



WWJMRD 2017; 3(12): 180-186
www.wwjmr.com
International Journal
Peer Reviewed Journal
Refereed Journal
Indexed Journal
UGC Approved Journal
Impact Factor MJIF: 4.25
e-ISSN: 2454-6615

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Impact of Macroeconomic Variables on the Performance of Scheduled Commercial Banks in India

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Abstract

The paper examines the impact of macroeconomic factors affecting the performance of Indian scheduled commercial Banks. The objective of the study is to analyse the effect of macroeconomic factors such as Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Exports, Foreign Exchange Reserves (FER), Stock Market Turnover (STV), Inflation rate (INFR) and Real Interest Rate (RIR) on Deposits, Advances & Net Profit of commercial banks. Ordinary least square is used to find the significant relationship among macroeconomic indicators and performance of commercial banks during the study period from 2006 to 2015. 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.

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

Introduction

Bank plays a chief role in the economic development of every nation. They have control over a large part of supply of money in circulation. Though their influence over the volume of Bank money, they can support in this nature and character of production in any country. Economic development is a dynamic and continuous process. Banks are the main stay of economic progress of a country, because the economic development highly depends upon the extent of mobilization of resources and investments and on the operational efficiency of the various segments of the economy. Thus, in the modern economy Banks have become a part of all economic activities in India. Hence this paper attempts to study the influence of macroeconomic factors on Deposits, Advances & 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 co-operation, all sociability and mutual aid, the progress of organic life, the improvement of the organism, and the strengthening of the species becomes utterly incomprehensible. The rationale for the establishment of District Central Co-operative Banks should be an intermediary agency between the primary credit society with rural bias and the provincial Co-operative Bank with urban bias. Deposits are the life blood of a banking institution, including co-operative banks, as they constitute the chief source of funds to undertake lending operations. The banks offer a number of deposit schemes to the public which include fixed deposit, saving deposit, current deposit and the like. The Dindigul District Central Co-operative Bank does not depend on its internal sources alone.

Dr.K.Karthikeyan and S.Vadivel Raja (2014) examine that "Deposit Mobilization of Public Sector Banks in India -Pattern Wise Analysis" Capital accumulation which in turn is essential to economic growth and development. The banking sector has played an increasing important role in the financial intermediation process by mobilization savings in the process of deposits this paper studies the trend and growth of deposits of public sector banks in India. The study mainly based on secondary data and the statistical tools like mean, percentage,

Compound Growth Rate (CGR), trend analysis and Analysis of Variance (ANOVA) have been used to the study. It covers a period of 10 financial 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 study is a modest attempt to analyze the socio-economic impact of bank deposits. Deposit mobilization is an integral part of banking activity. Mobilization of savings through intensive deposit collection has been regarded as the major task of banking in India today. Acceptance of deposits is the primary function of Commercial Banks. As such deposit mobilization is one of the basic innovations in current Indian Banking activity. In this paper, an attempt is made to analyze the socio-economic impact of deposit mobilization. Three different types of deposits namely, term deposits, current deposit and savings deposit is considered for the study. The data required for the study has been collected 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)” This study sought to analyse the relationship between banks’ deposit interest rates and deposit mobilization in Zimbabwe for the period 2000-2006. They developed an Ordinary Least Squares (OLS) model to show the relationship between the response and explanatory variables. Pearson’s correlation coefficient (R) was employed to demonstrate the strength of the relationship. Before running the regression equation the data was first tested for; stationary using the Augmented Dicker-Fuller Test, multicollinearity using correlation matrix and autocorrelation using the Durbin-Watson statistic. The study found a positive relationship between deposit rates and banks’ deposits for the period under study and all the other explanatory variables were statistically significant. Also, the coefficient of determination (R^2) was found to be significantly high showing that the explanatory variables were able to account for the total variation of 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.

