Impact of Profitability of Banking Industry on Gross Domestic Product (GDP) in Bangladesh

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ABSTRACT

Purpose: This study aims at exploring the impact of profitability using Return on Asset (ROA), Return on Equity (ROE), Expenditure-Income Ratio (EIR) and Net Interest Margin (MIR) on GDP in Bangladesh.

Methodology: The data are collected from the annual report of Bangladesh Bank from 2004 to 2022 and the percentages of GDP growth are taken from World Bank for the same period. The data are analyzed through SPSS. In this study, the researchers have used the multiple regression models.

Findings: This study found that there is a significant impact of Bank profitability on of GDP that had justified by p value of less than 0.05. More specifically, NIMSB, EIRFCB, TROE, ROESB, ROEPCB, ROEFCB, EIRSB and EIRFCB have the significant impact on GDP at the .01 level, ROESCB, ROAPCB, and EIRPCB have the significant impact on GDP at 5% level while, EIRSCB, EIRSB, ROEFCB, TEIR and ROASB have the significant impact on GDP at the .10 level.

Practical Implications: Policymakers can use the insights from this research to make policies aimed at fostering a conducive environment for the Banking industry to thrive. Moreover, investors can apply the insights from this research to make informed investment decisions in the banking sector and other related industries.

Originality: The research might offer fresh insights into how the profitability of the Banking sector influences GDP in Bangladesh.

Research Limitation: This study focuses on banking sectors only and the finding of this research may not be fruitful for all financial institution in general.

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1. Introduction

Banks are the financial channels connecting the lots of stakeholders at a time. Now a day they are performing multi-faced activities. The financial technologies have magnified the functions of Banks in swift ways and safety ways. In where the earlier banking concept was confined within deposit collection and investment of the fund to get profit, the difference between rates of deposit collection and rates of investment is called spread that is one dimension of banks. Banks run their business through both share capital and debt capital. Cash are the liquid asset of Banks. There are many others assets of bank besides cash. The more is the circulation of money; the more is the growth of the economy. In every day transaction, lots of money is circulated through banks.

The factors that affect bank profitability, including ROA and ROE, include credit and liquidity risk, managerial effectiveness, company diversification, market share and competitiveness, and economic growth (Petria et al., 2015). In real world, Bank has two performance measure; absolute performance (Capital budgeting techniques) and relative performance (Ratio analysis). However, the relative performance creates competition in the market condition. The relative performance of Banks is measured by horizontal analysis and vertical analysis. Whatever either it is horizontal or vertical; their performances are justified through capital budgeting analysis and ratio analysis. This is why this study motivates the researcher to work on profitability of banks and their impact on GDP.

However, economic growth on profitability had a bigger and more favorable influence on employment growth than company growth on profitability. The ability of banks to earn profit is the profitability. In general, the more is the profitability, the more is good performance for them although profitability does not overall cultivate the good performance of them, there are other indicators rather profitability. Yet, in this study, the researchers have selected four indicators of profitability; Return on Asset (ROA), Return on Equity (ROE), Expenditures and Income ratio (EIR) and Net Interest Margin (NIM). A multiple regression analysis had done to find the impact of profitability and GDP. Gross domestic Product (GDP) is the measure of whole value of good and service during a specific period within nation boundary. This study focused to connect achievement (profitability) of banking sectors by their services with GDP.

2. Originality

The study addresses a significant issue within the economic landscape of Bangladesh, specifically examining the relationship between the profitability of the Banking industry and the country's GDP growth. This focus on the Banking sectors impact on the broader economy is crucial for policymakers and stakeholders in Bangladesh. While similar studies might exist for other countries or regions, this research delves into the unique economic conditions of Bangladesh. It considers the country's specific banking industry structure, regulatory environment, and economic challenges, providing insights tailored to the Bangladeshi context. The research might offer fresh insights into how the profitability of the Banking

sector influences GDP in Bangladesh. These insights could challenge existing theories or provide nuanced perspectives on the mechanisms driving economic growth in the country. Original interpretations and conclusions contribute to the overall originality of the study.

