Banking Sector Performance and Economic Growth - an Indian Experience

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PROLOGUE

The banking sector in India has experienced several shifts due to number of factors including mergers and consolidation, penalties and cancellation of several banking licenses, the push of demonetisation, the transition of digital banking, the rise of fintech services, etc. **(Singh, 2023)** There are 12 Public sector banks, 22 Private sector banks, 56 RRBs and 46 foreign banks currently working in India **(IBEF, 2023)**. Presently operating in India are 12 public sector banks, 22 private sector banks, 56 RRBs, and 46 foreign banks (IBEF, 2023). Banks and the RBI are putting a lot of effort into the credit facilities offered to entrepreneurs, self-help organizations, and individuals. It also includes micro-credit schemes for small-scale industries. Using several IT tools, the banks have significantly enhanced their online banking offerings in addition to their traditional banking offerings. Touchless transactions on smart cards simplify transactions.

The spread of banking services has further been enhanced by the initiatives such as financial inclusion, the policy of Jan Dhan Yojana and Post payment banks and the expansion of bank credit is an important predictor of GDP growth **(Singh, et.al. 2016)**. According to the data reported by **IBEF (2022)** (https://www.ibef.org/blogs/india-s-banking-sector-reforms), during the period 2016 to 2021, the outstanding credits of Indian public sector banks have risen up by Rs. 14.4 trillion. On the other hand, during the same period, the amount of outstanding credits of private sector banks has increased by Rs. 22.8 trillion, registering an approximate growth of 60 percent in public sector banks than the private sector banks.

As per the RBI report on the trend and progress of banking in India, shows improvement in asset quality, broad credit growth, more profitability, and healthy balance sheets. Increased use of banks facilitates monitoring the movement of money throughout the economy. Thus, banking services unify all sectors and guarantee seamless operations for both individuals and large enterprises, which enhances GDP (gross domestic product) and supports the Indian economy. This industry is required to extend support for the development of other economic sectors, including agriculture, exports, basic infrastructure, and small and medium-sized enterprises. In particular, bank funding is crucial for the expansion of SMEs **(Manish 2020)**. Thus, the banking industry's performance has a favorable impact on the economy's overall health.

The government has launched a number of initiatives and projects in recent years to encourage and develop the usage of digital platforms. Using blockchain technology, the RBI also creates the Digital Rupee to streamline financial settlements and lower the cost of producing currency notes. Despite these attempts, in rural India, people are unable to access modern and digital banking largely due to inadequate infra-structure facilities **(Lavanya, 2019),** thereby indicating an untapped banking market. **Dash, et.al (2022)** also argue that India still relies on cash and offline banking systems in major sectors. Though the banking sector's reach has enhanced and several banking service innovations were initiated, their impact on banking performance needs to be analysed, and it is required to identify the important bank-specific predictors affecting economic growth.

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This paper is organized into 7 sections. A review of the literature is presented in Section II. The objectives of the study are indicated in Section III. Section IV describes the methodology and the empirical model of regression analysis employed. A detailed discussion and empirical analysis of data is presented in Section V. Section VI summarises the findings of the study, and Section VII presents the conclusion, recommendations, and puts forward the scope for future research.

REVIEW OF THE PAST STUDIES

Evaluation of the banking sector's performance, assessing its problems and prospects, measuring banks' efficiency, etc. are the major researchable issues and have gained increased attention of researchers over the years. also, its literature is very intense nationally and internationally. In an early study, using Odekokun's model, **Liang & Reichert (2006)** measured the impact of financial growth on the Indian economy. The result records the reduced impact of "supply-leading" relationships that may have a changing role in financial sector development in the process of economic development. **Zandi, et.al (2013)** in their research highlight the importance of card transactions in an economy. By using variables such as GDP, credit, and debit card transactions, the study confirms that between card usage and GDP, there exists a positive association. In a similar line, **Singh et.al (2016)** investigated the relationship between sector-wise credit growth and growth of the GDP. Findings of the study confirm that long-term co-integration occurs only in the case of manufacturing sector credit growth and GDP growth, while short-term co-integration was found in the case of overall sectoral credit and the rise of GDP. **Korkmaz (2015)** in her paper, explored the effect of domestic credits by banks of ten European Countries on macro variables, economic growth, and inflation. By performing multiple correlation tests on a regression model on economic and inflation variables like bank credit and GDP, it was found that bank credit did not affect inflation but positively affected Economic growth. In another study, the dimension of the retail banking process and its implications on the economy were evaluated by **Barodiya & Chauhan (2015)**. **Lavanya (2019)** assessed how banking innovations affected India's economy.

