Thesis on

"THE IMPACT OF INFLATION ON BANK PROFITABILITY: A STUDY OF THE BANKING SECTOR IN BANGLADESH"

Submitted By

Alif Al Ashad

Student ID: 22364036

A thesis submitted to the Brac Business School in fulfillment of the Master of Business Administration degree requirements.

Brac Business School

Brac University

21^{tt} December, 2024

Declaration

I, Alif Al Asad, hereby declare that:

- This thesis is original and represents independent work presented for the required post-graduation degree.
- The thesis has not been previously submitted for a degree, and all material included is my own, with proper references provided for portions written by other authors.
- This thesis report has not been submitted, in whole or in part, to fulfill the requirements for any degree, and such material has never been submitted at another university under a student matriculation program.
- I have clearly attributed all assistance received from external sources in the preparation of this thesis.

Student's Full Name & Signature:

Alif Al Ashad
Student ID: 22364036

Supervisor's Signature and Full Name:

Sayla Sowat Siddiqui, Phd
Assistant Professor, Brac University

Letter of Transmittal

Sayla Sowat Siddiqui, Phd

Assistant Professor

Brac University

Kha-224, Merul Badda, Dhaka-1212

Subject: Submission of Thesis.

Respected Ma'am,

I am pleased to submit my thesis report on **"The Impact of Inflation on Bank Profitability: A Study of the Banking Sector in Bangladesh."** This report explores the relationship between inflation and bank profitability within the context of the Bangladeshi banking sector, utilizing relevant secondary data. I trust that this report meets your expectations and adheres to the academic standards of BRAC Business School.

Thank you for your guidance and support throughout this process.

Sincerely,

Alif Al Ashad

22364036

MBA Student, BRAC University

Dedication

I extend my sincere gratitude to my supervisor, Sayla Sowat Siddiqui & Co-Supervisor Ms. Yasmin Jamadar, for their invaluable guidance and support throughout this research. My thanks also go to the faculty of BRAC University for laying the academic groundwork for this study. I am grateful to the banking professionals who contributed their insights, and to Bangladesh Bank and other institutions for data access.

Lastly, heartfelt thanks to my family and friends for their unwavering support and encouragement, which made this work possible.

Abstract

This study examines the relationship between inflation and bank profitability within Bangladesh's banking sector, focusing on how inflationary pressures affect financial stability and earnings. Using a quantitative approach based on secondary data from annual reports, financial statements, and economic publications, this research explores the mechanisms through which inflation impacts interest rates, loan default rates, and overall bank performance. Key financial indicators such as Return on Assets (ROA) and Return on Equity (ROE) are analyzed to assess profitability under varying inflationary conditions. Findings indicate that inflation has a dual effect: while moderate inflation can bolster profitability by raising interest rates, high inflation erodes consumer purchasing power, increases loan defaults, and diminishes profit margins. The study provides insights into how inflation influences the cost of capital, asset quality, and risk management practices, highlighting the need for banks to adopt strategies that mitigate inflationary risks. This research contributes to the understanding of macroeconomic factors affecting bank performance, offering valuable perspectives for policymakers and banking institutions to strengthen financial resilience in the face of economic fluctuations.

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Chapter 1: Introduction

1.1 Background of the Study

Profitability looks at security, robustness, and growth in the complex banking landscape. As financial intermediaries, banks are key players in economic development, providing credit, wealth, and payment services. Yet, their performance is highly sensitive to external macroeconomic conditions, inflation being one of them. Bangladesh has had different levels of inflation in the past couple of decades depending primarily on external economic shocks, volatile commodity prices and factors that are pumping up the inflation rate domestically. The banking sector can be severely impacted, in terms of both short- and long-term profitability, due to this dynamic inflationary situation.

1.2 Problem Statement

Indeed, in principle, inflation has the potential of creating richer pickings for banks by raising lending rates but this is offset by rising risks, such as more loan defaults and lower asset quality. This study will examine inflation kinematics, and its effect on the profitability of Bangladeshi banks. This knowledge will shed light on the dynamics of banks profitability and financial stability in the us, indicating the magnitude of the impact of inflation on operational and financial decision making within the sector.