3. Review of Literature

The research of Akhtar & Nosheen (2022) focused on the effects of mergers and acquisitions (M&As) among both Banks and technology on the profitability of the acquirers between 2010 and 2020. Their results of the t-test and GMM (Generalized Method of moments) analysis showed that bank mergers, acquisitions, and technology have a substantial beneficial influence on the Margin, liquidity, and financial leverage of banks but have a negative impact on their market efficiency.

Eraslan and Schroder (2022) only used a small collection of variables-GDP, industrial output, production and trade revenues, personal income, transfer, and overall non-farm payrolls-in each model specification to guarantee the consistency of GDP projections and the bare minimum of data required for factor extraction.

In sectors influenced by smaller enterprises, Soto and Hiza (2021) point out a substantial correlation between profitability and growth, indicating favorable circumstances for investment, market, economic growth, and performance improvement.

Results of Tunay et al. (2015) indicated that there was a significant correlation between bank performance in the nations of the Euro Area and online banking. If the profitability of banks positively affects economic growth, it highlights the importance of encouraging profitable banking practices. Conversely, if there's a negative impact, it implies that amplified bank profitability might hinder economic growth (Kelein & Weill, 2018).

Financial stability could potentially increase growth by improving bank profitability. This is because profitable banks have the ability to keep their earnings, increase their essential capital, provide greater returns to shareholders, and access capital more readily in the markets (Flannery and Rangan, 2008). Additionally, on the asset side, profitable banks may exhibit a greater aversion to risk since they stand to lose more if adverse risks come to fruition (Keeley, 1990).

Hamza and Khan (2014) delved into how the profitability of the banking sector makes effect economic growth in Pakistan. They examined a dataset consisting of 10 commercial banks spanning from 2008 to 2012. Their findings exposed a noteworthy and positive correlation between bank profitability and economic expansion.

4. Literature Gap

Previous studies may have primarily focused on the relationship between various economic indicators and GDP in Bangladesh, neglecting the specific role of banking industry profitability. There may be a lack of comprehensive research analyzing how the profitability

of banks directly influences GDP within the context of Bangladesh. For example, Rancière, Tornell, & Westermann (2008) observed the negative impacts of financial stability on the growth of the economy. However, which factors of profitability may have impact on GDP are omitted. Furthermore, Moussa & Hdidar (2019) utilize metrics such as ROA and ROE to gauge bank profitability, treating them as dependent variables, while considering economic growth as the independent variable. But in this study, we have set profitability as dependent and GDP as independents. They found employing panel regression methods and we used here the OLS approaches, while there may be existing research on the banking sector and GDP in other countries or regions, there could be a gap in the literature regarding the specific dynamics of Bangladesh's banking industry and its impact on the country's GDP. Factors such as regulatory frameworks, market structures, and socioeconomic conditions unique to Bangladesh may not have been adequately explored in previous studies.

Previous research might have employed different methodologies or lacked robust empirical analysis to establish a clear causal relationship between banking profitability and GDP in Bangladesh. There may be a need for more rigorous statistical techniques or econometric models tailored to the Bangladeshi context to better understand the relationship between these variables. The literature may lack studies that examine the evolving nature of the relationship between banking profitability and GDP over time in Bangladesh. Changes in banking regulations, economic policies, or global economic trends could influence this relationship, highlighting the need for research that accounts for temporal dynamics and trends. Addressing these gaps would contribute to a more comprehensive understanding of the role of banking profitability in driving GDP growth in Bangladesh, providing valuable insights for policymakers, researchers, and practitioners in the field of economics and finance.