According to the survey, illiteracy, a lack of internet services, inadequate power supply, fewer ATMs, and the risk of cybercrime prevent rural and impoverished individuals from accessing digital banking options. In 2020, **Sanghvi** used multiple regression analysis to determine the connection between economic growth and digital payments. The study concludes that the expansion of the Indian economy is positively impacted by internet commerce. Similarly, **Wong, et.al (2020)** demonstrate that debit card payments have a favorable impact on economic prosperity using the Random Effect Model, whereas credit cards, cheques, and e-money transactions do not affect the economic advancement of OECD countries. **Manish (2020)** in his research explored the influence of loans and credit on gross domestic output. Using primary data, **Roshan (2020)** examined the impact of cash transfers on businesses and the contribution of the electronic payment settlement to the improvement of the Indian economy. The study's conclusions support the notion that online money transfers are quick, safe, and effective since they save time and increase productivity. In a different study, **Sankaranarayanan and Rajagopalan (2020)** examined the economic impact of blockchain technology by discussing its application in the financial sector. **Harallayya & Aithal (2021)** have assessed the effect of the financial functions of Banking on the economy by conducting a correlation and regression analysis of domestic credit to the private sector on GDP. The empirical results show that domestic credit to private, final consumption expenditure, and consumer price inflation have a nonlinear impact on GDP. In a study, **Ingle (2021)** explores the importance of digitization to modify financial services. It shows that digital platforms are popular among new generations, and if the banking habits are promoted to be utilized to their maximum capacity, it will positively affect the country's economic growth. In a recent study, **Ajabnoor & Fatima (2022)** worked to find the relationship between bank lending and the Indian economy. Using GDP, food credits, and non-credit variables, the study found that food credit negatively affects GDP, whereas non-food credit has a positive impact on GDP.

Thus, it can be inferred from the research that various banking variables do affect the Indian economy, either positively or negatively. Savings deposits, domestic credits, and the use of plastic money for transactions have all been the subject of noteworthy research. Debit cards became quite popular after they were introduced, and the previously completed survey shows that credit cards have been showing some recent favorable developments. Online transactions, or e-banking, have also been proven to have improved over time. Over the years, these banking services have improved and acted as a driver for the expansion of the Indian economy. Early research revealed a positive correlation between banking parameters and a nation's economy, the studies contended that the expansion of credit cards and e-transactions had little bearing on economic growth. Therefore, it encourages a closer look at the current Indian economic boom based on empirical research of the connections between the Indian economy and the many banking variables.

OBJECTIVES OF THE STUDY

The main goal of this study is to examine how various bank-specific characteristics affect the expansion of the Indian GDP. The study aims to investigate whether the expansion of the Indian economy and the performance of the banking-specific industry are positively correlated. In this light, the study attempts to fulfill the following objectives:

1. To investigate the effect of domestic deposits and bank credit on the Indian GDP
2. To examine the impact of investments by banks and assets with banks on the GDP
3. To analyze the impact of Debit and Credit Card Transactions in terms of value and volume on the GDP.
4. To measure the influence of UPI Transactions on the GDP.

DATA DESCRIPTION AND METHODOLOGY

This study is descriptive and mostly uses secondary data sources. India's economy is influenced by numerous factors influence India's economy, making it impossible to attribute its success to a single source. Therefore, to analyse the bank-specific factors interplay, we have used the Multiple Linear Regression model and the statistical tool Spearman's Correlation. The Gross Domestic Product is used as a proxy for the expansion of the Indian economy, as it has been in earlier research by a number of scholars. The Report Components of Gross Domestic Product, which is accessible under Table 4, provides the necessary GDP data. The required data pertaining to Domestic deposits with Banks, Bank Credit, Investments, and Assets with banks are gathered the report of Handbook of Statistics of Indian Economy and the Debit and Credit Transactions Value and Volume data has been extracted from the report Bank-wise ATM/POS/Card Statistics under Data Releases from RBI website. Here, the GDP will be considered as the dependent variable, and the banking parameters will be considered as independent variables. SPSS software has been used for conducting descriptive analysis.

1. Scope and Limitations of the Study

The present study considered all the scheduled commercial banks of India. A study of the past 10 years of data from FY 2012-13 to FY 2021-22 has been extracted. This timeline marked important events in banking and finance history such as Make in India, UPI introduction, demonetization, digital India, RuPay prepaid card services, bank mergers, covid, and the launch of E-Rupi. The study is interesting yet has some limitations. The dataset has a lot of multicollinearity issues. Data for UPI have been recorded for 6 years, as it was introduced in 2016, but the period of study is from 2012, hence, the gap in data might have influenced the statistical interpretation. Several other tools can be applied to the study, which also remained excluded. Other banking variables which have been ignored in this study such as NEFT, RTGS, IMPS, etc., profitability measures of the banks, and customer grievance redressal points, can be considered by the future researches. As GDP is the only economic indicator for this study, other economic factors such as inflation, consumption, interest rates, etc., that equally influence the economic growth of any country remain excluded.

2. Empirical Model

The empirical model in this paper is estimated using multiple linear regression analysis. The equation for the regression model is represented considering the following variables:

$$(GDOMPD)_t = \beta_0 + \beta_1(DOMDEP)_t + \beta_2(BANCRT)_t + \beta_3(INVBAN)_t + \beta_4(ASWBAN)_t + \beta_5(DCTVAL)_t + \beta_6(DCTVOL)_t + \beta_7(CCTVAL)_t + \beta_8(CCTVOL)_t + \beta_9(UPIVAL)_t + \epsilon_t \quad (1)$$

Here, t is the time period (2012-13 to 2021-22). β_0 is the constant variable; $\beta_1, \beta_2 \ldots\ldots \beta_9$ are the regression coefficients of associated variables and ϵ_t is the error term in equation (1).

