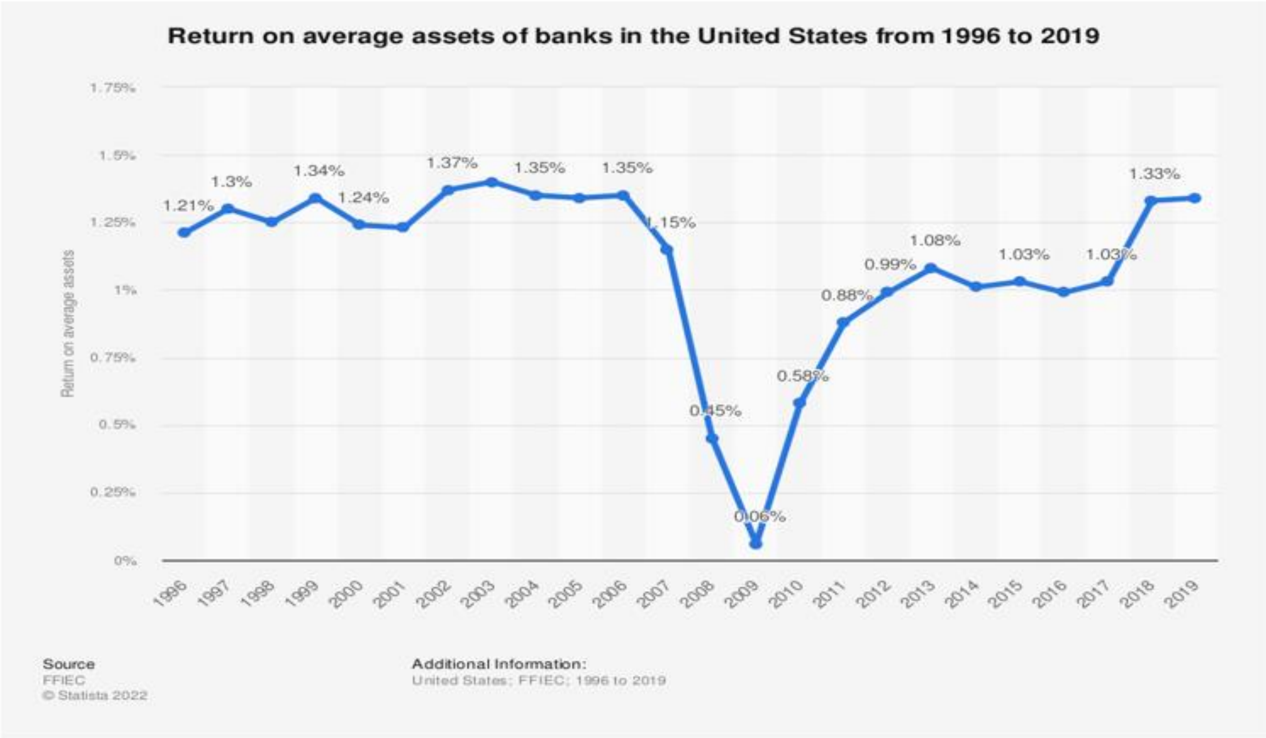
**Limitations of the study**

The present study was the impact of interest rate on profitability is under taking though have Some outcome suffers from certain limitation. Availability of information is a major setback in doing any Research work. Further, availability of data, limitation of time, consistence with the resources as some of the major our circular in during empirical study.

***TABLE.1 ROA (Return on assets)***
***Coefficients***

| Model | Unstandardised coefficients | | Standardized coefficient | T | Sig. |
|---|---|---|---|---|---|
| | B | St. Error | Beta | | |
| **1. (constant)** | 2.330 | .864 | | 2.696 | .012 |
| **Interest rates** | -.219 | .108 | -.370 | -2.034 | .052 |

