The Impact of Macroeconomic Variables on the Efficiency of India's Scheduled Banking Sector

Dr. Y. Azith

Associate Professor
Aurora's PG College, Uppal.

Abstract:
This article examines the influence of macroeconomic conditions on the performance of Indian scheduled commercial banks from 2006 to 2015. Specifically, it analyzes the effects of Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Exports, Foreign Exchange Reserves (FER), Stock Market Turnover (STO), Inflation Rate (INFR), and Real Interest Rate (RIR) on key performance indicators: deposits, advances, and net profit. Applying the Ordinary Least Squares (OLS) method, the analysis reveals that FDI, GDP, Exports, Stock Market Turnover, and the Real Interest Rate are statistically significant factors influencing bank performance. The findings underscore the critical link between the broader economic environment and the banking sector's financial health.

Keywords: Macroeconomic indicators, Ordinary least square, commercial banks and CAGR.

INTRODUCTION

Every nation's economic progress is dominated by the role of the bank. They control a huge portion of the money supply in circulation. They can support in this form and character of production in any country due to their effect over the volume of Bank money. Economic development is a fluid and ongoing process. Banks are the mainstay of a country's economic advancement since economic development is heavily dependent on the level of mobilisation of resources and investments, as well as the operational efficiency of the various sectors of the economy. As a result, in today's contemporary economy, banks have become an integral element of all economic operations in India. As a result, the purpose of this research is to investigate the impact of macroeconomic factors on the deposits, advances, and net profit of commercial banks in India.

REVIEW OF LITERATURE

Selvaraj N and Balaji Kumar P (2015) the study entitled "A Study on the Deposit Mobilization Pattern of the Dindigul District Central Co-operative Bank Limited".

The principle of cooperation, all sociability and mutual aid, organic life advancement, organism improvement, and species strengthening become completely incomprehensible. The rationale for the establishment of District Central Co-operative Banks is to serve as an intermediary between the rural-biased primary credit society and the urban-biased provincial Co-operative Bank. Deposits are the lifeblood of any financial institution, especially cooperative banks, because they are the primary source of funds for lending activities. Banks provide a variety of deposit schemes to the general public, such as fixed deposits, savings deposits, current deposits, and so on. The Dindigul District Central Co-operative Bank does not rely solely on internal resources.

Dr.K.Karthikeyan and S.Vadivel Raja (2014) examine that "Deposit Mobilization of Public Sector Banks in India -Pattern Wise Analysis" Capital accumulation is necessary for economic growth and development. The banking sector has become increasingly essential in the financial intermediation process by mobilising savings through the deposit process. This article investigates the trend and growth of deposits in India's public sector banks. The study relied heavily on secondary data, and statistical procedures such as mean, percentage, Compound Growth Rate (CGR), trend analysis, and Analysis of Variance (ANOVA) were employed. It covers the ten fiscal years from 2003 to 2012.

Dr. (Smt.) Rajeshwari M. Shettar (2014) the study entitled as "Deposit Mobilization and Socio-Economic Impact: A Case Study of Union Bank of India"
The research is a modest attempt to examine the socioeconomic impact of bank deposits. Deposit mobilisation is a necessary component of banking activities. The mobilisation of savings through intense deposit collecting is regarded as the most important responsibility of banking in India today. Commercial banks' principal function is to accept deposits. As a result, one of the fundamental breakthroughs in present Indian banking activity is deposit mobilisation. The purpose of this article is to examine the socioeconomic consequences of deposit mobilisation. The study takes into account three main forms of deposits: term deposits, current accounts, and savings deposits. The data for the study was gathered from Union Bank of India Annual Reports.