5. Objectives

The objective is to identify the impact of profitability of banking sector on GDP in Bangladesh. To reach this main objective, the researcher has set the following specific objectives

(i) To measure the impact of ROA, ROE, EIR and NIM of SCB (State Commercial Bank), SB (Specialized Bank), PCB (Private Commercial Bank) and FCB(Foreign Commercial Bank) on GDP and correlation among the variables.

(ii) To have the impact of TROA, TROE, TEIR and TNIM of all banks on GDP and correlation among the variables and

(iii) To know the individual impacts of ROA, ROE, EIR and NIM of all banks on GDP.

6. Material and Methods

6.1 Data

In this section, researchers have used the data from Bangladesh Bank annual reports from 2004 to 2022 (19 years' data). The data of four categorized banks such as SCB (6), SB (3) PCB (43) and FCB (9) have been used. The data are analyzed with the help of excel and SPSS.

6.2 Hypothesis

Here, the specific objectives on are correspondingly translated into hypotheses as follows-

Ho: There is no impact of ROA, ROE, EIR and NIM of SCB, SB, PCB and FCB on GDP.

H1: There is an impact of ROA, ROE, EIR and NIM of SCB, SB, PCB and FCB on GDP.

H2: There is no impact of TROA, TROE, TEIR and TNIM of all Banks on GDP.

H3: There is an impact of TROA, TROE, TEIR and TNIM of all Banks on GDP.

H4: There is no impact of ROA, ROE, EIR and NIM of all Banks on GDP.

H5: There is an impact of ROA, ROE, EIR and NIM of all Banks on GDP.

6.3 Conceptual Framework

The researcher has considered the following conceptual framework to touch the objectives of this study. The regression and the correlation effect have been presented in the figure 1.
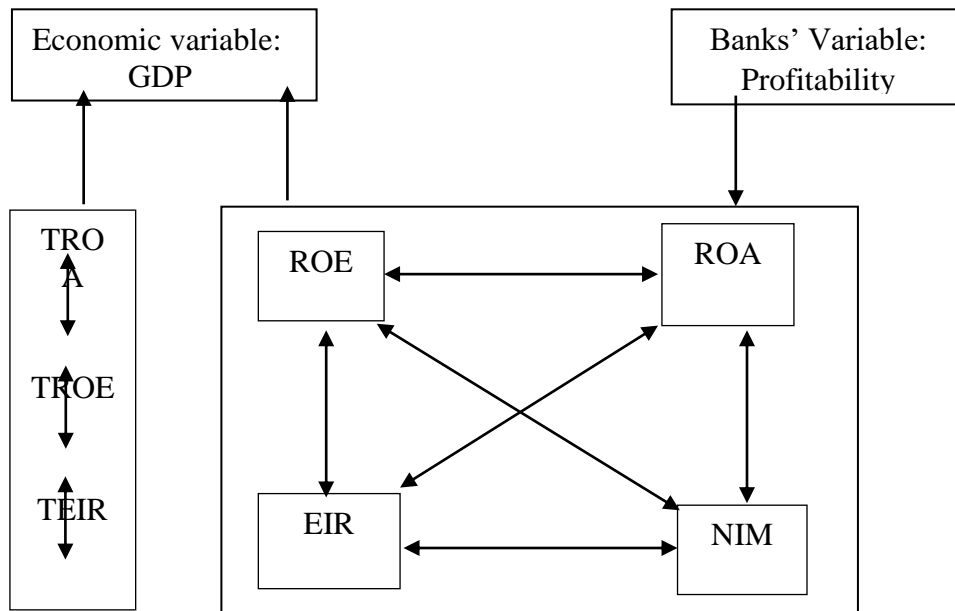

Figure 1: Conceptual frameworks

The above designed framework shows the explanatory variables in two sets-one that results from the profitability of Banks is ROA, ROE, EIR and NIM and another is TROA, TROE, TEIR and TNIM. This figure presents flow chart whether these variables have impact on GDP, that have been testified through models in the next section.

