

Unveiling the nexus of macroeconomic factors on bank performance in Bangladesh

^{a,*} Hasibul Islam, ^b Md. Saidul Islam, ^c Shimanto Saha, ^d Tanzika Imam Tarin, ^e Lalmi Soumia, ^f Sunjida Parven, ^g Khusbu Rahman



^{a, f} Department of Business Administration, Varendra University, Rajshahi- 6204, Bangladesh, ^b Department of Banking and Insurance, University of Rajshahi, Rajshahi, Bangladesh, ^c Department of Management Mawlana, Bhashani Science and Technology University, Tangail, Bangladesh, ^d Department of Banking and Insurance, University of Chittagong, Chittagong, Bangladesh, ^e Department of Economics, Tahri Mohammed Béchar University, Algeria, ^g Richard T. Doermer School of Business, Purdue University Fort Wayne, USA

ARTICLE INFO

Keywords:

GDP
Inflation
Performance
Return on assets
Unemployment
Bangladesh

JEL: D00, E00, E02

ABSTRACT

The present study examines the nexus of macroeconomic factors on the banks performance in Bangladesh. It encompasses an analysis of 25 commercial banks, including both Islamic and conventional banks, spanning the period from 2012 to 2021. Employing the ordinary least square regression model, the study considers return on assets as the dependent variable, while the independent variables include GDP growth, inflation, and unemployment. The regression analysis reveals that the unemployment rate exerts a significant impact on the return on assets of banks in Bangladesh. In contrast, GDP growth and inflation do not exhibit a significant effect on the return on assets. Consequently, policymakers should account for the influence of unemployment rates on bank performance when formulating economic policies, emphasizing measures to reduce unemployment rates to enhance bank performance. This consideration is especially pertinent in the context of the COVID-19 pandemic, where policies aimed at preventing widespread unemployment could positively affect bank performance.

1. Introduction

When it comes to allocating a country's economic resources, commercial banks play a crucial role (Ongore and Kusa, 2013). Commercial banks play a crucial role in economic growth by supplying capital to investors and enhancing the country's financial development. (Otuori, 2013). Bangladesh, as a developing economy, has actively promoted the growth of its banking industry to foster economic development. Over the past thirty years, the country has experienced significant growth in its banking sector (Mahmood, 2019). The scheduled banks in Bangladesh are classified into four categories based on ownership structure: state-owned commercial banks (SCBs), specialized banks (SBs), private commercial banks (PCBs), and foreign commercial banks (FCBs). As of the fiscal year 2022, there were 61 scheduled banks were running in the country. By the end of December 2021, the total assets of the banking sector reached BDT 20,429.3 billion, marking an 11 percent increase from the previous year. Additionally, total deposits in the banking sector grew to BDT 20,429.3 billion in 2021, representing a 10.03 percent rise from BDT 13,797.93 billion in 2020. (Bangladesh Bank, 2023).

Although the growth of Bangladesh's banking sector is evident, understanding the factors that affect bank performance is crucial. It is widely acknowledged that macroeconomic factors play a significant role in determining the performance of banks (Akani et al., 2016; Combey & Togbenou, 1916; Guerrieri and Harkrader, 2021; Ishioro, 2023). The effectiveness of commercial institutions is influenced by a blend of internal and external factors. These factors are categorized as either bank-specific (internal) or macroeconomic variables (Ongore and Kusa, 2013). Internal factors pertain to the distinct attributes of individual institutions and are shaped by the decisions made by management and the board. Conversely, external factors encompass broader sector-wide or country-wide elements that lie beyond the control of any specific bank and impact the overall profitability of banks. (Ongore and Kusa, 2013).

Macroeconomic factors encompass the broader dimensions of the economy, including inflation, gross domestic product (GDP), national income, per capita income, exchange rates, interest rates, unemployment, and financial crises (Ozatac et al., 2018). This study explores how macroeconomic factors influence the performance of banks in Bangladesh, specifically examining GDP growth, inflation, and the unemployment

* Corresponding author. E-mail address: hasibulislamshanto143@gmail.com (H. Islam).

Received: 13 April 2024; Received in revised form 17 April 2024; Accepted 19 April 2024

<https://doi.org/10.58251/ekonomi.1467784>

rate. It places emphasis on Return on Assets (ROA) as the dependent variable, which is a critical measure of bank profitability and performance (Al-Mamun et al., 2014; Hong and Abdul Razak, 2015; Kanwal and Nadeem, 2013; Kiganda, 2014; Samad and Hassan, 2006; Simiyu and Ngile, 2015). Gross Domestic Product (GDP) growth stands as one of the prevailing macroeconomic indicators utilized to gauge cyclical output fluctuations within an economy (Sufian and Habibullah, 2009; Vejzagic and Zarafat, 2014). It is anticipated to affect a number of variables relating to the supply and demand for loans and deposits (Zhang and Daly, 2014). Higher GDP often results in increased savings, allowing banks to mobilize more resources and finance a greater number of investment projects, which could generate greater profits (Bashir, 2003). Inflation, defined as the rate of increase in the general level of prices for products and services, is another important macroeconomic factor. Banks frequently benefit from higher inflation rates through increased loan rates and subsequent revenue growth (Muda et al., 2013). Accurate inflation forecasting enables bank managers to adjust lending rates, potentially increasing profits more rapidly than operational expenses (Davydenko, 2010). This study also examines the unemployment rate, a crucial macroeconomic indicator and predictor of employment success (Jo et al., 2023). Numerous macroeconomic variables, including GDP growth, labor force dynamics, and inflation rates, exert long-term influences on the prevailing unemployment rate (Folawewo and Adeboje, 2017; Sahoo and Sahoo, 2019). Through its effect on operating expenses, particularly salaries, and the credit system of banks, unemployment can impact the performance of banks (Klein, 2013; Naruševičius, 2018).

This study endeavors to make a significant contribution to the existing body of knowledge by scrutinizing the present performance of commercial banks in Bangladesh while shedding light on notable pandemic-related occurrences. According to Islam et al. (2021), the COVID-19 pandemic led to a surge in prices across all goods. Long et al. (2022) conducted research investigating the correlation between the escalation of inflation and unemployment rates and the considerable downturn in GDP growth, industrial output, and investment. The study underscores the direct or indirect influence of macroeconomic variables on bank performance, particularly during periods when the COVID-19 pandemic exerts a similar impact. Consequently, the researcher aims to elucidate the repercussions of the post-pandemic macroeconomic environment on bank performance in this study. Findings of the research can significantly impact policymakers and stakeholders in the financial sector. When formulating economic policies, policymakers should consider the impact of unemployment rates on bank performance, with an emphasis on reducing unemployment rates to enhance bank performance. This observation holds particular relevance within the context of the COVID-19 pandemic, wherein policies crafted to mitigate widespread unemployment may yield favorable outcomes for the performance of banks.