Table 1 explains the variables of the equation as follows:

Table 1: List of dependent and independent variable

Variable Name	Notation	Unit
Gross Domestic Product	GDOMPD	₹ in Crore
Domestic Deposits	DOMDEP	₹ in Crore
Bank credit	BANCRT	₹ in Crore
Investments of banks	INVBAN	₹ in Crore
Assets with banks	ASWBAN	₹ in Crore
Debit Card Transactions by Value	DCTVAL	₹ in Crore
Debit Card Transactions by Volume	DCTVOL	Number in Crore
Credit Card Transactions by Value	CCTVAL	₹ in Crore
Credit Card Transactions by Volume	CCTVOL	Number in Crore
UPI Transactions by Value	UPIVAL	₹ in Crore

For the validation of the above regression model, care has also been taken to check the problems of multicollinearity among the predictors, and to remove the multicollinearity, the stepwise enter method using SPSS has been applied.

3. HYPOTHESES

The following hypothesis is to be tested:

H_0: There exists no significant linear relationship between GDP and bank-specific variables.

Empirical Results & Discussion

The result and analysis of statistical tests of annual growth rates, correlation and Regression are found through below listed tables and graphs:

Table 2: Annual Growth Rates of Variables

Year	GDOMPD	DOMDEP	BANCRT	INVBAN	ASWBAN	DCTVAL	DCTVOL	CCTVAL	CCTVOL	UPTVAL
2013 - 2014	12.97%	14.15%	13.95%	10.30%	-11.32%	18.23%	16.14%	25.11%	28.25%	0.00%
2014 - 2015	10.99%	10.74%	9.05%	12.61%	13.70%	14.03%	16.36%	23.51%	20.97%	0.00%
2015 - 2016	10.40%	9.30%	10.91%	5.36%	17.42%	14.76%	18.48%	26.76%	27.81%	0.00%
2016 - 2017	10.82%	15.34%	8.16%	15.44%	-6.40%	-0.22%	18.55%	35.91%	38.13%	0.00%
2017 - 2018	9.96%	6.21%	10.00%	9.49%	7.27%	71.02%	204.99%	38.57%	28.50%	1491.30%
2018 - 2019	12.68%	10.04%	13.29%	1.89%	25.38%	29.00%	32.03%	31.47%	25.43%	698.70%
2019 - 2020	6.22%	7.90%	6.13%	10.83%	-20.61%	18.61%	14.65%	21.13%	23.53%	143.08%
2020 - 2021	-1.36%	11.40%	5.58%	19.08%	-24.09%	-6.04%	-20.68%	-13.75%	-18.98%	92.50%
2021 - 2022	19.51%	8.94%	8.60%	5.97%	23.33%	10.41%	-1.90%	54.13%	26.97%	105.09%

Source: Estimated by the author

Table 2 depicts the annual growth rate (AGR) of GDP and the different banking parameters. There has been negative growth observed in GDP during the FY 2019-20 to FY 2020-21 may be due to the effect of Novel covid 19. The highest growth with respect to the different variables are such as: in GDP in FY 2021-22, domestic deposits in FY 2016-17, bank credit in FY 2013-14, investment with banks in FY 2020-21, assets with banks in FY 2018-19, debit card transactions by value and debit card transactions by volume in FY 2017-18, credit card transactions by value in FY 21-22 and credit card transactions by volume in FY 2016-17 and for UPI transactions by value in FY 2017-18. The lowest growth registered by the different variables such as GDP in FY 2019-20, domestic deposits in FY 2017-18, bank credit in FY 2020-21, investment with banks in FY 2018-19, assets with bank in FY 2017-18, debit card transactions by value in FY 2021-22, debit card transactions by volume in FY 2019-20, credit card transactions by value in FY 2019-20, credit card transactions by volume in FY 2014-15 and for UPI transactions by value in FY 2020-21. It can be noted that assets with banks have shown negative growth for quite a few years. The growth trends of the different bank-specific factors with GDP can be better understood with the help of the following graphical presentations:

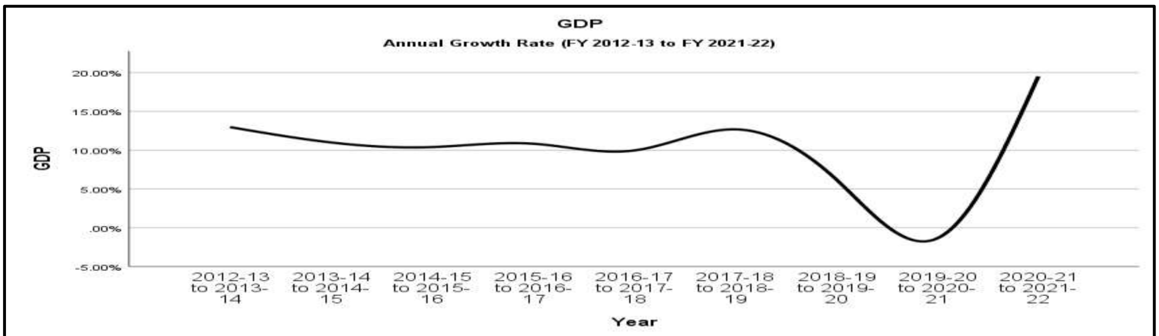

Figure 1: Trends of Annual Growth rate of GDP for 10 years

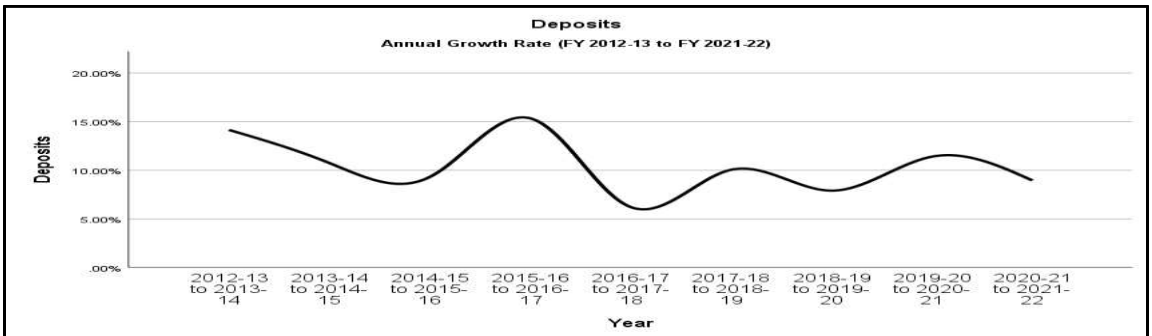

Figure 2: Trends of Annual Growth rate of Deposits for 10 years

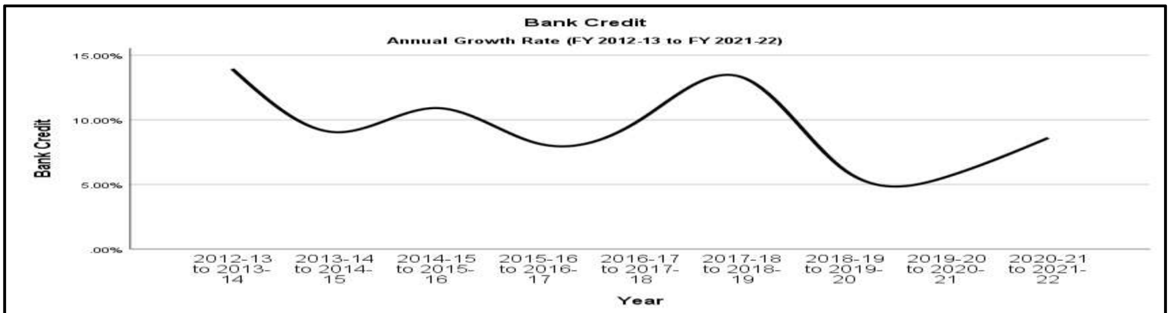

Figure 3: Trends of Annual Growth rate of Bank Credit for 10 years

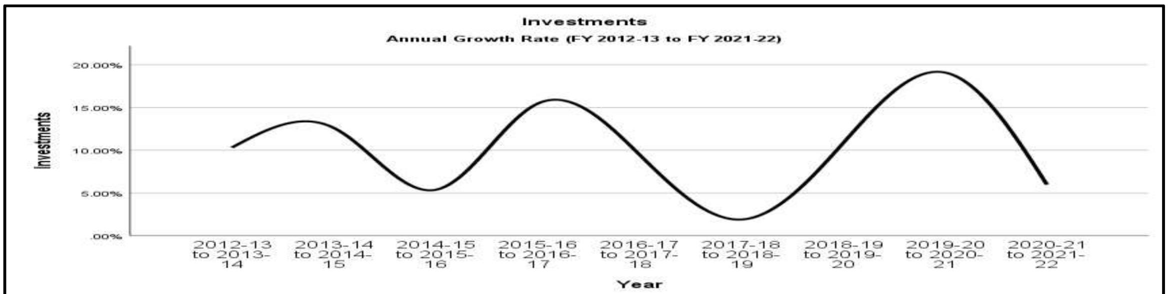

Figure 4: Trends of Annual Growth rate of Investments for 10 years

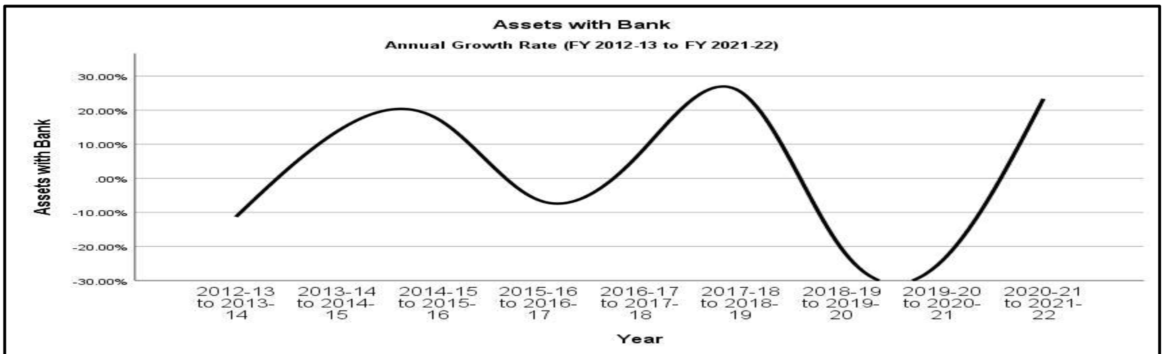

Figure 5: Trends of Annual Growth rate of Assets with Bank for 10 years