Ali, Farhan, and Zafar (2011) examined the bank specific and macroeconomic determinants of profitability for commercial banks in Pakistan. They use ROA and ROE as profitability measures. This study used the descriptive statistics, Pearson correlation and regression analysis as Statistical techniques. They suggested that ROA has a positive relationship with size, total deposits to total assets ratio and operating income/total assets ratio, on the other hand ROA has negative association with capital and credit risk. ROE is positively related with capital, operating income/total assets ratio and total deposits to total assets ratio. GDP is one factor that has significant impact on the profitability of banks.

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. The relationship between economic growth and bank performance is negative and significant while the coefficient of inflation was significant and positive.

Statement of the Problem

In India the banking sector comprised of commercial banks. A progressive banking sector plays a vital role in the economic growth of the country and profitability is essential for the well-functioning banking sector, it supports to absorb losses resulting from the banking

operations. Therefore, it is important to understand those factors which have some effect on bank’s operations. During the last few years, financial markets and institutions in India have witnessed the significant change in terms of consolidation as well as diversification. Moreover the global financial crisis also affects the performance of banks in India. It is reasonable to assume that all of the above changes pose great challenges to Indian banks as the environment in which they operate has changed rapidly. Hence, the present study is focused to understand the effects of the macroeconomic indicators on the Deposits, Advances & Net Profit of Scheduled Commercial Banks in India. This raises the following questions:

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

H₀₁: There is no significant effect of Macroeconomic variables on Deposit Mobilization.

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

H₀₃: 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.