6.4 Econometric Models

The following models have been developed to reach the objectives. The models (1 to 4) focus the individual groups of bank along with the four profitability variables- ROA, ROE, EIR and NIM to show their impact on GDP. Model 5 describes TROA, TROE, TEIR and TNIM of all scheduled bank (61). Models (6 to 9) are set to show the individual variables impacts of individual group of banks on GDP.

$$GDP = \beta_0 + \beta_1 ROA_{SCB} + \beta_2 ROE_{SCB} + \beta_3 EIR_{SCB} + \beta_4 NIM_{SCB} + \varepsilon \qquad (1)$$

$$GDP = \beta_0 + \beta_1 ROA_{SB} + \beta_2 ROE_{SB} + \beta_3 EIR_{SB} + \beta_4 NIM_{SB} + \varepsilon \qquad (2)$$

$$GDP = \beta_0 + \beta_1 ROA_{PCB} + \beta_2 ROE_{PCB} + \beta_3 EIR_{PCB} + \beta_4 NIM_{PCB} + \varepsilon \qquad (3)$$

$$GDP = \beta_0 + \beta_1 ROA_{FCB} + \beta_2 ROE_{FCB} + \beta_3 EIR_{FCB} + \beta_4 NIM_{FCB} + \varepsilon \qquad (4)$$

$$GDP = \beta_0 + \beta_1 TROA + \beta_2 TROE + \beta_3 TEIR + \beta_4 TNIM + \varepsilon \qquad (5)$$

$$GDP = \beta_0 + \beta_1 ROA_{SCB} + \beta_2 ROA_{SB} + \beta_3 ROA_{PCB} + \beta_4 ROA_{FCB} + \varepsilon \qquad (6)$$

$$GDP = \beta_0 + \beta_1 ROE_{SCB} + \beta_2 ROE_{SB} + \beta_3 ROE_{PCB} + \beta_4 ROE_{FCB} + \varepsilon \qquad (7)$$

$$GDP = \beta_0 + \beta_1 EIR_{SCB} + \beta_2 EIR_{SB} + \beta_3 EIR_{PCB} + \beta_4 EIR_{FCB} + \varepsilon \qquad (8)$$

$$GDP = \beta_0 + \beta_1 NIM_{SCB} + \beta_2 NIM_{SB} + \beta_3 NIM_{PCB} + \beta_4 NIM_{FCB} + \varepsilon \qquad (9)$$

Where

B_0: Intercept term

$\beta_1, \beta_1, \beta_1$ and β_1: Beta coefficients

ε: Error term

7. Findings

The table 1 displays the correlation of GDP with 16 variables. The GDP has significant negative correlation with ROA_{SB}, ROA_{PCB}, ROA_{FCB}, ROE_{SCB}, ROE_{PCB}, ROE_{FCB}, EIR_{PCB} and EIR_{FCB}, has negative but not significant with EIR_{SCB} NIM_{SB}, ROA_{SCB}, and very little correlation with ROE_{SB}, significant moderate correlation with EIR_{SCB}, and EIR_{FCB} and significant high correlation with EIR_{FCB} and NIM_{PCB}.

Table 2 presents that GDP has negative correlation with TROA, TROE and TEIR and significant strong positive correlation with TNIM. Between the inter variables of profitability measures, there is strong significant negative correlation between TEIR and TNIM at the 1% level of significance. However, between pairs, there have the positive correlation TROA with

TEIR and TROE and negative with TNIM. Moreover, TROE has negative correlation with TEIR and TNIM.