a. Dependent variable: ROA



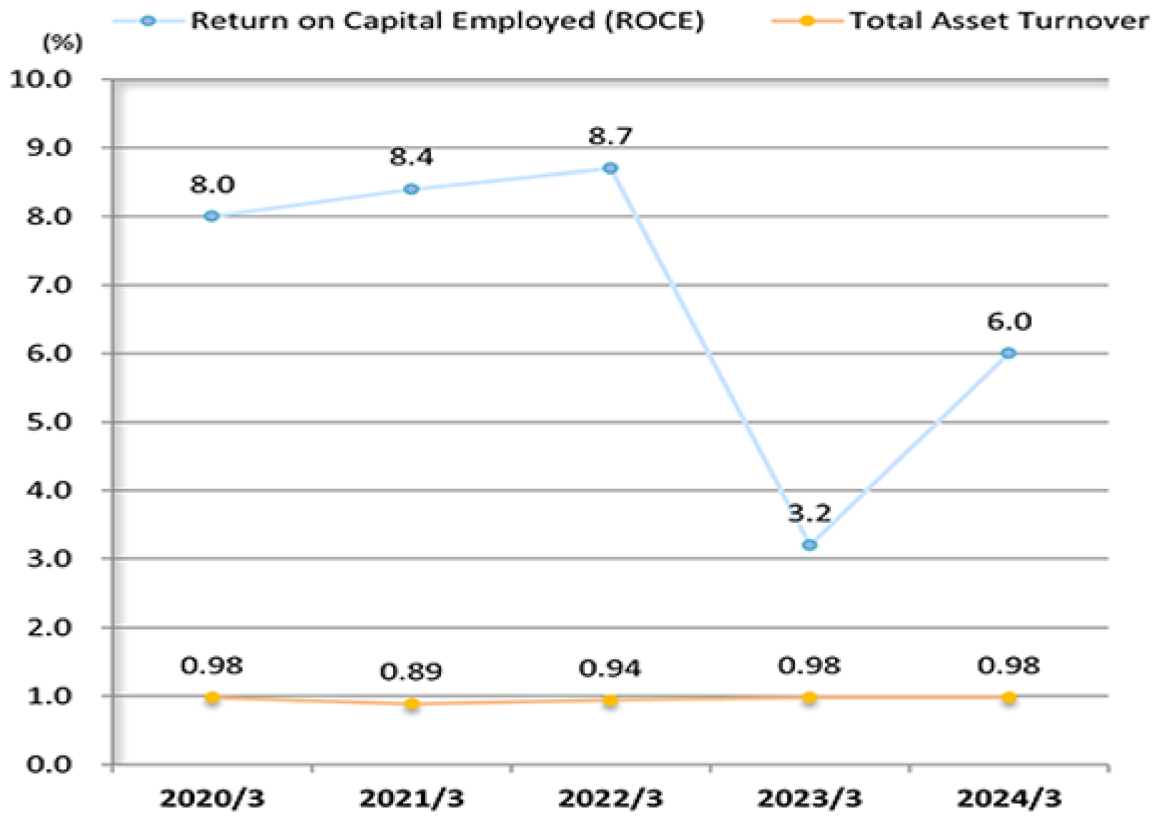

The present analysis of the study is begun to valid the hypothesis that is return on assets. In hypothesis the dependent variable is return on assets and independent variable is interest rates are taken. The alternative hypothesis satisfies outcome of the regression and the coefficient is very well Within the significance level of 0.05 which means the alternative hypothesis one is accepted and rejected null hypothesis.

**Interpretation:** the study makes it very clear the first group of 7 banks where alternative hypothesis is accepted are doing well and maintain a good outcome of return on assets but in case of 11 other banks the alternative is rejected it means the bank have to make the measure to improve the performance.

***Table-2 RCE (Return on capital employed):***
***Coefficients***

| MODEL | Unstandardized co-efficient | | Standard co-efficient | T | Sig. | |
|---|---|---|---|---|---|---|
| | B | Std. error | Beta | | | |
| **1. (Constant)** | 24.718 | 6.344 | | 3.896 | .001 | |
| **Interest rates** | -2.113 | .791 | -.464 | -2.670 | .013 | |

The present analysis of the study is begun to valid the hypothesis that is return on capital employed. In hypothesis the dependent variable is return on capital employed and independent variable is interest rates are taken. The alternative hypothesis satisfies outcome of the regression and the coefficient is very well within the significance level of 0.05 which means the alternative hypothesis one is accepted and null hypothesis. The study makes it very clear the first group of 7 banks where alternative hypothesis is accepted are doing good and maintain a good outcome of return on assets but in case of 11 other banks the alternative is rejected it means the bank have to make the measure to improve the performance.




## 6. FINDINGS

Banking industry is the most vibrant sector of Indian economy. Banks have been operating since pre independence and post-independence. Soon after the nationalisation, banking industry has been discharging many political, social and economic issues to make financial condition very strong. The Present study is on outcome of an approach to know the effect of interest rate changes on profitability of banks. The sample collected is convenient in nature because the total public sector banks are taken to be the sample size. As many as 3 hypotheses were taken on the basis of research gap found and objectives designed. Financial statements of 30 years of 19 commercial banks were collected from cmie reports, and to test the data linear regression model was used. The results during the period of the Study supported in case of some years and didn't support in case of some years at 0.05% level of significance. It cannot be presumed that banks are not performing well if hypothesis is accepted or rejected. There are multiple reasons which have direct impact on the changes of interest rates and its impact on profitability of the banking industry. The imbalances in the performance can be reduced to a minimum level by taking corrective steps. Since economic conditions are changing in nature due to several factors. The study is only a small attempt to know in certain issues relating to the performance of Banking industries.

## 7. CONCLUSION

The regression result for commercial banks shows that the interest rate has significant effects on the profitability (ROA) in the commercial banks (alternate accepted). The value of 0.05 level of significance shows that in case of commercial banks the interest rate affects the profitability (ROA) about 60 percent. In the case of return on equity (roe) in commercial banks the interest rate has significant effects on profitability (alternate accepted). But in case of roe the interest rate only affects 60 percent the Profitability. In the case of return on equity (RCE) in commercial banks, the interest rate has significant effects on profitability (alternate accepted). But in case of roe the interest rate only affects 30 percent the profitability.

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