1.3 Research Objectives

So, the main aim of this paper is to see the linkage of inflation and bank profitability in Bangladesh. More specifically the current study aims to:

- Impact of inflation on financial indicators like ROA and ROE
- Examine the impact of Inflation on interest rates, loan performance, and asset quality in the banking sector.
- Describe how banks may or may not manage the risks associated with inflation and how they may or may not manage to stay profitable in an inflationary environment.

1.4 Research Questions

The present study answers the following questions:

- To what extent do inflation and bank profitability correlate each other in Bangladesh.
- How are bank assets, liabilities and risk management affected by inflationary pressures?
- To cope up with the negative effect of inflation on profitability banking sectors of Bangladesh adopts some strategies.

1.5 Significance of the Study

Since the banking sector is essential for the economy of Bangladesh, it is imperative for the policymakers, bankers and financial analysts to understand the consequences of inflation on bank profitability. The findings of the study give comprehensive understanding of challenges faced by banks during inflationary times and the strategies which banks deploy to defend their profitability. This research also further informs regulatory policies designed to strengthen economic stability by highlighting the impact of inflation on banks.

1.6 Scope and Limitations of the Study

It aims to investigated the impacts of financial performance disclosed in the data which is adopted from the secondary data of the described secondary data newspapers, magazines, annual reports of selected banks of Bangladesh, and other economic publications over the year. This research has its limitations, as it is based on the secondary data through the qualitative method; it cannot capture the real-time complexities inflation may bring for individual banks. Moreover, the global banking trends have also not considered in the study as only the Bangladeshi banking will be focus.

1.7 Structure of the Thesis

The rest of this thesis is structured as follows: Chapter 1 deals with area of the research, problem, objectives and significance of the study. In Chapter 2 presents a literature review of studies related to inflation and bank profitability, building up the theoretical picture. In Chapter 3 the research methodology is discussed. Chapters 4 and 5: Findings, Analysis, and Conclusions and Recommendations.

Chapter 2: Literature Review

Many researchers, economists and financial analysts have focused on the connection between inflation and bank profitability. Since inflation is an element that influences other economic variables, the effect of inflation on the banking sector is an important aspect for the management of finances and the policies of the economy. This chapter discusses the literature related to the study on inflation, methods of measuring inflation and its effects on bank profitability and above all, with particular regard to bank in Bangladesh. In synthesizing theoretical approaches and empirical evidence, this review establishes a basis to analyze how inflation affects bank performance.

2.1 The Concept of Inflation

What Is Inflation is defined as the general increase in the cost of goods and services over a period in an economy. In simple words, inflation means that as time goes by you need more money to purchase the same goods or services which shows that your money would yield less. If the price of a loaf of bread has gone from 10 taka last year to 12 taka now, that is an example for inflation.

Inflation broadly falls in two categories, that is **demand-pull inflation** and **cost-push inflation**.

- **Demand-pull inflation** occurs when aggregate demand is higher than aggregate supply. It happens if consumers have a higher discretionary income, governments increase expenditures on initiatives or businesses start to invest heavily.

- In contrast, **cost-push inflation** arises from increased production costs, wage increases or higher raw material prices. These increased expenditures result in higher pricing for the consumer goods.

Traditional measurements of inflation are based on statistics, such as the Consumer Price Index (CPI) or the Producer Price Index (PPI). The CPI measures the price change of a basket of goods and services likely to be bought by consumers, whereas the PPI shows how much producers will earn from their goods.

A bit of inflation is nothing unusual in a thriving economy. This raises expectations of increased spending and investment with the view that prices will only rise again in future. But when inflation grows higher (hyperinflation) or lower (deflation), it destroys the economy. While the former makes it worthless to keep savings, the latter tends to put businesses out of business and raise unemployment.

Central banks and governments control inflation using policy. For example, they may be lowering interest rates, money supply or fiscal methods such as taxation and spending to stabilize prices.

So in short, inflation is a good thing but has to be controlled carefully on an economic standpoint so be it stable economics and those that owns it one way or the other the ability against deflation increased.