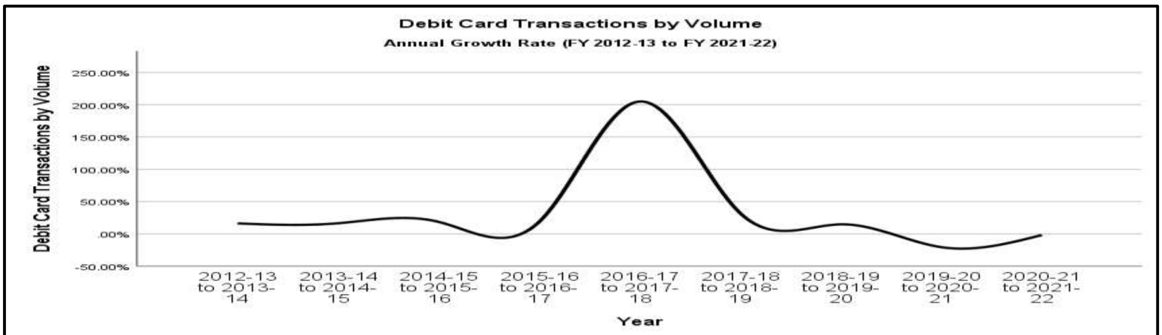

Figure 6: Trends of Annual Growth rate of Debit Card Transactions by Volume for 10 years

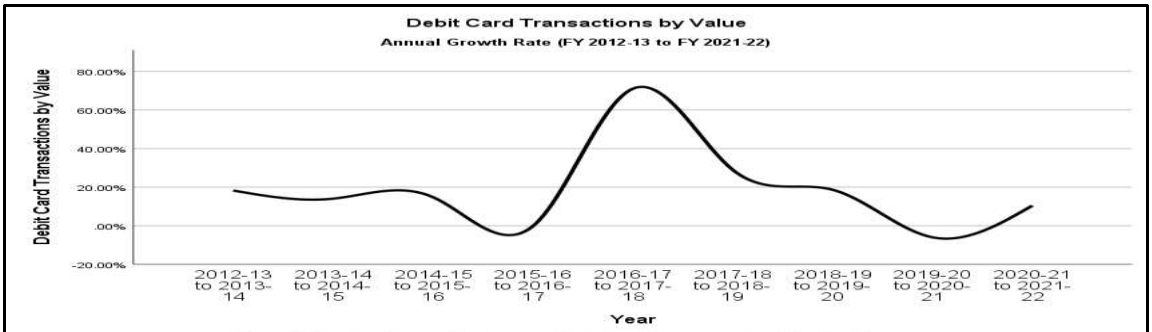

Figure 7: Trends of Annual Growth rate of Debit Card Transactions by Value for 10 years

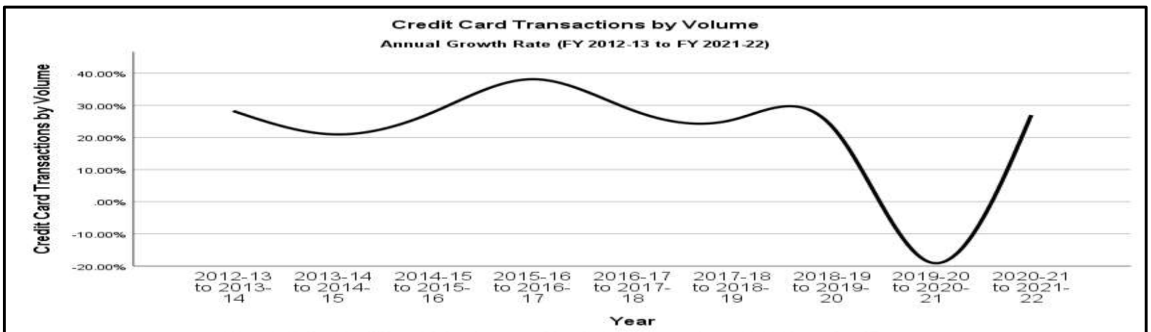

Figure 8: Trends of Annual Growth rate of Credit Card Transactions by Volume for 10 years

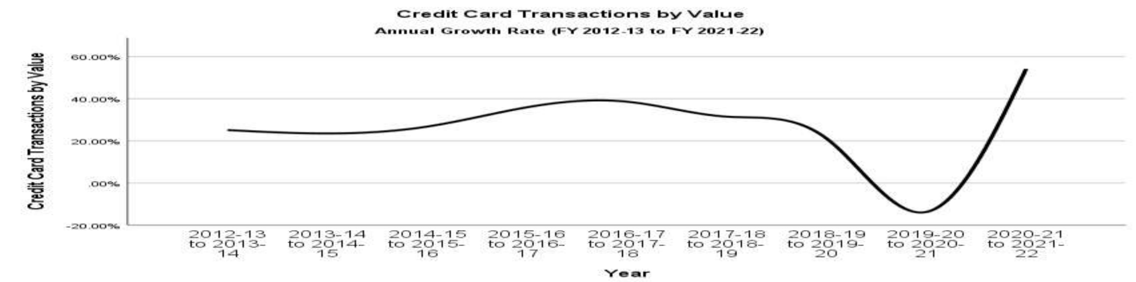

Figure 9: Trends of Annual Growth rate of Credit Card Transactions by Value for 10 years