The results of table 3 satisfy the first objective of this study. The table 3 displays the P-value of model-1 (E1), model-2 (E2), model-3 (E3) and model-4 (E4). The P- values of all equations from E1 to E4 are less than .05 rejecting the null hypothesis, literally, ROA, ROE, EIR and NIM of SCB, SB, PCB and FCB have a significant impact on GDP. The R- square values of all models shown in this table are more than .61 and adjusted R-square values of them are between 48% to 90%. Unstandardized coefficient (beta value) in case of model 1 for ROA_{SCB} and NIM_{SCB} are (+), for ROE_{SCB} and EIR_{SCB} are (-); model 2 for $ROA_{SB,}$ and ROE_{SB} has negative while for EIR_{SB} and NIM_{SB} are (+); model 3 and model 4 for ROA_{PCB}, ROE_{PCB} and EIR_{PCB} are (-), and for NIM_{PCB} are (+). The findings of table 4 satisfy the second objective and third objective.

In table 4, the P- values of all equations from E5 to E9 are lower than .05 i.e. rejecting the null hypothesis. So, ROA, ROE, EIR and NIM of SCB, SB, PCB and FCB, and TROA, TROE, TEIR and TNIM have significant impact on GDP. The R-square values of all models shown in this table are more than .61 and adjusted R-square values of them are between 48% to 94%. Unstandardized coefficient (beta value) in case of model 5 for TROE and TEIR are (-) and for TROA and TNIM are (+), model 6 and 7 for ROA_{SCB}, ROA_{SB}, ROA_{PCB} and ROA_{FCB} are (-), model 8 for EIR_{SCB} and EIR_{FCB} is (-), and for $EIR_{PCB,}$ and EIR_{SB} are (+) and model 9 for NIM_{SCB} and NIM_{PCB} is (+), and for $NIM_{SB,}$ and NIM_{FCB} are (-).

8. Discussion and Practical Implication of the Result

The research article titled "Impact of Profitability of Banking Industry on Gross Domestic Product (GDP) in Bangladesh"'" sheds light on the relationship between the profitability of the banking industry and the GDP of Bangladesh. Gazi, et al., (2021) finds that GDP growth has statistically impact on profitability. In his study the explanatory variables were GDP growth rate, Equity to Asset Ratio, Deposit to Asset Ratio, Debt to Equity ratio and Loan to Deposit Ratio. However, Hanifa et al., (2021) find that GDP has the negative impact on profitability and ROAA is most preferred measure of profitability.

Sufan & Habibullah (2009) find the macroeconomic indicators have significant impact on bank profitability. The findings of the study suggest a significant positive correlation between the profitability of the Banking sector and GDP in Bangladesh. This implies that when banks in Bangladesh are profitable, it tends to have a favorable impact on the overall economic growth of the country. A significant level of bank profitability can support economic growth (Klein & Weill, 2018). However, their research suggests that while high past profitability may initially raise growth, it eventually wanes, resulting in a negligible overall effect on economic growth. These conclusions hold true across various tests, even when alternative measures for profitability and growth are painstaking.

Firstly, profitable banks are better equipped to provide loans and credit to businesses and individuals, stimulating investment and consumption, which are essential drivers of GDP.

Secondly, a profitable banking sector fosters financial stability and confidence in the economy, attracting foreign investment and promoting domestic investment. Thirdly, profits generated by banks can be reinvested into the economy through various channels such as infrastructure development, job creation, and innovation, further fueling economic expansion.

However, it's essential to consider potential limitations and external factors that may influence this relationship. Economic policies, regulatory frameworks, global economic conditions, and geopolitical factors can impact the profitability of banks and, consequently, their contribution to GDP growth. Additionally, while a profitable banking sector is generally beneficial for economic growth, it's crucial to ensure that profitability is achieved through ethical and sustainable practices to prevent negative externalities such as financial crises or inequality.

The influence of financial development metrics on economic growth might depend on the developmental stage of the country, as suggested by the study from Arcand, Berkes, & Panizza (2015). If bank profitability has a beneficial influence on economic growth, it underscores the significance of promoting profitable banking. Conversely, if there's a detrimental effect, it suggests that heightened bank profitability could impede economic growth (Kelein & Weill, 2018). Moussa & Hididar, 2019 discovered a noteworthy positive impact of economic growth on bank profitability. Rahman et al., (2015) find the growth rate of GDP significant determinant for NIM.