Tafirei Mashamba, Rabson Magweva, Linda C. Gumbo (2014) the study entitled as "Analysing the relationship between Banks' Deposit Interest Rate and Deposit Mobilisation: Empirical evidence from Zimbabwean Commercial Banks (1980-2006)" The purpose of this study was to examine the relationship between bank deposit interest rates and deposit mobilisation in Zimbabwe from 2000 to 2006. To demonstrate the relationship between the answer and explanatory factors, they created an Ordinary Least Squares (OLS) model. Pearson's correlation coefficient (R) was used to indicate the relationship's strength. The data was initially evaluated for stationary using the Augmented Dicker-Fuller Test, multicollinearity using the correlation matrix, and autocorrelation using the Durbin-Watson statistic before running the regression equation. For the time under consideration, the analysis discovered a positive association between deposit rates and bank deposits, and all other explanatory variables were statistically significant. Furthermore, the coefficient of determination (R^2) was found to be significantly high, indicating that the explanatory variables could explain for the complete variation in the dependent variable – deposits.

Ray (2013) examined "the relationship between macroeconomic variables and stock prices. The Industrial production presents a measure of overall economic activity in a country and moves stock prices through its influence on expected future cash flows. Thus, it is expected that an increase in industrial production index is positively related to stock price. The causal relationship between industrial production and stock price in India is covered for a period,
1990-91 to 2010-11. The findings specified that there exist no significant causal relationship between industrial production and share price in India."
The result of regression, of course, suggests that there may have been positive relation between stock price and real industrial production. The increase in production of industry can enhance stock price and vice versa.

Ayalew (2013) investigated "the determinants of domestic saving in Ethiopia using time series annual data form 1970/71-2010/11, Using an ARDL bounds testing Approach and Error correction model (ECM) to capture both short run and long run relationships. The overall findings of the study underlined the importance of raising the level of income in a sustainable manner, minimizing the adverse impacts of budget deficit and inflation rate and creating competitive environment in the financial sector."

Rao & Lakew (2012) explored the key determinants of profitability of commercial banks operating in Ethiopia using panel data set of banks over the period 1999/00- 2008/09. "The external factors were related to the industry and the macroeconomic scenarios within which the banks operate. The result of the study indicated that external factors had a statistically insignificant effect. Inflation was found to be statistically insignificant but it is positively related to bank profitability. Real GDP growth rate effect was found to be statistically insignificant though with a positive sign."

Mohammad (2011) uses "Multivariate Regression Model computed on Standard OLS formula and Granger causality test to model the impact of changes in selected microeconomic and macroeconomic variables on stock returns in Bangladesh. He examines monthly data for all the variables under study covering the period from July 2002 to December 2009. The study finds a negative relationship between stock returns and inflation as well as foreign remittance while market Price/Earnings and growth in market capitalization have

a positive influence on stock returns. However, no unidirectional Granger Causality is found between stock returns and any of the independent variables and the lack of Granger Causality reveals the evidence of an informally inefficient market."

Sufian and Kamarudin (2012) "identified bank specific characteristics and macroeconomic determinants of profitability in the Bangladesh's banking sector over the years 2000 to 2010 using a sample of 31 commercial banks in Bangladesh. The determinants were identified using multiple regression analysis. The results revealed that macroeconomic determinants significantly influenced profitability."

STATEMENT OF THE PROBLEM

Commercial banks make up the banking sector in India. A progressive banking industry is critical to the country's economic growth, and profitability is crucial for a well-functioning banking sector since it helps to absorb losses from banking activities. As a result, it is critical to comprehend the aspects that have an impact on the operations of a bank. Over the last few years, India's financial markets and institutions have seen tremendous consolidation and diversification. Furthermore, the global financial crisis has an impact on the performance of Indian banks. All of the aforementioned changes are likely to provide significant challenges to Indian banks, as the environment in which they operate has altered swiftly. As a result, the current study seeks to comprehend the effects of macroeconomic variables on the deposits, advances, and net profit of India's Scheduled Commercial Banks. The following questions arise as a result of this:

1. How do the Commercial Banks perform, in terms of Profitability?
2. To what extent have the Macroeconomic Indicators affect the Deposits, Advances & Net Profit of Commercial Banks in India?