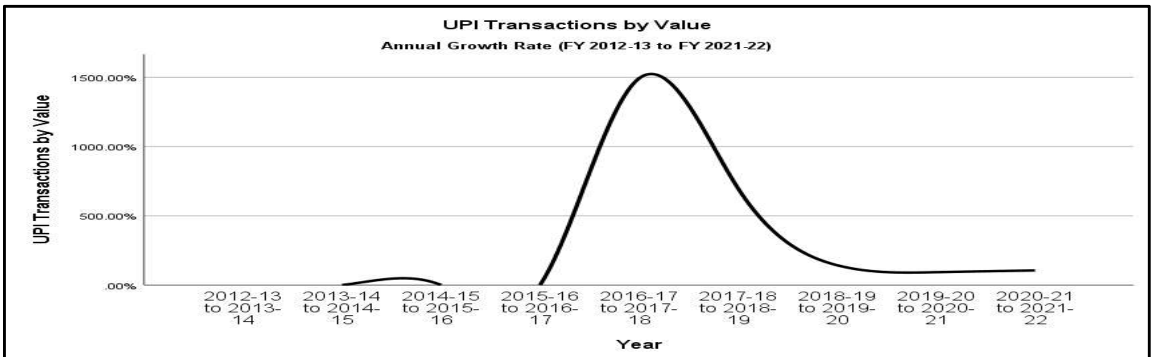

Figure 10: Trends of Annual Growth rate of UPI Transactions by Value for 10 years

Source: **Table 2: Annual Growth Rates of Variables.** Estimated by author.

The above visual graphical representations were prepared from Table 2. The accompanying graphical representations make it clear that, specifically, bank-held assets have been growing at a negative rate annually for a few years.

1. **Pearson's Correlation Coefficient Findings**

In order to measure the strength of the linear relationship between the GDP and Banking variables, Pearson's Correlations have been used. Following table shows the Correlation result among the variables used in this study.

Table 3: **Pearson's Correlation Coefficient**

Variables	GDO MPD	DO MDE P	BAN CRT	INV BAN	ASW BAN	DCT VAL	DCT VOL	CCT VAL	CCT VOL	UPT VAL
GDOMPD	1	0.987	0.993	0.967	0.368	0.962	0.891	0.987	0.980	0.918
DOMDEP	0.987	1	.995	.994	.250	.951	.863	.966	.956	.829
BANCRT	0.993	.995	1	.981	.317	.971	.899	.973	.974	.799
INVBAN	0.967	.994	.981	1	.158	.931	.829	.946	.926	.853
ASWBAN	0.368	.250	.317	.158	1	.342	.465	.340	.415	-.073
DCTVAL	0.962	.951	.971	.931	.342	1	.965	.967	.980	.755
DCTVOL	0.891	.863	.899	.829	.465	.965	1	.894	.948	.572
CCTVAL	0.987	.966	.973	.946	.340	.967	.894	1	.978	.846
CCTVOL	0.980	.956	.974	.926	.415	.980	.948	.978	1	.728
UPTVAL	0.918	.829	.799	.853	-.073	.755	.572	.846	.728	1

Source: Estimated by the author

A correlation coefficient of 0.368 is registered between GDP and Assets with the Bank. Also, the significance value is more than 0.05, thereby accepting the null hypothesis and explaining that there is no significant linear relationship between GDP and Assets with the Bank. The relationship between these two variables shows a weak and positive correlation, indicating it does not have a much greater impact on the GDP, whereas the correlation between GDP and other Bank-specific variables has an r-value of more than 0.8. Also, the significance value is less than 0.05, thereby rejecting the null hypothesis and explaining that there is a significant linear relationship between GDP and bank-specific variables other than assets with banks. The relationship between these variables shows a strong and positive correlation, indicating that these bank-specific parameters influence the GDP. The growth in these banking variables will certainly affect the growth in GDP in the same direction, which is positive here.

The original data set considered for the regression analysis suffers from multicollinearity issues, which are evident in Table 3 as the banking parameters have a high positive correlation among themselves. Hence, the results of the original data show erroneous interpretations. In order to remove this problem, the Z-score value of Bank-specific variables (independent variables) and the log value of GDP (dependent variable) have been derived. Log value shows only positive values, thus showing significant results. Z-score is measured to show the deviations from the mean value, transforming into a standardized data set including both positive and negative values.

1. **Regression Model Findings**

The following results are evaluated on the basis of the above modification of data.

Table 4: Regression Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	1.000	.00023

a. Predictors: (Constant), Zscore(UPIVAL), Zscore(ASWBAN), Zscore(DCTVOL), Zscore(INVBAN), Zscore(CRTVOL), Zscore(BANCRT), Zscore(DCTVAL), Zscore(CRTVAL)

Source: Estimated by author

This table indicates the summary results of the model applied. The multiple correlation coefficient, r, is considered here to measure the quality of the prediction of the dependent variables, in this case, GDP. A value of 1 indicates a high level of prediction. The “R Square” column represents the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by the independent variables. The table shows that our independent variables explain 100% of the variability of our dependent variable. Adjusted R square is a corrected goodness of fit for the linear regression model. Here, the Adjusted R^2 value is 1 this means that the model perfectly predicts the value of the dependent variable which is GDP. The standard error of the estimate is 0.00023 which is the average distance that the observed value falls from the regression line. The value is lower which means the average distance from the regression line is less.

Table 5: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.135	8	.017	326091.829	.001[b]
	Residual	.000	1	.000		
	Total	.135	9			

a. Dependent Variable: Log10GDOMPD

b. Predictors: (Constant), Zscore(UPIVAL), Zscore(ASWBAN), Zscore(DCTVOL), Zscore (INVBAN), Zscore(CRTVOL), Zscore(BANCRT), Zscore(DCTVAL), Zscore(CRTVAL)

Source: Estimated by author

The f-ratio in the ANOVA table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable as $p < .05$ which indicates the regression model is a good fit of the data.