2.2 Theoretical Framework on Inflation and Bank Profitability

Theoretically, the relationship between inflation and bank profitability can take on several forms. In this view, banks are more profitable when inflation is low but positive because banks can charge more for loans but pay less on deposits, widening the interest rate spread (Friedman, 1969). On the other hand, inflation uncertainty raises the risks of loan defaults and falling asset quality (Cohen & Kwan 2000). Based on the asset -liability management theory the inflation would have a negative influence on the profitability but this adverse effect could be reduced through the proper management of these effects (Berger & Udell, 1996).

2.3 Bank Profitability with Respect to Inflation: Empirical Studies

There are numerous empirical studies carried out on how inflation affects the profitability of banks in different economies. For example, Athanasoglou et al. Moreover, in the Greek banking field, a strong adverse association was reported between inflation and the profitability of banks, (2006). As well, in study of Turkish banking sector, Çelik and Ozturk (2015) found that inflation negatively impacted banks' profitability indicators like (ROA) and (ROE). Other studies (e.g., Molyneux and Thornton, 1992), however, argue that moderate inflation, by improving lending margins, may contribute to higher profits.

References pertaining especially to inflation on bank profitability are limited in Bangladesh. On the contrary, Rahman and Jahan (2018) in recent study showed that inflation has a negative effect on the profitability of banks in Bangladesh when inflation is high. Note: Their analysis indicates that banks have difficulties in sustaining asset quality and managing interest rate risks, highlighting the importance of solid risk management."

2.4 Determinants of Bank Profitability Under Inflationary Environment

There is a mediation effect of different factors between inflation and banking profitability. Volatility in interest rates is one of the major worries, since changes in interest rates lead to variations in net interest margin, net interest income earned minus interest paid to depositors (Khan et al., 2018). Moreover, within the context of inflation, it is crucial to note that credit risk also exacerbates in such an economic landscape, as increasing prices can also contribute to increasing default rates for borrowers. The capability of a bank with respect to risk management practices play an important role in reducing these risks and attaining lifelong profitability (Jin & Sutherland 2011).

Chapter 3: Hypothesis Development

This chapter develops hypotheses for the study's investigation of inflation and bank profitability, especially in Bangladesh, based on the thorough review of the literature detailed in Chapter 2. The forthcoming subsections utilize theoretical frameworks, empirical findings, and determinants discovered in academic literature to derive hypotheses that can be empirically tested, serving as a basis for this study.

3.1 Hypothesis Framework

Inflation influences bank profitability in a roundabout way through its effect on mixed factors like interest rate volatility, the risk of credit and asset-liability management. This study takes a systematic approach to formulate the nature and direction of such relationships, with particular preference given to Return on Assets (ROA) and Return on Equity (ROE) which are the main indicators of profitability.

3.1.1 The Direct Impact of Inflation on Bank Profitability

Inflation creates both upside and downside pressure on bank profitability. On the one hand, moderate inflation will improve lending spreads since banks can charge higher interest rates on loans but pay lower interest rates on deposits (Friedman, 1969;

Molyneux & Thornton, 1992). High inflation or volatility of inflation, on the contrary, weakens the quality of assets and exacerbates the risk of default, which adversely affects profitability (Cohen & Kwan, 2000; Rahman & Jahan, 2018).

Hypothesis 1: Inflation significantly affects profitability of banks, measured by ROA and ROE, in the banking industry of Bangladesh.

3.1.2 Volatility of Inflation and Interest Rates

Interest rate volatility is key intermediate factor in inflation-profitability relation. Increased inflation tends to cause erratic movements in interest rates and has implications for net interest margins and earnings stability (Khan et al., 2018). This implies that the link between inflation and profitability can be moderated by interest rate volatility.

Hypothesis 2: The relationship between inflation and bank profitability is mediated by interest rate volatility, and higher volatility reinforces the negative effects of inflation.

3.1.3 Inflation-Driven Credit Risk

The emerging festive poise of the economy could replicate itself into higher chances of loan defaults due to a rise in prices in an inflationary environment, leading to a growing credit risk. To some extent, the stronger risk management practices in banks could alleviate the effect of these crises, while banks in both low- and high-income countries with weaker systems will see their profitability deteriorate (Jin & Sutherland, 2011).