The remainder of this study is organized as follows: Section 2 provides an extensive literature review. In Section 3, the conceptual framework and hypotheses are outlined. Section 4 delineates the methodology employed. Section 5 presents the empirical findings, while Section 6 concludes the paper.

2. Literature Review

The empirical literature thus far has yielded a plethora of divergent conclusions regarding the determinants of bank performance and the influence of macroeconomic variables on such performance. This study focuses on macroeconomic variables, with particular emphasis on unemployment, GDP, and inflation. The ensuing research offers substantiation supporting the conclusions of this work. Recent studies elucidate how macroeconomic factors, including GDP, unemployment, inflation, and Return on Assets (ROA), impact a bank's operational efficacy.

Banks are critical economic institutions in developing countries, and their performance is critical for a country's overall economic development (Eyüboğlu, 2016; Haralayya and Aithal, 2021). Assessing bank performance entails examining how effectively resources are used to achieve desired goals, and it uses a set of indicators to evaluate a bank's current state and ability to meet goals (Rengasamy, 2012).

A variety of research on economic elements, some of them including macroeconomic variables, influence bank financial performance (Asif et al., 2023; Brahmaiah, 2018; Kirimi et al., 2020; Petria et al., 2015; Işık et al., 2021, 2024a, 2024b, 2024c, 2024d, 2024e; 2024f; Islam et al., 2024; Mamun et al., 2022; Islam et al., 2020; Islam et al., 2021; Islam et al., 2022; Islam et al., 2023a; Islam et al., 2023b; Rana et al., 2023; Işık et al., 2024c; Işık et al., 2024d; Hasan et al., 2019; Rahman, 2019). Inflation, gross domestic product (GDP), national income, per capita income, exchange rates, interest rates, unemployment levels, and financial crises are all macroeconomic factors that affect banks performance (Bhattarai, 2017; Cetin et al., 2023; Neupane, 2020; Ozatac et al., 2018; Saeed, 2014; Simiyu and Ngile, 2015). These elements have a substantial impact on bank performance and success, and in times of crisis, they may exert influences beyond the organization's control (Dewi et al., 2019).

Several studies have been conducted to investigate the relationship between macroeconomic conditions and bank performance. Studies investigating the relationship between GDP and bank profitability have generally found a strong and positive correlation (Kosmidou et al., 2006; Kosmidou et al., 2005; Pasiouras and Kosmidou, 2007; Sufian and Chong, 2008). However, Khrawish (2011) reported a negative correlation between ROA and GDP in the Jordanian banking sector, while Sastroswito and Suzuki (2012) found an insignificant correlation between bank profitability and annual growth rate in the Indonesian banking industry.

Another key macroeconomic issue influencing bank performance is the rate of inflation. It was discovered to have a large negative influence on ROA and a significant favorable impact on ROE (Al-Homaidi et al., 2018; Brahmaiah, 2018; Keo, 2020). Molyneux and Thornton (1992) and Aburime (2008) discovered a positive and statistically significant relationship between interest rates, inflation rates, and bank profitability in their analysis. However, Bourke (1989) study found a negative association between inflation and bank profitability, implying that banks' ability to foresee the incidence of inflation plays a part in this inverse relationship. Other factors such as Social media marketing and inflation are interconnected in ways that influence both economic conditions and business performance. Effective social media marketing can drive consumer demand by increasing product visibility and desirability, which can contribute to inflation if demand outpaces supply. This increased demand can lead to higher prices, further driving inflationary pressures. On the flip side, inflation affects social media marketing by raising advertising costs, as platforms adjust prices in response to higher operational expenses (Asif et al., 2023; Dogru et al., 2023; Işık et al., 2021).

Additionally, inflation impacts consumer behavior, making them more price-sensitive and potentially reducing engagement with ads for higher-priced items. For businesses, this means that inflation not only raises marketing costs but also affects their overall performance by altering consumer purchasing power and demand, necessitating more strategic and efficient use of social media marketing to maintain profitability and consumer engagement (Alim et al, 2023; Ghosh et al, 2021; Ghosh et al, 2023; Ghosh et al, 2024).

The unemployment rate is gaining prominence in evaluating the financial performance of banking organizations. While previous research has suggested that the unemployment rate has a negative impact on financial performance (Baba and Nasieku, 2016), Dewi et al. (2019) discovered that the unemployment rate had no meaningful impact on performance. However, a particular study by Horobet et al. (2021) analyzed that, higher unemployment rates suggest decreased purchasing power, which might lead to a slowdown in economic activity, impacting bank financial performance.

Given these considerations, the interplay between macroeconomic variables and bank performance emphasizes the significance of knowing and controlling the larger economic landscape to ensure bank stability and success in supporting economic growth.

3. Framework Development

3.1 Dependent/response variable

Rao and Lakew (2012) assert that ratios, being unaffected by fluctuations in the general price level, are frequently utilized in banking literature as substitutes for the real value of earnings, with particular emphasis on evaluating bank profitability.

Return on Assets: As described by Davydenko (2010), return on assets represents a financial ratio employed to gauge a bank's profitability concerning its total assets. This metric is derived by dividing the bank's post-tax profit by its overall asset base (Flamini et al., 2009). Return on assets, commonly denoted as ROA, stands as a prevalent measure for assessing a bank's performance or profitability (Al-Mamun et al., 2014; Hong and Abdul Razak, 2015; Kanwal and Nadeem, 2013; Kiganda, 2014; Samad and Hassan, 2006; Simiyu and Ngile, 2015; Rana and Al Mamun, 2024; Hasan et al., 2019; Rahman, 2019).

3.2.Independent/explanatory variables

GDP: Gross Domestic Product (GDP) stands as one of the most popular and extensively utilized macroeconomic indicators, serving as a comprehensive measure of all economic activities within a country (Sufian and Habibullah, 2009; Vejzagic and Zarafat, 2014). Positive economic conditions are anticipated to positively impact the demand and supply of financial services (Sufian and Habibullah, 2009).

Inflation: The current inflation rate, representing the rise in the consumer price index from the previous quarter, is employed as a proxy for anticipated inflation. A higher inflation rate is linked to increased costs and revenues (Muda et al., 2013). Inflation is characterized as a sustained general uptick in prices across an economy. The researcher predicts that in Bangladesh, where inflation is pervasive, this factor will play a crucial role in determining profitability. The impact of inflation on bank profits hinges on the bank's ability to anticipate it. By accurately forecasting inflation, managers can adjust loan rates more rapidly than operating expenses, thus enhancing profitability (Davydenko, 2010).