Table .1: Descriptive statistics of Deposits and Advances

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

Source: Computed Data

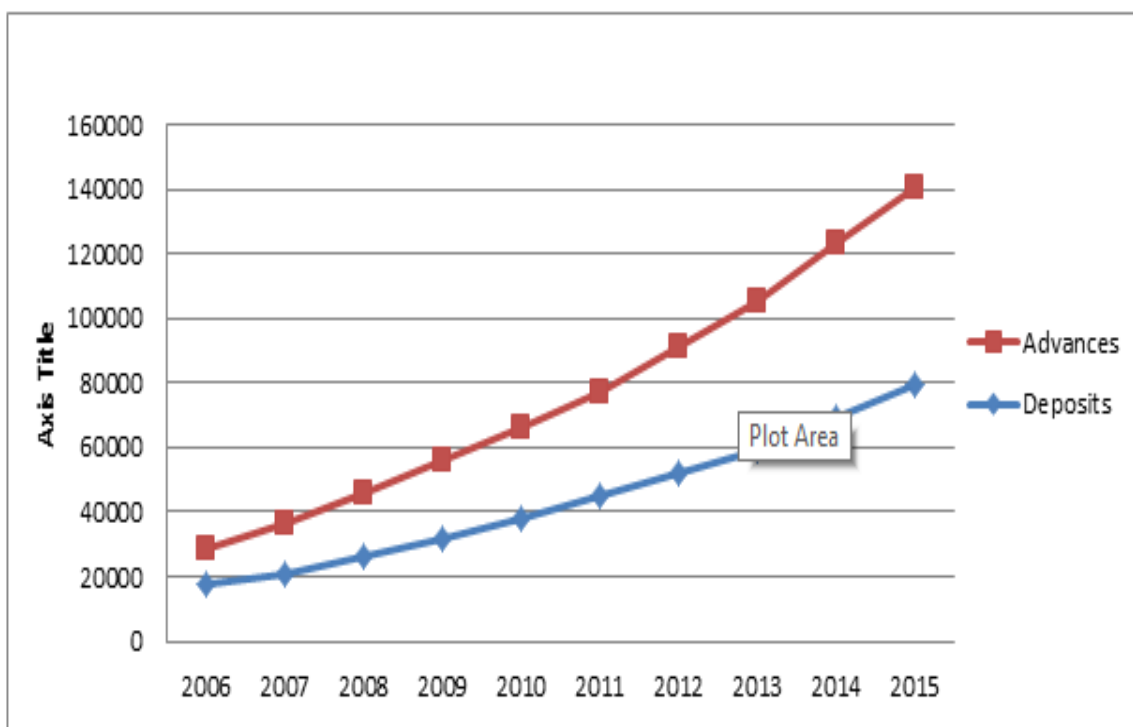


Fig. 1: Growth of Deposits and Advances

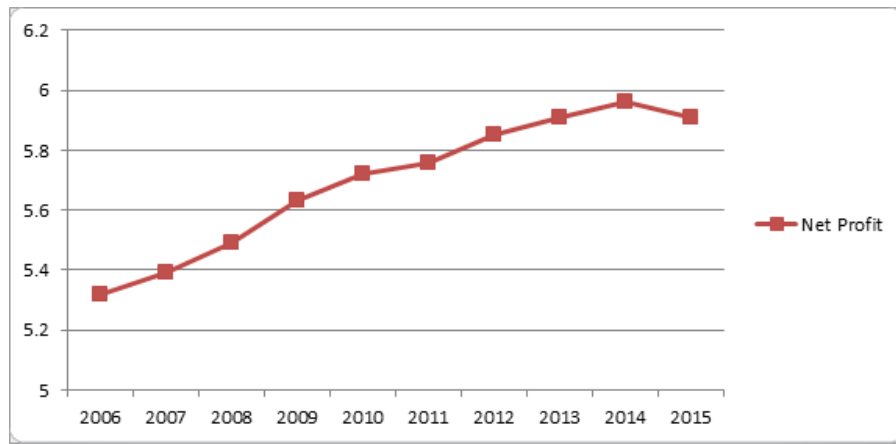


Fig. 2: Growth of Net Profit

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.

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

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

Source: Computed Data

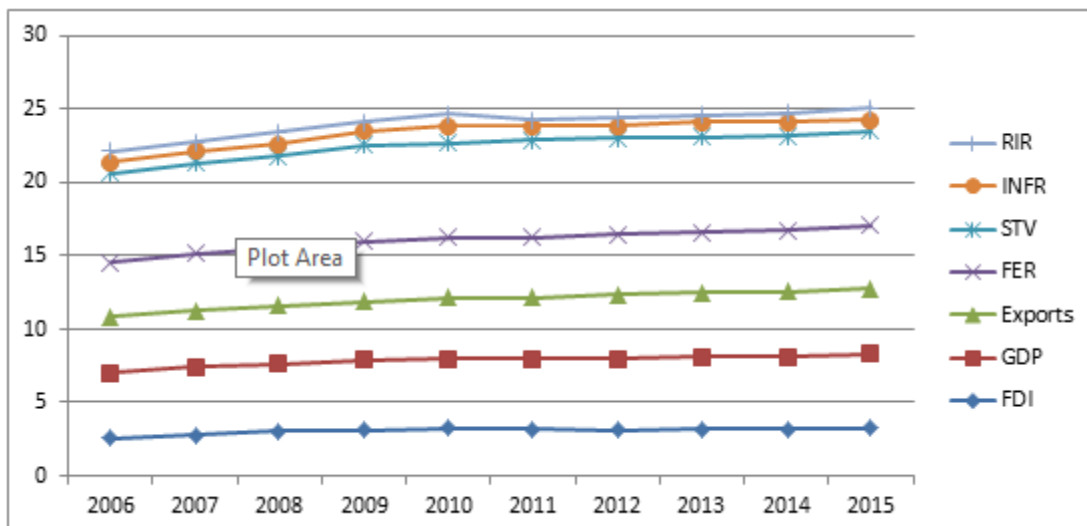


Fig.3: Flow of Macroeconomic factors

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

H₀₁: There is no significant effect of Macroeconomic variables on Deposits

Table .3: OLS Analysis 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	

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.

Table .4: OLS Analysis 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	

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.

Foreign exchange reserve and Inflation Rate has negative relationship with the Advances. GDP, FDI, Exports, Stock Market Turnover and Real Interest Rate are those variables which has positive relationship with Advances.

Analysis of Impact of Macroeconomic Variables on Net Profit

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

Table .5: OLS Analysis 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	

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 indicators 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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