This study finds that some measures of profitability have significant positive and some others have negative impact on GDP. Moreover, findings of this research may have significant practical implications for policymakers, financial institutions, and stakeholders in Bangladesh's economy because policymakers can use the insights from this research to formulate policies aimed at fostering a conducive environment for the banking industry to thrive. This may include implementing regulatory reforms to enhance transparency and stability within the banking sector, promoting financial inclusion initiatives, and facilitating access to credit to spur economic growth. Banks and financial institutions can use the findings to devise strategies that prioritize profitability while also aligning with broader economic development objectives. This may involve optimizing lending practices, managing risks effectively, investing in technology and innovation to enhance operational efficiency, and diversifying revenue. Investors, both domestic and international, can use the insights from this research to make informed investment decisions in the banking sector and other related industries. Overall, by understanding the impact of banking profitability on GDP growth, stakeholders can collaborate to harness the potential of the banking sector as a catalyst for sustainable economic development in Bangladesh**.**

9. Conclusion

Income is one of the many variables of bank financial statements. This study has attempted to draw inference either profitability of banking industry really does have the significant impact on GDP in our national economy. However, in this study, the interesting results, the

researcher finds that the profitability of banks have the significant impact on GDP in Bangladesh. There may have other variables associated with this variable having impact on GDP, that indicates the further work of research.

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Appendix

Table 1. Correlation matrix.

	GDP	ROA$_{SB}$	ROA$_{SCB}$	ROA$_{FCB}$	ROA$_{PCB}$	ROE$_{SB}$	ROE$_{FCB}$	ROE$_{PCB}$	ROE$_{SCB}$	EIR$_{SCB}$	EIR$_{SB}$	EIR$_{PCB}$	EIR$_{FCB}$	NIM$_{SCB}$	NIM$_{SB}$	NIM$_{PCB}$
ROA$_{SB}$	-.761**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROA$_{SCB}$	-.295	.251	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROA$_{FCB}$	-.582*	.701**	-.086	-	-	-	-	-	-	-	-	-	-	-	-	-
ROA$_{PCB}$	-.614**	.578*	.459	.461	-	-	-	-	-	-	-	-	-	-	-	-
ROE$_{SB}$	.058	-.118	-.162	-.145	-.267	-	-	-	-	-	-	-	-	-	-	-
ROE$_{FCB}$	-.889**	.678**	.124	.588*	.485*	-.323	-	-	-	-	-	-	-	-	-	-
ROE$_{PCB}$	-.781**	.532*	.473	.356	.808**	-.391	.688**	-	-	-	-	-	-	-	-	-
ROE$_{SCB}$	-.531*	.622**	.596*	.424	.796**	-.342	.434	.604*	-	-	-	-	-	-	-	-
EIR$_{SCB}$	-.455	-.065	-.075	-.098	-.153	.249	.376	.238	-.199	-	-	-	-	-	-	-
EIR$_{SB}$	.747**	-.920**	-.161	-.753**	-.622**	-.109	-.608**	-.432	-.623**	.056	-	-	-	-	-	-
EIR$_{PCB}$	-.521*	.080	-.003	-.025	-.216	.253	.473	.191	-.143	.808**	-.046	-	-	-	-	-
EIR$_{FCB}$	-.869**	.449	.308	.246	.455	.006	.746**	.757**	.355	.682**	-.404	.729**	-	-	-	-

NIM$_{SCB}$	.504*	-.300	-.153	-.246	-.018	.031	-.535*	-.242	-.149	-.618**	.258	-.511*	-.585*	-	-	-
NIM$_{SB}$	-.189	.647**	.192	.500*	.389	.242	.063	.017	.438	-.550*	-.719**	-.402	-.175	.243	-	-
NIM$_{PCB}$	.721**	-.432	-.388	-.229	-.312	.064	-.708**	-.611**	-.237	-.543*	.303	-.664**	-.805**	.556*	.068	-
NIM$_{FCB}$	.529*	-.160	-.258	.057	-.091	.019	-.445	-.484*	-.004	.693**	.037	.667**	.670**	.441	.351	.810**