Table 6: Standardized Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	7.194	.000		100187.997	.000
	Zscore(BANCRT)	.075	.002	.610	36.547	.017
	Zscore(INVBAN)	.038	.001	.309	30.489	.021
	Zscore(ASWBAN)	-.007	.000	-.053	-25.176	.025
	Zscore(DCTVAL)	.120	.003	.982	44.138	.014
	Zscore(DCTVOL)	-.118	.002	-.969	-67.052	.009
	Zscore(CRTVAL)	.290	.003	2.374	99.916	.006
	Zscore(CRTVOL)	-.166	.002	-1.357	-74.702	.009
	Zscore(UPIVAL)	-.150	.001	-1.226	-102.079	.006

a. Dependent Variable: Log10GDOMPD

Source: Estimated by the author

Unstandardized Beta coefficients indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. For developing a regression equation, the unstandardized Beta coefficients are considered hereby interpreting the results in the following way: if Bank Credit increases by 1% then GDP increases by 0.075 units, and so on. The test has been conducted at a 95% confidence level and the results of the p-value of the bank-specific parameters Bank Credit, Investment with Bank, Assets with Bank, Debit Card Transactions by Value, Debit Card Transactions by Volume, Credit Card Transactions by Value, Credit Card Transactions by Volume and UPI Transactions are 0.017, 0.021, 0.025, 0.014, 0.009, 0.006, 0.009 and 0.006 respectively i.e., all are less than p-value 0.05 and the coefficients are statistically significant, thereby, we reject the null hypothesis. Thus, we accept the alternative hypothesis establishing that there exists a relationship between the dependent variable GDP and all the independent variables, that is, the bank-specific variables except Deposits.

Table 7: Excluded Variable

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Zscore(DOMDEP)	.083[b]	.	.	1.000	5.554E-5

a. Dependent Variable: Log10GDOMPD

b. Predictors in the Model: (Constant), Zscore(UPIVAL), Zscore(ASWBAN), Zscore(DCTVOL), Zscore(INVBAN), Zscore(CRTVOL), Zscore(BANCRT), Zscore(DCTVAL), Zscore(CRTVAL)

Source: Estimated by the author

In the above table, the partial correlation is positive and 1 which means Domestic Deposits has high multicollinearity with the other banking parameters hence it has been excluded from the model.

Stepwise method is a variable selection method; it selects the variable or removes the variables based on the probability or f-value. In the stepwise method in each step, the independent variables which are not in the equation and have the smallest probability of f are entered and the variables already in the regression equation are removed if their probability of f becomes sufficiently large. This method ends if no more variables are eligible for inclusion or removal. The following table shows the variables entered/removed.

Table 8: Variables Entered/Removed

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Zscore (BANCRT)	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Zscore (ASWBAN)	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Log10GDOMPD

Source: Estimated by the author

In the above table, the stepwise method has identified Bank Credit as the most important variable to build the model and in the second step Assets with Bank is chosen as the next important predictor.

Table 9: Model Summary of Standardized Variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.978	.975	.01932
2	.994[b]	.988	.984	.01527

a. Predictors: (Constant), Zscore(BANCRT)

b. Predictors: (Constant), Zscore(BANCRT), Zscore (ASWBAN)

Source: Estimated by author

Model 1 is built only with Bank Credit where the r-square is around 97.8%, whereas when both Bank Credit and Assets with Bank are included in model 2 the r-square value jumps to 98.8%.

Table 10: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.132	1	.132	352.471	.000[b]
	Residual	.003	8	.000		
	Total	.135	9			
2	Regression	.133	2	.066	284.990	.000[c]
	Residual	.002	7	.000		
	Total	.135	9			

a. Dependent Variable: Log10GDOMPD
b. Predictors: (Constant), Zscore(BANCRT)
c. Predictors: (Constant), Zscore(BANCRT), Zscore(ASWBAN)

Source: Estimated by author

The p-value of the final model in the above ANOVA table is 0.000 which is less than 0.05 which clearly concludes that the model is significant.

Table 11: Coefficients under Stepwise Method

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.194	.006		1177.702	.000					
	Zscore(BANCRT)	.121	.006	.989	18.774	.000	.989	.989	.989	1.000	1.000
2	(Constant)	7.194	.005		1489.983	.000					
	Zscore(BANCRT)	.117	.005	.955	21.763	.000	.989	.993	.906	.899	1.112
	Zscore(ASWBAN)	.013	.005	.106	2.409	.047	.409	.673	.100	.899	1.112

a. Dependent Variable: Log10GDOMPD

Source: Estimated by author

Variance Influence Factor (VIF) identifies the correlation and its strength between independent variables. VIF measure between 0 - 5 is suitable for appropriate interpretation. The VIF column of Model 2 in the above table shows that VIF values are less than 4 which reflects that the model is free from multicollinearity. Also the tolerance value is close to 1 again is an indication that the variables are more or less uncorrelated. The p- values of Bank Credit and Assets with Bank are .000 and .047 which is less than 0.05 thereby rejecting null hypotheses and accepting alternative hypotheses by concluding there exists a significant linear relationship between these banking variables and GDP. By observing the Unstandardized Beta coefficients shows the numerical impact of banking parameters on the GDP, therefore referring to the above table it can be interpreted that with 1% increase in Bank Credit, GDP increases by 0.117 units and with 1% increase in Assets with Bank, GDP increases by 0.013 units.