Unemployment: As indicated by Naruševičius (2018), the unemployment rate influences banks' operating costs since salary payments constitute a significant portion of these expenses. In situations of high unemployment, banks may delay or reduce salary payments. In low unemployment scenarios, workers may seek higher wages or commissions. Conversely, a high unemployment rate could lead to a downturn in the demand for bank loans.

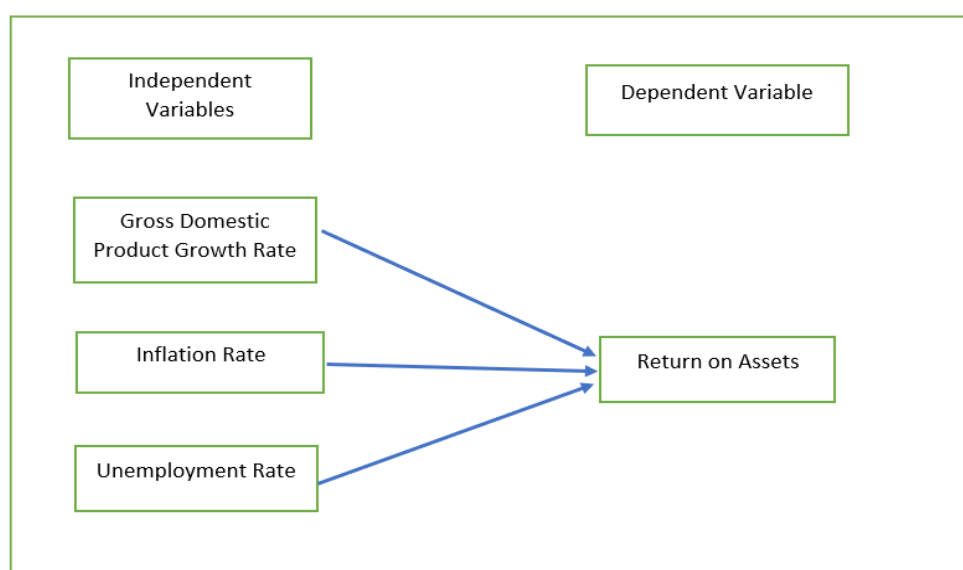


Figure 1: Conceptual Framework

3.3. Hypothesis

Based on the research questions defined in the study, the researcher developed the following hypothesis:

H1: There is a significant relationship between GDP and Return on Assets

H2: There is a significant relationship between Inflation rate and Return on Assets

H3: There is a significant relationship between Unemployment rate and Return on Assets

Hypotheses		Decision
H1	There is a significant relationship between GDP and Return on Assets	Not Supported
H2	There is a significant relationship between Inflation rate and Return on Assets	Not Supported
H3	There is a significant relationship between Unemployment rate and Return on Assets	Supported

4. Methods

4.1. Variable selection

Secondary data served as a pivotal source for conducting this study. The convenience sampling method was employed for data collection, with information sourced from the websites of 25 banks in Bangladesh, encompassing both Islamic and conventional institutions. The study's sample period extended from 2012 to 2021. Panel data extracted from the financial statements of the selected banks was utilized for analysis, with Return on Assets serving as the dependent variable and unemployment, inflation, and GDP growth as independent variables. The correlation between variables was assessed using the Pearson product-moment correlation. To determine the most appropriate regression model for the investigation, the researcher conducted the Durbin Wu-Hausman test as an endogeneity test (Durbin and Watson, 1951). After analyzing Durbin Wu-Hausman test researcher found no endogeneity problem. So, the researcher used Ordinary least squares (OLS) regression model because it will be applicable when there is no endogeneity problem exists (Wooldridge, 2010). The researcher utilized STATA and SPSS environments to analyze the data.

4.2. Regression Model

$$ROA = \beta_0 + \beta_1GDPG + \beta_2INF + \beta_3UNEP + \epsilon$$

Where

- ROA is the dependent variable, representing the return on assets.
- GDPG, INF, and UNEP are the independent variables, representing the GDP growth, inflation, and unemployment rate, respectively.
- β_0 is the intercept or constant term.
- β_1 , β_2 , and β_3 are the regression coefficients or slopes of the independent variables.
- ϵ is the error term or residual.

5. Results

5.1. Descriptive Statistics

The descriptive statistics (Table 1) provides statistics for four variables: ROA, GDPG, INF, and UNEP, which were observed in a sample of 250 units. Descriptive statistics are essential for providing insights into the distribution of the variables in the sample, as well as for understanding their central tendency and variability.

The mean ROA was found to be 0.931, indicating that the typical return on assets for the sample is approximately 0.93. The standard deviation of 0.408 suggests that the returns on assets vary around this mean value and provides a measure of the variability of the ROA values in the sample. For the GDPG variable, the mean was found to be 6.44, with a standard deviation of 1.14. These values indicate that the average growth rate of GDP for the sample is around 6.44, and that the actual growth rates for the units in the sample may vary significantly around this value. The mean value for the INF variable was found to be 6.05, with a standard deviation of 0.66. This suggests that the average inflation rate for the sample is around 6.05, and that the inflation rates for the units in the sample may vary significantly around this value. Finally, for the UNEP variable, the mean value was found to be 4.55, with a standard deviation of 0.40. This suggests that the average level of unemployment for the sample is around 4.55, with the actual unemployment rates for the units in the sample varying around this value. In conclusion, the descriptive statistics table provides essential information for understanding the distribution of the variables in the sample, as well as for making inferences about the population from which the sample was drawn. These statistics can also be used for comparing the variables and understanding their relative magnitudes.

Table 1: Descriptive Analysis

	Minimum	Maximum	Mean	Std. Deviation
ROA	.00000	2.0200	.93100	.4082
GDPG	3.44800	7.8819	6.4440	1.1369
INF	5.5135	7.5304	6.0521	.66353
UNEP	4.12000	5.4100	4.5509	.3966

5.2. Regression and Correlation Results

5.2.1. Endogeneity Test

Durbin (score) $\chi^2(1) = .117296$ (p value = 0.7320)

Wu-Hausman $F(1,220) = .114749$ (p value = 0.7351)

The endogeneity tests conducted aim to discern whether certain variables within our model are endogenous or exogenous. Endogenous variables are those influenced by other variables in the model, whereas exogenous variables operate independently of other variables in the model. The null hypothesis (H_0) for these tests posits that the variables are exogenous, indicating they are not affected by other variables in the model.