**. Correlation is significant at the 0.01 level. *. Correlation is significant at the 0.05 level
Source: SPSS output

Table 2. Correlation of GDPG with TROA, TROE TEIR and TMIN

	TROA	TEIR	TROE	TNIM
TEIR	.300	-	-	-
TROE	.292	-.033	-	-
TNIM	-.231	-.719**	-.392	-
GDP	-.348	-.545*	-.707**	.754**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: SPSS output

Table 3. Impact of ROA, ROE, EIR and NIM of SCB, SB, PCB and FCB on GDP

Dependent Variable	Independent variables	Unstandardized Coefficients B	Sig.	R-square	Adjusted R square	P- Value
GDP (E1)	(Constant)	14.273	.000	.618	.490	.015**
	ROA$_{SCB}$	.015	.733			
	ROE$_{SCB}$	-.012	.015**			
	EIR$_{SCB}$	-.015	.053*			
	NIM$_{SCB}$	.031	.711			
GDP (E2)	(Constant)	11.466	.000	.842	.790	.000***
	ROA$_{SB}$	-.130	.144			
	ROE$_{SB}$	-.001	.485			
	EIR$_{SB}$	.010	.059*			
	NIM$_{SB}$	.226	.001***			
GDP (E3)	(Constant)	15.754	.000	.831	.775	.000***
	ROA$_{PCB}$	-.515	.040**			
	ROE$_{PCB}$	-.011	.593			
	EIR$_{PCB}$	-.026	.014**			
	NIM$_{PCB}$	.018	.818			
GDP (E4)	(Constant)	14.780	.000	.925	.901	.000***
	ROA$_{FCB}$	-.191	.028**			
	ROE$_{FCB}$	-.026	.075*			
	EIR$_{FCB}$	-.014	.003***			
	NIM$_{FCB}$	.008	.714			

***Regression is significant at the 0.01 level

** Regression is significant at the 0.05 level

Source: *SPSS output*

Table 4. Total and individual impact of ROA, ROE EIR and NIN on GDP

Dependent Variable	Independent variables	Unstandardized Coefficients B	Sig.	R-square	Adjusted R square	P- Value
GDP (E5)	(Constant)	14.702	.000	.836	.782	.000***
	TROA	.003	.902			
	TROE	-.039	.001***			
	TEIR	-.018	.057*			
	TNIM	.080	.396			
GDP (E6)	(Constant)	13.344	.000	.630	.506	.012**
	ROA_{SCB}	-.012	.771			
	ROA_{SB}	-.128	.077*			
	ROA_{PCB}	-.189	.384			
	ROA_{FCB}	-.073	.714			
GDP (E7)	(Constant)	14.412	.000	.951	.935	.000***
	ROE_{SCB}	-.002	.130			
	ROE_{SB}	-.003	.000***			
	ROE_{PCB}	-.027	.004***			
	ROE_{FCB}	-.061	.000***			
GDP (E8)	(Constant)	13.303	.000	.944	.925	.000***
	EIR_{SCB}	-.002	.659			
	EIR_{SB}	.007	.000***			
	EIR_{PCB}	.001	.890			
	EIR_{FCB}	-.016	.000***			
GDP(E9)	(Constant)	12.431	.000	.617	.490	.015**
	NIM_{SCB}	.083	.290			
	NIM_{SB}	-.101	.156			
	NIM_{PCB}	.180	.203			
	NIM_{FCB}	-.024	.729			

***Regression is significant at the 0.01 level
** Regression is significant at the 0.05 level
Source: SPSS output