Hypothesis 3: The effect of inflation on bank profitability is somewhat mitigated by credit risk, with more credit risk resulting in lower ROA and ROE.

3.1.4 The Role of Asset-Liability Management

By maximizing the balance between assets and obligations, efficient asset-liability management can lessen the negative effects of inflation on bank profitability (Berger & Udell, 1996). Banks are more resilient to inflationary pressures when they strategically handle these dynamics.

Hypothesis 4: The connection between inflation and bank profitability is greatly

influenced by asset-liability management, with efficient management mitigating adverse effects.

3.1.5 Empirical Evidence Specific to Bangladesh

According to empirical research on Bangladesh, bank profitability and inflation are primarily negatively correlated, especially when inflation is high (Rahman & Jahan, 2018). These results emphasize the necessity of looking at national characteristics that influence this link, such as economic circumstances and regulatory frameworks.

Hypothesis 5: In Bangladesh, there is a mostly negative correlation between inflation and bank profitability, with high inflation having a more detrimental impact than moderate inflation.

3.2 Conceptual Model

The proposed hypotheses are summarized in the following conceptual model:

- **Independent Variable:** Inflation (measured using CPI or similar indices).
- **Dependent Variables:** ROA and ROE (indicators of bank profitability).
- **Moderators:**
  - Interest rate volatility
  - Credit risk
  - Asset-liability management effectiveness

Chapter 4: Research Methodology

This chapter describes the overall research methodology used in this study in order to assess the effect of inflation on bank profitability in case of Bangladeshi banking industry. This includes the research design, methods of data collection and analysis, and justification for the selected approaches. Abstract The aim of this article is to provide a coherent insight of the interrelationship between inflation and bank profit over time using a quantitative assessment approach on secondary data.

4.1 Research Design

This study utilized quantitative research design, which is the analysis of data and the understanding of it by reading the literature, financial initiatives, and economic publications. Since this study aims to uncover the various dimensions of the impacts of

inflation on banking profitability, it is best achieved through a quantitative approach, which will provide insight outside of the bounds of numerical constraint. This design enables a holistic examination of trends, patterns and insights to address the research questions.

4.2 Data Collection

This study is secondary data, using data analysis that uses methods that can be found in many sources on the impact of inflation on bank profitability. The main sources of secondary data are:

- Financial Statements Annual reports and financial statements of the selected banks available in Bangladesh provide us with information about the profitability indicators of the banks such as Return on Assets (ROA) and Return on Equity (ROE).
- This would also include academic journals and peer-reviewed articles pertinent to the inflation-profitability nexus, which lay the theoretical and empirical foundations necessary for the analysis.
- Data collection should include identification and review of publicly available documents, compiling relevant information into a solid dataset for analysis.

4.3 Sample Selection

In this research, a purposive sampling method was used to choose banks with sufficient operational evidence of the banking sector in Bangladesh. Which are as follows:

- **Size and Market Share:** Target large commercial banks, which comprise a significant portion of the banking market.
- **Data Availability:** Choice of banks with easily accessible financial statement reports from 2010 to 2022 to observe inflationary trends and how it has revolutionized over the years.

This way the final sample constitutes industry representation as it includes variety of

banks in Bangladesh.

4.4 Data Analysis

Data analysis is congregating all the secondary data either in quantitative form or by identifying patterns and correlations between inflation and profitability of banks. The analysis process involves the following steps:

1. **Content Analysis:** Thematic coding of quantitative data to pinpoint key themes/insights relevant to the research objectives This includes examining financial reports, economic reports, and academic papers to gather information about the effect of inflation on the profitability of banks.
2. **Comparative Analysis:** Comparative Study of Profitability Indicators of Some Selected Banks with Respect to Different Rates of Inflation This involves comparing the ROA and ROE figures across the season to see how it correlates with the trends in inflation.
3. **Synthesis of Findings:** Cumulatively combining the findings from the data analysis to reach a conclusion about the net effect of inflation on the performance of banks profitability in Bangladesh.