The Durbin (score) test and the Wu-Hausman test are commonly utilized to assess endogeneity. Based on the provided results, both tests indicate a failure to reject the null hypothesis that the variables in the model are exogenous. Specifically, the Durbin (score) test statistic is 0.117296, with a corresponding p-value of 0.7320, which exceeds the significance level of 0.05, leading to the retention of the null hypothesis of exogeneity. Similarly, the Wu-Hausman test statistic is 0.114749, with a corresponding p-value of 0.7351, again surpassing the significance level of 0.05, resulting in the retention of the null hypothesis of exogeneity.

Overall, these findings suggest that the variables in the model are likely exogenous, indicating independence from other variables in the model and absence of endogeneity bias. This implies that no endogeneity exists.

5.2.2. Ordinary least squares (OLS) regression model

Table 2: OLS Regression Model

ROA	Coefficient	St. Err.	t-value	p-value	[95% Conf Interval]	Sig
GDPG	-.024	.031	-0.76	.446	-.086 .038	
INF	.071	.046	1.54	.126	-.02 .161	
UNEP	-.255	.092	-2.77	.006	-.437 -.074	***
Constant	1.82	.775	2.35	.02	.294 3.347	**
R-squared		0.081	Prob		0.000	

*** $p < .01$, ** $p < .05$, * $p < .1$

The findings from the regression analysis, as presented in Table 2, highlight a statistically significant correlation between the independent variable UNEP (unemployment rate) and the dependent variable ROA (return on assets) at a significance level of 1%. The negative coefficient (-0.255) suggests that an uptick in the unemployment rate corresponds to a decline in return on assets. This outcome resonates with previous research, which consistently demonstrates an adverse association between unemployment and bank performance (Biddle et al., 2009; Feldmann, 2012).

In contrast, the independent variables GDPG (GDP growth) and INF (inflation rate) do not exhibit statistically significant coefficients in the model, indicating a lack of significant relationship with return on assets in this particular analysis. However, it is noteworthy that the R-squared value of 0.081 implies that the independent variables included in the model explain only a small fraction of the variability observed in the dependent variable.

5.2.2. Correlation Analysis

The results of the correlation analysis in table 3 indicate that there are statistically significant relationships between the variables in the study. The correlation coefficients are reported in the correlation matrix below. The variable ROA (return on assets) has a positive correlation with itself ($r = 1.000$), as expected. This suggests that ROA is a reliable and consistent measure of the performance of the banks. The variable GDPG (real GDP growth) has a weak positive correlation with ROA ($r = 0.052$), indicating that there is a slight tendency for higher GDP growth

to be associated with higher profitability. However, this correlation is not statistically significant at the 0.01 level. The variable INF (inflation) has a statistically significant positive correlation with ROA ($r = 0.205$, $p < 0.01$). This suggests that inflation may have a small but meaningful impact on profitability, such that higher inflation rates are associated with higher ROA. The variable UNEP (unemployment rate) has a statistically significant negative correlation with ROA ($r = -0.244$, $p < 0.01$), indicating that higher unemployment rates are associated with lower profitability. The negative correlation between UNEP and GDPG ($r = -0.583$, $p < 0.01$) suggests that higher unemployment rates are associated with lower GDP growth as well.

Overall, the results of the correlation analysis suggest that inflation and unemployment may have important impacts on profitability and economic growth in the context of the study. However, further research is needed to fully understand the nature and magnitude of these relationships, as well as any potential causal mechanisms that may be at play.

Table 3: Correlation Analysis

Variables	ROA	GDPG	INF	UNEP
ROA	1.000			
GDPG	0.052	1.000		
INF	0.205**	-0.220**	1.000	
UNEP	-0.244**	-0.583**	-0.304**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

5.2.3. Discussion

The regression model outcomes reveal that among the three macroeconomic variables considered, only the unemployment rate (UNEP) exhibits a statistically significant negative impact on banks' return on assets (ROA). The negative coefficient associated with UNEP implies that an escalation in the unemployment rate is linked with a decrease in banks' return on assets. However, the model's R-squared value of 0.081 indicates that merely 8.1% of the variation in ROA can be explained by the included variables, suggesting the potential influence of unaccounted factors.

Conversely, the non-significant coefficients for GDP growth (GDPG) and inflation rate (INF) suggest that they do not exert a significant effect on banks' return on assets. These findings align with certain previous studies exploring the relationship between macroeconomic variables and bank performance. For instance, [Feldmann \(2012\)](#) observed a significant negative impact of the unemployment rate on bank performance, while the effect of GDP growth and inflation rate remained insignificant. Similarly, [Demirgüç-Kunt and Huizinga \(1999\)](#) found a negative effect of the unemployment rate on bank profitability, while the impact of inflation rate was deemed insignificant. To evaluate the hypotheses, t-values and p-values from the regression analysis were utilized. With a significance level of 0.05, failure to reject the null hypothesis (indicating no significant association) required a p-value greater than 0.05. Accordingly, the regression analysis supports the null hypothesis for GDP growth and inflation rate, signifying no significant association with ROA. Conversely, the regression analysis rejects the null hypothesis for the unemployment rate, indicating a significant association with ROA.

However, contrasting studies have identified a significant positive relationship between GDP growth and bank performance. For instance, [Salas and Saurina \(2002\)](#) demonstrated a positive impact of GDP growth on bank profitability, while [Eichengreen and Gibson \(2001\)](#) noted a positive effect on banks' credit quality. Several factors may account for the significant negative effect of the unemployment rate on bank performance. Firstly, a high unemployment rate can curtail consumer spending, subsequently reducing the demand for credit and financial services. Secondly, it can lead to a deterioration in loan quality as borrowers face heightened default risks. Thirdly, an elevated unemployment rate may escalate non-performing loans, adversely impacting banks' profitability.

In conclusion, the regression model underscores the significance of the unemployment rate in elucidating the variation in banks' return on assets. While these findings corroborate some previous studies, others have reported a positive effect of GDP growth on bank performance. The adverse impact of the unemployment rate on bank performance may stem from various economic factors, necessitating further investigation for a comprehensive understanding of underlying mechanisms.