OBJECTIVES OF THE STUDY

The objectives of the study are

1. To examine the trend and growth pattern of Deposit Mobilization, Advances and Net Profit of Commercial Banks in India.
2. To find the impact of Macroeconomic variables on Deposit Mobilization, Advances and Net Profit of Commercial Banks.

Hypotheses of the Study

H_{01}: There is no significant effect of Macroeconomic variables on Deposit Mobilization.

H_{02}: There is no significant effect of Macroeconomic variables on Advances.

H_{03}: There is no significant effect of Macroeconomic variables on Net Profit.

Methodology

Sources of Data

To accomplish the objectives of the study, secondary data were used. It has been collected from bank records, published and unpublished financial reports, journals, magazines and websites.

Period of the Study

The study is chronological and covers a period from 2006 -2015.

Tools for Analysis

The collected data was analyzed through various tools such as trend analysis, Mean, Standard Deviation, Coefficient of Variation, CAGR and OLS.

RESULTS AND DISCUSSIONS

Results of descriptive statistics

Table 1 presents the descriptive statistics of deposits and advances of our model. The table 1 shows the characteristics of the deposits and advances used by revealing the statistical mean, standard deviation and CAGR.

Year	Deposits	Advances	Net Profit
2006	17328.57	11243	5.32
2007	21090.49	15070.77	5.39
2008	26119.34	19311.89	5.49
2009	31969.40	23619.14	5.63
2010	38341.10	27755.49	5.72
2011	44928.26	32447.88	5.76
2012	52079.69	39420.82	5.85
2013	59090.82	46118.52	5.91
2014	69342.80	53931.58	5.96
2015	79134.43	61390.45	5.91
Mean	43942.49	33030.95	5.69
Std.Dev	20825.24	16850.52	0.22
CAGR	16.40	18.50	1.05

Table .1: Descriptive statistics of Deposits and Advances

The table shows that the Mean of Total Deposits is 43942.49. The Total Deposits is high in the year 2015 by 79134.43 billion followed by in the year of 2014 by 69342.80 billion and less in the year of 2006 by 17328.57 billion. The Standard Deviation of Total Deposits is 20825.24. The Compound Annual Growth Rate of Total Deposits is 16.40 per cent. The Mean of Advances is 33030.95. The Standard Deviation of Advances is 16850.52. The Compound Annual Growth Rate of Advances is 18.50 per cent. The Advances is high in the year 2015 by 61390.45 million and less in the year of 2006 by 11243 million.

The Mean of Net profit ratio is 5.69. The Standard Deviation of Net profit ratio is 0.22. The Compound Annual Growth Rate of Net profit ratio is 1.05 per cent. The Net profit ratio is high in the year 2014 by 5.96 and less in the year of 2006 by 5.32.

Table 2 presents the descriptive statistics for all the macroeconomic variables in our model. The Table 2 shows the characteristics of the variables used by revealing the statistical mean, standard deviation, CV and CAGR.

Year	FDI	GDP	Exports	FER	STV	INFR	RIR
2006	2.57	4.51	3.74	3.73	6.06	0.75	0.79
2007	2.84	4.60	3.85	3.82	6.20	0.81	0.65
2008	3.01	4.63	3.96	3.94	6.29	0.74	0.84
2009	3.14	4.70	4.01	4.09	6.55	0.99	0.63
2010	3.28	4.75	4.12	4.10	6.44	1.18	0.76
2011	3.20	4.81	4.11	4.10	6.62	0.98	0.41
2012	3.12	4.89	4.33	4.14	6.55	0.81	0.54
2013	3.19	4.95	4.33	4.18	6.45	1.05	0.45
2014	3.17	5.00	4.39	4.20	6.43	0.96	0.58
2015	3.27	5.06	4.45	4.26	6.45	0.77	0.79
Mean	3.08	4.79	4.13	4.06	6.40	0.90	0.65