Table 12: Collinearity Diagnostics under Stepwise Method

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Zscore (BANCRT)	Zscore (ASWBAN)
1	1	1.000	1.000	.50	.50	
	2	1.000	1.000	.50	.50	
2	1	1.317	1.000	.00	.34	.34
	2	1.000	1.148	1.00	.00	.00
	3	.683	1.389	.00	.66	.66

a. Dependent Variable: Log10GDOMPD

Source: Estimated by author

From the results of the above table, it can be understood that the Eigenvalues are close to 1 and the condition index is less than 15 which means variables are independent and there is no presence of multicollinearity within the data set.

FINDINGS

It is evident from the findings of both Multi Linear Regression Analysis and Pearson's Correlation coefficient that the bank-specific factors taken into account for the analysis significantly contribute to GDP. By volume and value, bank credit, investments, and debit and credit card transactions have a stronger linear correlation with GDP. The similar result has been reported in previous pieces of literature [Korkmaz (2015); Wong, Lau and Yip (2020); Ajabnoor and Fatima (2022); Lavaya (2019); Zandi, Singh & Irving (2013) and Pattanayak (2018)]. UPI transactions and GDP have demonstrated a strong association. Sanghvi (2020) concluded that UPI has had a significant and beneficial impact on GDP in her study. In stepwise regression analysis, it is shown to have a significant positive effect on GDP since the p-value is less than 0.05, but assets with banks have a poor correlation and the significance level is higher than 0.05, suggesting that they do not have a substantial influence on GDP. Furthermore, because no prior research has been done on this parameter, the results cannot be verified by other researchers. Although multicollinearity in the data prevented any interpretation from being established in regression analysis, the correlation coefficient between domestic deposits and GDP indicates that deposits have a significant impact on GDP because the r-value is high and the significance value is less than 0.05. According to Harallayya & Aithal's 2021 report, domestic deposits do have a major impact on GDP, and the correlation results of the relevant study can be interpreted similarly to those of the earlier research authors. Therefore, the banking factors have an impact on India's GDP growth. The study's conclusions underscore the need for improvement in the area of bank assets since trends and results indicate a negative impact on India's GDP. As a result, it is suggested to enhance asset quality by concentrating more on the quality of credit sourcing by assessing credit scores and ratings and conducting ongoing, methodical account monitoring to ensure that credit remains effective.

CONCLUSION, RECOMMENDATIONS AND FUTURE SCOPE

The banking system and the institutions are a matter of grave importance for any nation. India, the fifth-largest economy, has grown over the years with the support of the Indian banking system supervised by the RBI. This study assesses the performance of the Indian banking sector in improving the health of the Indian economy. According to the objective fragmentation, the following is a summary:

1. Bank credit, bank investments, and domestic deposits have all demonstrated statistically favorable effects on the economy. Savings are mobilized through loans and investments, ensuring better development of life, industries, and the country. Thus, it is possible to argue that these factors not only generate income for banks and depositors but also serve as a driving force behind the development of the country's future projects.
2. Credit and debit cards have long been essential for providing access to money. The growth figures for both debit card volume and value show that consumers feel at ease utilizing cards for transactions. Similar to this, it is clear from credit card statistics that although consumers were initially hesitant to use them, with time, both the number and value of credit card usage grew. This demonstrates that banks have sufficient capital to offer short-term loans and that consumers can take credit. Since its launch in 2016, UPI has performed well in the banking industry. Consumers are actively using this payment method to transact business. This shows that there is no traffic in terms of transactions, hence the businesses, retailers, and services are taking flight of fortune, contributing to the development of the economy of India.
3. Assets with Bank have shown a significant positive impact in the stepwise regression method, but have shown negative results through Correlation, Enter method linear regression model, and through annual growth rate graphs.

This has been observed from statistical findings that Assets with Banks have shown negative growth for a few years. The assets consist of the balances with other banks, money at call and short notices, advances to banks, and other assets. The Banks need to focus on asset quality as it has been poor, which has led to a decrease in the value for a few years due to an increase in non-performing assets, also, the pandemic has caused an increase in stress for the assets. It is recommended to focus on the reconstruction of the stocks to reduce the NPAs and improve asset quality, focusing more on the quality of sourcing of credit by measuring credit scores and credit rating, and constant systematic monitoring of the accounts to ensure the credit remains effective. Apart from Assets with Bank, all the other parameters have shown significant improvement in their service, and it is recommended to the banking sector to continue working following the existing strategy and policy.

There is ample scope for future research in this area of study. Research can be conducted by using various other banking variables not considered and those that will be introduced soon, such as the Digital Rupee. Future enthusiasts can work with other pillars of the banking structure, such as cooperative banks, Non-scheduled Banks, and Development Banks. The economy of India is defined by GDP in this study, keeping the other economic variables ignored. Therefore, other economic parameters such as inflation factor, banking index, Foreign Investments, Monetary policy, Industrial growth, etc., can be employed by future researchers for their study. Studies in this area could be carried out on a quarterly or monthly basis and for a longer period to reflect the changes in variables minutely, thus having an in-depth level of analysis.

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