6. Conclusion

In conclusion, this study delved into the correlation between bank performance, as measured by return on assets, and three key macroeconomic variables: GDP growth, inflation rate, and unemployment rate. The findings underscore that while the unemployment rate exerts a significant negative influence on bank performance, no significant impact was observed for GDP growth rate and inflation rate. These outcomes resonate with prior research on the interplay between macroeconomic factors and bank performance, although there have been discrepancies in findings across studies. The implications of these findings for policymakers and banking institutions are noteworthy. Policymakers may need to take into account the effects of macroeconomic factors on bank performance when devising monetary and fiscal policies. Similarly, banking institutions might need to adapt their strategies and risk management approaches in response to evolving macroeconomic conditions. However, it is important to acknowledge certain limitations of this study. The analysis is confined to a cross-sectional dataset, which limits the ability to establish causality. Moreover, the study only considers three macroeconomic factors, overlooking

other variables such as interest rates, exchange rates, and governmental regulations that could also impact bank performance. Future research should strive to encompass a more comprehensive array of factors and employ longitudinal data to better ascertain causality.

In summary, this study offers valuable insights into the relationship between macroeconomic factors and bank performance. By gaining a deeper understanding of how macroeconomic factors influence bank performance, policymakers and banking institutions can make more informed decisions and enhance risk management practices.

6.1. Policy Implication

The study suggests that policymakers should consider the impact of macroeconomic factors, particularly the unemployment rate, on bank performance when making monetary and fiscal policy decisions. Policies that aim to reduce unemployment rates could potentially improve bank performance. On the other hand, policies that lead to high unemployment rates could negatively affect bank performance. For instance, during the COVID-19 pandemic, many countries have implemented policies to mitigate the negative impact of the pandemic on the economy, including measures to prevent widespread unemployment. These policies could potentially have positive effects on bank performance.

6.2. Practical Implication

Banking institutions can adjust their strategies and risk management practices in response to changes in macroeconomic conditions. For instance, during a period of high unemployment rates, banks could tighten their lending standards and reduce their exposure to risky borrowers. In contrast, during a period of low unemployment rates, banks could relax their lending standards and increase their exposure to borrowers with higher credit risk. Additionally, banks can hedge against macroeconomic risks by diversifying their portfolios across different economic sectors and asset classes.

6.3. Limitations

This study has some limitations that should be considered. First, the analysis is based on cross-sectional data, which limits the ability to establish causality. Longitudinal data would be required to establish causal relationships between macroeconomic factors and bank performance. Second, the study only considers three macroeconomic factors, and other factors such as interest rates, exchange rates, and government regulations may also have an impact on bank performance. Finally, the study only focuses on the banking sector in one country, and the findings may not be generalizable to other countries or industries.

Abbreviations

GDPG = GDP growth rate
 INF = Inflation rate
 UNEP = Unemployment rate
 ROA = Return on Assets

Acknowledgements: N/A

Funding: Not applicable

Availability of data and materials: The datasets used and analyzed during the current study are available on the banks websites.

Competing interests/ Conflict of Interest: We have no competing interest or conflict of interest.

Ethical approval: No human or animal subjects were involved.

Consent to participate: Not applicable.

Consent for publication: Author consents to publication.

References

- Aburime, T. (2008). Determinants of bank profitability: Macroeconomic evidence from Nigeria. Available at SSRN 1231064. <https://doi.org/10.2139/ssrn.1231064>
- Akani, H. W., Nwanna, I., & Mbachu, A. (2016). Effects of selected macroeconomic variables on commercial banks performance in Nigeria. *IIARD International Journal of Banking and Finance*, 2(3), 34-75.
- Al-Homaidi, E. A., Tabash, M. I., Farhan, N. H. S., & Almaqtari, F. A. (2018). Bank-specific and macro-economic determinants of profitability of Indian commercial banks: A panel data approach. *Cogent Economics & Finance*, 6(1), 1548072. <https://doi.org/10.1080/23322039.2018.1548072>
- Al-Mamun, A., Yasser, Q. R., Entebang, H., Rahman, A., Nathan, T. M., & Abu Mansor, S. (2014). Comparison between Islamic and Conventional Banking: Evidence from Malaysia. *International Journal of Excellence in Islamic Banking and Finance*, 182(1464), 1-14. <https://doi.org/10.12816/0006958>
- Alim, M. A., Thaichon, P., Quach, S., Weaven, S., & Ghosh, T. (2023). Digital Technologies in Luxury Industry: Identifying the Future Aspects of Luxury Brand Management. In *Luxury Marketing, Sustainability and Technology* (pp. 15-36). Routledge.