Std.Dev	0.22	0.18	0.24	0.17	0.17	0.14	0.15
CV	7.18	3.84	5.86	4.21	2.72	16.34	23.18
CAGR	2.45	1.15	1.76	1.33	0.63	0.29	0.00

Table.2: Descriptive Statistics of Macroeconomic Factors (Log)

Table shows that Stock market turnover has the highest mean value of 6.40 followed by Gross Domestic Product 4.79 and the lowest mean value is Real Interest Rate with 0.65. Standard deviation is high in Exports with 0.24 followed by Foreign Direct Investment with 0.22 and low in Inflation rate with 0.14. It indicates that there is more variation in the export followed by Foreign Direct Investment. GDP is found to be more consistent with 3.84 followed by Inflation rate with 16.34 and low consistency in Real Interest Rate with 23.18. FDI has the highest growth rate with 2.45 followed by Exports with 1.76 and Real Interest Rate does not have any growth throughout the study period.

Analysis of Impact of Macroeconomic Variables on Deposits, Advances and Net Profit Analysis of Impact of Macroeconomic Variables on Deposits

H_{01}: There is no significant effect of Macroeconomic variables on Deposits

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
EXPORTS	0.0558	0.1142	0.4885	0.0335
FDI	0.1407	0.0504	2.7912	0.0480
FER	-0.0111	0.1114	-0.1004	0.9292
GDP	0.9835	0.0898	10.9460	0.0082
INF	-0.0121	0.0387	-0.3127	0.0041
RIR	-0.0183	0.0211	-0.8700	0.4760
STV	0.0161	0.0726	0.2229	0.0443
C	-1.8788	1.0987	-1.7100	0.2294
R-squared	0.6992	**Durbin-Watson stat**		2.7644
Adjusted R-squared	0.6768	**Prob(F-statistic)**		0.0024
		F-statistic		405.3358

Table .3: OLS Analysis of Macroeconomic variables on Deposits
Dependent Variable: TD Significant at 5% level

The above table demonstrates the results of Ordinary Least Square Regression for impact of macroeconomic variables on deposit mobilization for the study period of 2006 to
2015. When Deposit Mobilization is a dependent variable, R-square is 0.699 indicating that, 69.9 per cent of performance variation is accounted for by the combined linear impact of independent variables. Adjusted R square value is 0.676, implying that the model has accounted for 67.6 per cent of the variance in the criterion variable. The F-statistics is significant at all variables means that the hypothesized relationship between the total deposit and macroeconomic variables is validated. The value of Durbin-Watson statistics is 2.76 signifying that the model is suffering from Auto-correlation. The coefficient for impact of macroeconomic variables on Deposit Mobilization implies that Foreign Direct Investment, Gross Domestic Product, Exports and Stock Market Turnover are significant at 5 per cent significance level.
T-Statistic values prove that Foreign Direct Investment, Gross Domestic Products, Exports and Stock Market Turnover have positive relationship with Deposit Mobilization. Foreign Exchange Reserve, Inflation Rate and Real Interest Rate have negative relationship with Deposit Mobilization. Foreign Direct Investment has positive relationship and significant on Deposit Mobilization which means the Foreign Direct Investment cause similar impact in Deposit Mobilization. Gross Domestic Product has positive relationship Deposit Mobilization which means the total number of goods produced in a country persuades the Deposit

Mobilization. Exports have positive relationship Deposit Mobilization which means the increase in exporting of goods from our country also increases the Deposit Mobilization. Stock Market Turnover has positive relationship Deposit Mobilization which means the increase in Stock Market Turnover also raises the Deposit Mobilization. Inflation Rate has negative but significant impact on Deposit Mobilization which means the Inflation Rate sources converse impact in Deposit Mobilization. Foreign Exchange Reserve and Real interest rate have negative and insignificant impact on Deposit Mobilization.