- Asif, M.H. et al. (2023). Do environmental knowledge and green trust matter for purchase intention of eco-friendly home appliances? An application of extended theory of planned behavior. *Environmental Science and Pollution Research*, 30(13), 37762-37774. <https://doi.org/10.1007/s11356-022-24899-1>
- Baba, S., & Nasieku, T. (2016). Effect of macroeconomic factors on the financial performance of commercial banks in Nigeria. *International Journal of Social Science and Information Technology*, 2(IX).
- Bangladesh Bank. (2023). Annual Report 2021-2022 [Annual Report]. Bangladesh Bank. <https://www.bb.org.bd/pub/annual/anreport/ar2122.pdf>
- Bashir, A.-H. M. (2003). Determinants of profitability in Islamic banks: Some evidence from the Middle East. *Islamic economic studies*, 11(1).
- Bhattarai, S. (2017). Determinants of Non-Performing Loan in Nepalese Commercial Banks. *Economic Journal of Development Issues*, 19(1-2), 22-38. <https://doi.org/10.3126/ejdi.v19i1-2.17700>
- Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48(2), 112-131. <https://doi.org/10.1016/j.jacceco.2009.09.001>
- Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of banking & Finance*, 13(1), 65-79. [https://doi.org/10.1016/0378-4266\(89\)90020-4](https://doi.org/10.1016/0378-4266(89)90020-4)
- Brahmaiah, B. (2018). Factors influencing profitability of banks in India. *Theoretical Economics Letters*, 8(14), 3046. <https://doi.org/10.4236/tel.2018.814189>
- Çetin, M. et al., (2023). The impact of natural resources, economic growth, savings, and current account balance on financial sector development: Theory and empirical evidence. *Resources Policy*, 81, 103300.
- Combey, A., & Togbenou, A. (1916). The bank sector performance and macroeconomics environment: Empirical evidence in Togo. *International Journal of Economics and Finance*, ISSN. <https://doi.org/10.5539/ijef.v9n2p180>
- Davydenko, A. (2010). Determinants of bank profitability in Ukraine. *Undergraduate economic review*, 7(1), 2.
- Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *The World Bank Economic Review*, 13(2), 379-408. <https://doi.org/10.1093/wber/13.2.379>
- Dewi, V. I., Tan Lian Soei, C., & Surjoko, F. O. (2019). The Impact of Macroeconomic Factors on Firms Profitability (Evidence From Fast Moving Consumer Good Firms Listed on Indonesian Stock Exchange).
- Dogru, T. et al. (2023). Employee turnover dynamics in the hospitality industry vs. the overall economy. *Tourism Management*, 99, 104783. <https://doi.org/10.1016/j.tourman.2023.104783>
- Durbin, J., & Watson, G. S. (1951). Testing for serial correlation in least squares regression. II. *Biometrika*, 38(1-2), 159-178.
- Eichengreen, B., & Gibson, H. D. (2001). Greek banking at the dawn of the new millennium. Available at SSRN 269391.
- Eyüboğlu, K. (2016). Comparison the financial performances of developing countries' banking sectors with topsis method. *Sosyal Bilimler Araştırmaları Dergisi*(14).
- Feldmann, H. (2012). Banking deregulation around the world, 1970s to 2000s: The impact on unemployment. *International Review of Economics & Finance*, 24, 26-42. <https://doi.org/10.1016/j.iref.2012.01.003>
- Flamini, V., McDonald, C. A., & Schumacher, L. B. (2009). The determinants of commercial bank profitability in Sub-Saharan Africa. <https://doi.org/10.5089/9781451871623.001>
- Folawewo, A. O., & Adeboje, O. M. (2017). Macroeconomic determinants of unemployment: Empirical evidence from economic community of West African states. *African Development Review*, 29(2), 197-210. <https://doi.org/10.1111/1467-8268.12250>
- Guerrieri, L., & Harkrader, J. C. (2021). What drives bank performance? *Economics Letters*, 204, 109884.
- Ghosh, T., Parven, S., & Sakib, A. I. (2024). The interaction effects of social media-driven advertising on consumers' purchase intention. *Journal of Ekonomi*, 6(1), 54-63.
- Ghosh, T., Hossain, M. J., Bala, T., Sakib, A. I., & Alim, M. A. (2023). How Value Consciousness, Customer Engagement and Trust Create Brand Loyalty: Luxury Brand and Social Media Marketing Perspective. *Academy of Marketing Studies Journal*, 27(6). Hasan, M. R., Rahman, K., Sakina, K., & Billah, N. B. (2019). Estimating Country Risk Premium and its Significance in Context of Bangladesh. *The Proceedings of the 2nd International Conference on Business and Management (ICBM 2019)*.
- Ghosh, T., Alim, M.A., & Hossain, M.J. (2021). The Role of Value Consciousness and Customer Engagement toward Brand Loyalty in Social Media Marketing: Luxury Brands Perspective. *Proceedings of International Conference on Management & Entrepreneurship organized by Swinburne University of Technology, Malaysia, 22-24 July, 2021*
- Haralayya, B., & Aithal, P. (2021). Study on productive efficiency of banks in developing country. *International Research Journal of Humanities and Interdisciplinary Studies (www.irjhis.com)*, 2(5), 184-194.
- Hong, S. C., & Abdul Razak, S. H. (2015). The impact of nominal GDP and inflation on the financial performance of Islamic banks in Malaysia. *Journal of Islamic Economics, Banking and Finance*, 113(3281), 1-24. <https://doi.org/10.12816/0026023>
- Horobet, A., Radulescu, M., Belascu, L., & Dita, S. M. (2021). Determinants of Bank Profitability in CEE Countries: Evidence from GMM Panel Data Estimates. *Journal of Risk and Financial Management*, 14(7), 307. <https://doi.org/10.3390/jrfm14070307>
- Ishioro, B. O. (2023). The Long-run Macroeconomic Determinants of Banks' Performance in Nigeria. *KIU Journal of Social Sciences*(4), 25-37%V 28. <https://ijhumas.com/ojs/index.php/kiujoss/article/view/1538>
- Islam, H., Johora, F., Abbasy, A. A., Rana, M., & Antoine, N. (2021). The perceived impact of COVID-19 pandemic on healthcare cost in Bangladesh. *Journal of Global Business Insights*, 6(2), 172-185. <https://doi.org/10.5038/2640-6489.6.2.1173>
- İşık, C., Aydın, E., Dogru, T., Rehman, A., Alvarado, R., Ahmad, M., & Irfan, M. (2021). The nexus between team culture, innovative work behaviour and tacit knowledge sharing: Theory and evidence. *Sustainability*, 13(8), 4333. <https://doi.org/10.3390/su13084333>

- Işık, C., Ongan, S., & Islam, H. (2024a). A new pathway to sustainability: Integrating economic dimension (ECON) into ESG factors as (ECON-ESG) and aligned with sustainable development goals (SDGs). *Journal of Ekonomi*, 34–39. <https://doi.org/10.58251/ekonomi.1450860>
- Işık, C., Ongan, S., Islam, H., Jabeen, G., & Pinzon, S. (2024b). Is economic growth in East Asia Pacific and South Asia ESG factors based and aligned growth? *Sustainable Development*. <https://doi.org/10.1002/sd.2910>
- Işık, C., Ongan, S., Islam, H., Pinzon, S., & Jabeen, G. (2024c). Navigating sustainability: Unveiling the interconnected dynamics of ESG factors and SDGs in BRICS-11. *Sustainable Development*. <https://doi.org/10.1002/sd.2977>
- Işık, C., Bulut, U., Ongan, S., Islam, H., & Irfan, M. (2024d). Exploring how economic growth, renewable energy, internet usage, and mineral rents influence CO2 emissions: A panel quantile regression analysis for 27 OECD countries. *Resources Policy*, 92, 105025. <https://doi.org/10.1016/j.resourpol.2024.105025>
- Işık, C., Ongan, S., Islam, H., Sharif, A., Balsalobre-Lorente, D. (2024e). Evaluating the effects of ECON-ESG on load capacity factor in G7 countries. *Journal of Environmental Management*. <https://doi.org/10.1016/j.jenvman.2024.121177>
- Işık, C., Ongan, S., Ozdemir, D., Yan, J., & Demir, O. (2024f). The sustainable development goals: Theory and a holistic evidence from the USA. *Gondwana Research*, 1-11. <https://doi.org/10.1016/j.gr.2024.04.014>
- Islam, H., Johora, F., Abbasy, A., Rana, M., & Antoine, N. (2021). The perceived impact of COVID-19 pandemic on healthcare cost in Bangladesh. *Journal of Global Business Insights*, 6(2), 172–185. <https://doi.org/10.5038/2640-6489.6.2.1173>
- Islam, H., Madavarapu, J. B., Sarker, N. K., & Rahman, A. (2022). The Effects of Cyber Threats and Technical Problems on Customer's Attitude Towards E-Banking Services. *Oblik I Finansi*, (2(96)), 58–67. [https://doi.org/10.33146/2307-9878-2022-2\(96\)-58-67](https://doi.org/10.33146/2307-9878-2022-2(96)-58-67)
- Islam, H., Rahman, J., Tanchangya, T., & Islam, M. A. (2023). Impact of firms' size, leverage, and net profit margin on firms' profitability in the manufacturing sector of Bangladesh: An empirical analysis using GMM estimation. *Journal of Ekonomi*, 5(1), 1–9. <https://doi.org/10.58251/ekonomi.1275742>
- Islam, H., Rana, M., Saha, S., Khatun, T., Ritu, M. R., & Islam, M. R. (2023). Factors influencing the adoption of cryptocurrency in Bangladesh: an investigation using the technology acceptance model (TAM). *Technological Sustainability*, 2(4), 423–443.
- Islam, H., Rana, M., Sarker, N. K., & Siddique, M. A. B. (2020). Does Bangladesh Need to be Established Derivatives Markets? *Journal of Economics and Business*, 3(2). <https://doi.org/10.31014/aior.1992.03.02.226>
- Islam, H., Soumia, L., Rana, M., Madavarapu, J. B., & Saha, S. (2024). Nexus between perception, purpose of use, technical challenges and satisfaction for mobile financial services: theory and empirical evidence from Bangladesh. *Technological Sustainability*.
- Jo, C., Kim, D. H., & Lee, J. W. (2023). Forecasting unemployment and employment: A system dynamics approach. *Technological Forecasting and Social Change*, 194, 122715. <https://doi.org/10.1016/j.techfore.2023.122715>
- Kanwal, S., & Nadeem, M. (2013). The impact of macroeconomic variables on the profitability of listed commercial banks in Pakistan. *European journal of business and social sciences*, 2(9), 186-201. <https://doi.org/10.12691/jfe-7-2-2>
- Keo, V. (2020). Impact of bank-specific and macroeconomic determinants on financial performance in commercial banks – case study in Thailand and Vietnam. *International Journal of Social Sciences*, 6(2), 514-534. <https://doi.org/10.20319/pijss.2020.62.514534>
- Khravish, H. A. (2011). Determinants of commercial banks performance: Evidence from Jordan. *International Research Journal of Finance and Economics*, 81(1), 148-159.
- Kiganda, E. O. (2014). Effect of macroeconomic factors on commercial banks profitability in Kenya: Case of equity bank limited. *Journal of Economics and Sustainable development*, 5(2), 46-56.
- Kirimi, P. N., Kariuki, S. N., & Ocharo, K. N. (2020). Mediation effect of macro-economic factors on the relationship between banks' financial soundness and financial performance. <https://doi.org/10.5923/j.ijfa.20200905.01>
- Klein, N. (2013). Non-performing loans in CESEE: Determinants and impact on macroeconomic performance. *International Monetary Fund*.
- Kosmidou, K., Pasiouras, F., Zopounidis, C., & Doumpos, M. (2006). A multivariate analysis of the financial characteristics of foreign and domestic banks in the UK. *Omega*, 34(2), 189-195. <https://doi.org/10.1016/j.omega.2004.10.002>
- Kosmidou, K., Tanna, S., & Pasiouras, F. (2005). Determinants of profitability of domestic UK commercial banks: panel evidence from the period 1995-2002. *Money Macro and Finance (MMF) Research Group Conference*,
- Long, H., Chang, C.-P., Jegajeevan, S., & Tang, K. (2022). Can Central Bank Mitigate the Effects of the COVID-19 Pandemic on the Macroeconomy? *Emerging Markets Finance and Trade*, 58(9), 2652-2669. <https://doi.org/10.1080/1540496X.2021.2007880>
- Mahmood, M. (2019, 28 April). The current state of the banking industry in Bangladesh. *The Financial Express*. <https://thefinancialexpress.com.bd/views/views/the-current-state-of-the-banking-industry-in-bangladesh-1556380055>
- Mamun, M. A. A., Islam, H., & Sarker, N. K. (2022). Affiliation between Capital Adequacy and Performance of Banks in Bangladesh. *Journal of Business Studies*, 03(01), 155–168. <https://doi.org/10.58753/jbspust.3.1.2022.10>
- Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability: A note. *Journal of banking & Finance*, 16(6), 1173-1178. [https://doi.org/10.1016/0378-4266\(92\)90065-8](https://doi.org/10.1016/0378-4266(92)90065-8)
- Muda, M., Shaharuddin, A., & Embaya, A. (2013). Comparative analysis of profitability determinants of domestic and foreign Islamic banks in Malaysia. *International Journal of Economics and Financial Issues*, 3(3), 559-569.
- Naruševičius, L. (2018). Bank profitability and macroeconomy: evidence from Lithuania. *Technological and economic development of economy*, 24(2), 383–405-383–405. <https://doi.org/10.3846/20294913.2016.1213192>
- Neupane, B. P. (2020). Profitability determinants of Nepalese commercial banks. *PressAcademia procedia*, 12(1), 40-45. <https://doi.org/10.17261/Pressacademia.2020.1345>
- Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237-252.