Analysis of Impact of Macroeconomic Variables on Advances

H02: There is no significant effect of Macroeconomic variables on Advances.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	1.386851	0.778315	1.781863	0.0167
FER	-0.342812	0.784610	-0.436920	0.0548
FDI	0.192145	0.125861	1.526640	0.0564
Exports	0.065071	0.315812	0.206043	0.0258
STV	0.138897	0.285626	0.486290	0.0348
RIR	0.029735	0.085333	0.348463	0.0308
INFR	-0.000116	0.057006	-0.002037	0.0526
C	4.636163	3.677545	1.260668	0.0146
R-squared	0.799599	**Durbin-Watson stat**		2.318061
Adjusted R-squared	0.748194	**Prob(F-statistic)**		0.001404
		F-statistic		711.4577

Table .4: OLS Analysis of Macroeconomic variables on Advances
Dependent Variable: Advances Significant at 5% level

The above table displays the results of Ordinary Least Square Regression for impact of macroeconomic variables on advances for the study period of 2006 to 2015. When Advances is considered as dependent variable, R-square is 0.799 indicating that, 79.9 per cent of performance variation is accounted for by the combined linear impact of independent variables. Adjusted R square value is 0.748, implying that the model has accounted for 74.8 per cent of the variance in the criterion variable. The F-statistics is significant at all levels means that the hypothesized relationship between the Advances and macroeconomic variables is validated. The value of Durbin-Watson statistics is 2.31 signifying that the model is suffering from Auto-correlation. The coefficient for impact of macroeconomic variables on Advances implies that Gross Domestic Product, Exports, Stock Market Turnover and Real Interest Rate are significant at 5 per cent significance level.

Analysis of Impact of Macroeconomic Variables on Net Profit

H03: There is no significant effect of Macroeconomic variables on Net Profit.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS	0.0558	0.1942	0.4885	0.0084
FDI	0.1407	0.0592	2.7812	0.0196
FER	-0.0231	0.2224	-0.1004	0.9658
GDP	0.6734	0.0848	10.2646	0.0493
INF	-0.0947	0.0346	-0.3127	0.2716
RIR	-0.0139	0.0211	-0.87	0.0291

STV	0.0172	0.0637	0.2889	0.0368
C	-1.8788	1.0987	-1.331	0.2294
R-squared	0.5446	**Durbin-Watson stat**		2.8259
Adjusted R-squared	0.5418	**Prob(F-statistic)**		0.0017
		F-statistic		397.2371

Table .5: OLS Analysis of Macroeconomic variables on Net Profit
Dependent Variable: Net_Profit Significant at 5% level

The above table displays the results of Ordinary Least Square Regression for impact of macroeconomic variables on Net Profit for the study period of 2006 to 2015. When Net Profit is considered as dependent variable, R-square is 0.5446 indicating that, 54.4 per cent of performance variation is accounted for by the combined linear impact of independent variables. Adjusted R square value is 0.5418, implying that the model has accounted for 54.1 per cent of the variance in the criterion variable. The F-statistics is significant at all levels means that the hypothesized relationship between the Net Profit and macroeconomic variables is validated. The value of Durbin-Watson statistics is 2.82 signifying that the model is suffering from Auto-correlation. The coefficient for impact of macroeconomic variables on Net Profit implies that Foreign Direct Investment, Gross Domestic Product, Exports, Stock Market Turnover and Real Interest Rate are significant at 5 per cent significance level.
Foreign exchange reserve and Inflation Rate has negative relationship with the Net Profit. GDP, FDI, Exports, Stock Market Turnover and Real Interest Rate are those variables which has positive relationship with Net Profit.

CONCLUSION

This study has investigated the effect of macroeconomic factors on the performance of commercial banks in India. On the basis of overall analysis it can be concluded that Foreign Direct Investment, Gross Domestic Product, Stock market Turnover, Exports and Real Interest Rate are relatively more significant and likely to influence the performance of commercial banks in India. There is a positive relationship between these macroeconomic indiacators and performance of commercial banks. Considering the changes in macroeconomic indicators, being productively efficient Indian Banks can become more profitable even though if market concentration increases, due to the increase in number of market players within the industry.

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