- Otuori, O. H. (2013). Influence of exchange rate determinants on the performance of commercial banks in Kenya. *European Journal of management sciences and economics*, 1(2), 86-98.
- Ozatac, N., Taspinar, N., El Rifai, O., & Eren, B. (2018). The Relationship Between Government Expenditure on Education and Economic Growth: The Case of France. In D. Procházka, *The Impact of Globalization on International Finance and Accounting Cham*.
- Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in international business and finance*, 21(2), 222-237. <https://doi.org/10.1016/j.ribaf.2006.03.007>
- Petria, N., Capraru, B., & Ilnatov, I. (2015). Determinants of Banks' Profitability: Evidence from EU 27 Banking Systems. *Procedia Economics and Finance*, 20, 518-524. [https://doi.org/10.1016/S2212-5671\(15\)00104-5](https://doi.org/10.1016/S2212-5671(15)00104-5)
- Rana, M., AL Mamun, A., Hossain, M. K., & Islam, H. (2023). Factors Influencing the Monetary Policy. *Journal of Ekonomi*. <https://doi.org/10.58251/ekonomi.1374599>
- Rana, M., & Al Mamun, A. (2024). Monetary policy dynamics and economic performance in Bangladesh: An arima model approach. *Journal of Economics and Research*, 5(1), 47–62. <https://doi.org/10.53280/jer.1431607>
- Rahman, K. (2019). Performance analysis of selective private commercial banks of Bangladesh through CAMEL rating. *Brac University. Bangladesh: Brac University*. Retrieved from <https://dspace.bracu.ac.bd/xmlui/handle/10361/12830>
- Rao, K. R. M., & Lakew, T. B. (2012). Determinants of profitability of commercial banks in a developing country: Evidence from Ethiopia. *International journal of accounting and financial management research*, 2(3), 1-20.
- Rengasamy, D. (2012). The need to evaluate bank performance. Retrieved 16 July from <https://www.theborneopost.com/2012/11/06/the-need-to-evaluate-bank-performance/>
- Saeed, M. S. (2014). Bank-related, industry-related and macroeconomic factors affecting bank profitability: A case of the United Kingdom. *Research journal of finance and accounting*, 5(2), 42-50.
- Sahoo, M., & Sahoo, J. (2019). The relationship between unemployment and some macroeconomic variables: Empirical evidence from India. *Theoretical & Applied Economics*, 26(1).
- Salas, V., & Saurina, J. (2002). Credit Risk in Two Institutional Regimes: Spanish Commercial and Savings Banks. *Journal of Financial Services Research*, 22(3), 203-224. <https://doi.org/10.1023/A:1019781109676>
- Samad, A., & Hassan, M. K. (2006). The performance of Malaysian Islamic bank during 1984–1997: An exploratory study. *International journal of Islamic financial services*, 1(3). <https://doi.org/10.2139/ssrn.3263331>
- Sastrosuwito, S., & Suzuki, Y. (2012). The determinants of post-crisis Indonesian banking system profitability. *Economics and finance review*, 1(11), 48-57.
- Simiyu, C. N., & Ngile, L. (2015). Effect of macroeconomic variables on profitability of commercial banks listed in the Nairobi securities exchange. *International Journal of Economics, Commerce and Management*, 3(4), 1-16.
- Sufian, F., & Chong, R. R. (2008). Determinants of bank profitability in a developing economy: Empirical evidence from the Philippines. *Asian Academy of Management Journal of Accounting & Finance*, 4(2).
- Sufian, F., & Habibullah, M. S. (2009). Bank specific and macroeconomic determinants of bank profitability: Empirical evidence from the China banking sector. *Frontiers of Economics in China*, 4(2), 274-291. <https://doi.org/10.1007/s11459-009-0016-1>
- Veizagic, M., & Zarafat, H. (2014). An analysis of macroeconomic determinants of commercial banks profitability in Malaysia for the period 1995-2011. *Journal of Asian Economy and Financial Review*, 4(1).
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.
- Zhang, X., & Daly, K. (2014). The Impact of Bank-Specific and Macroeconomic Factors on China's Bank Performance ok. *The Chinese Economy*, 47(5-6), 5-28. <https://doi.org/10.2753/CES1097-1475470501.2014.11082913>



Hasibul Islam (**0000-0002-3242-2502**) is a Lecturer at the Department of Business Administration in Varendra University, Bangladesh, is currently investigating three topics: development economics, environmental economics, and energy economics. His research interests include ESG and sustainability. Previously, he held a position as a lecturer at NPI University of Bangladesh. Mr. Islam's academic journey is characterized by exceptional achievements, such as being nominated for the Prime Minister's Gold Medal, which will soon be awarded, underscoring his dedication and excellence in academia. Despite facing challenges in accessing research opportunities, Mr. Islam has actively pursued and published research articles in reputable journals, demonstrating his commitment to advancing knowledge in his field. Moreover, his establishment of the Quantitative Research Center of Bangladesh illustrates his leadership and dedication to fostering collaboration and supporting students in their research endeavors. Through this center, he aims to provide a platform for students at all levels to engage in high-quality research and mutual learning opportunities, thus contributing to the advancement of quantitative finance research in Bangladesh and beyond.



Md. Saidul Islam (**0000-0003-4830-4727**) was born in the Satkhira district of Bangladesh. He obtained BBA and MBA in the Department of Banking and Insurance from a reputed public university of Bangladesh, University of Rajshahi, with a remarkable academic excellence. His areas of research are blockchain technology, Corporate Social Responsibility (CSR), financial literacy, macro-economy, microfinance etc. He served as an executive member of Rajshahi University Research Society (RURS), member of Bangladesh Business Research Forum (BBRF) and different voluntary organizations during his academic journey. Mr. Islam had already published several articles in the various notable international journals. The short term goal of Mr. Islam is to be a Lecturer in a reputed public university and long term goal is to be a successful person throughout his career.



Shimanto Saha (**0009-0007-3721-4933**) originates from Tangail, Bangladesh. He earned his Bachelor of Business Administration (BBA) in Management Studies from Mawlana Bhashani Science and Technology University. Currently, he is pursuing his Master of Business Administration (MBA) in Human Resource Management from the same institution. Saha's academic journey is complemented by his dedication to research, particularly in the field of FinTech. He has contributed to multiple publications in this domain, showcasing his expertise and commitment to advancing knowledge in financial technology.



Tanzika Imam Tarin (**0009-0000-6652-3179**), a driven and inquisitive 24-year-old, is currently pursuing her passion for research as a Research Assistant in the Department of Banking and Insurance at the University of Chittagong. With a Bachelor's degree in Business Administration, majoring in Banking and Insurance, Tanzika exhibits a profound interest in various domains, including Marketing, Economy, Banking & Finance, as well as advocating for women's welfare in financial markets.



Lalmi Soumia (**0000-0003-1930-5907**) was born in the city of Béchar, Algeria. She graduated from Taheri Mohamed Béchar University, specializing in finance and insurance accounting. At the same university, she studied a Master's in monitoring economic and banking, which is the same specialty in which she obtained her doctorate. Now she is a faculty member of the university contractually and a member of the Laboratory of economic studies and local development in the Southwest, she is also a Member of the editorial board of the Journal of Economics and the Environment of Mostaganem and even an external editor at the Worldwide Journal Of Research in the Philippines.



Sunjida Parven (**0000-0002-4000-4589**) is an Assistant Professor in the Department of Business Administration, Varendra University, Bangladesh. She has completed her BBA and MBA degree from the department of marketing at University of Rajshahi. Her research interest mainly addresses Macroeconomics, Digital marketing, Social media marketing, Sustainable marketing, Luxury branding and fashion marketing, Entrepreneurship, Tourism.



Ms. Khusbu Rahman (**0000-0002-1600-8336**) was born in Dhaka, Bangladesh. She has done her bachelors from BRAC university, Bangladesh in Business Administration (major: Finance and minor: Economics). She has recently completed MBA from Purdue University Fort Wayne, USA. She is a young researcher and served as a Graduate Research Assistant for the Doermer School of Business, Purdue University Fort Wayne from 2022 to 2024. She works on sustainable developments, ESG, and Green Marketing.