4.5 Implications of the Methodology

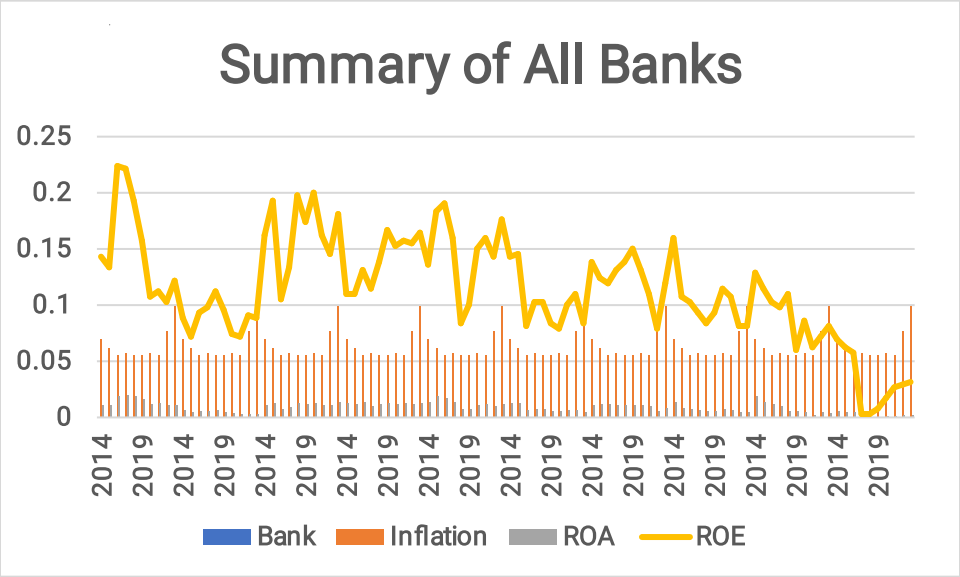
This method can yield some useful insights but does have limitations that should be noted:

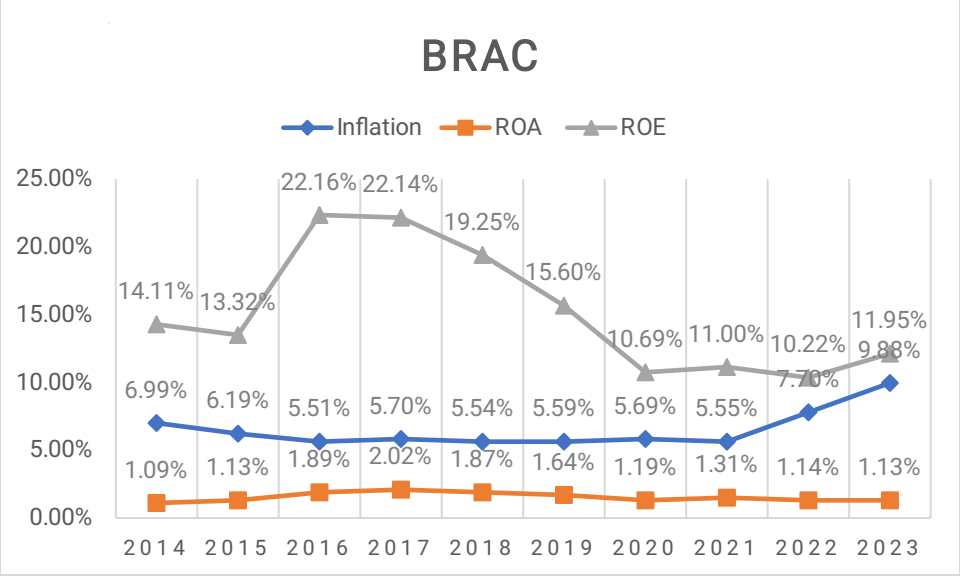
1. **Data Reliability:** Dependability of Data The work is based on public data, and public data can be distorted or not documented.
2. **Limitations of Contextual Constraints:** As only secondary data are used it restricts the capturing of real time complexities and perspectives from the bank management with regards to the inflation impact.

3. **Generalizability:** Due to an approach of purposive sampling, the results could not be fully generalized to smaller banks or banks that do not have a big presence in the market.

Chapter 5: Analysis and Findings of the Study

5.1 Impact of Inflation on ROA and ROE

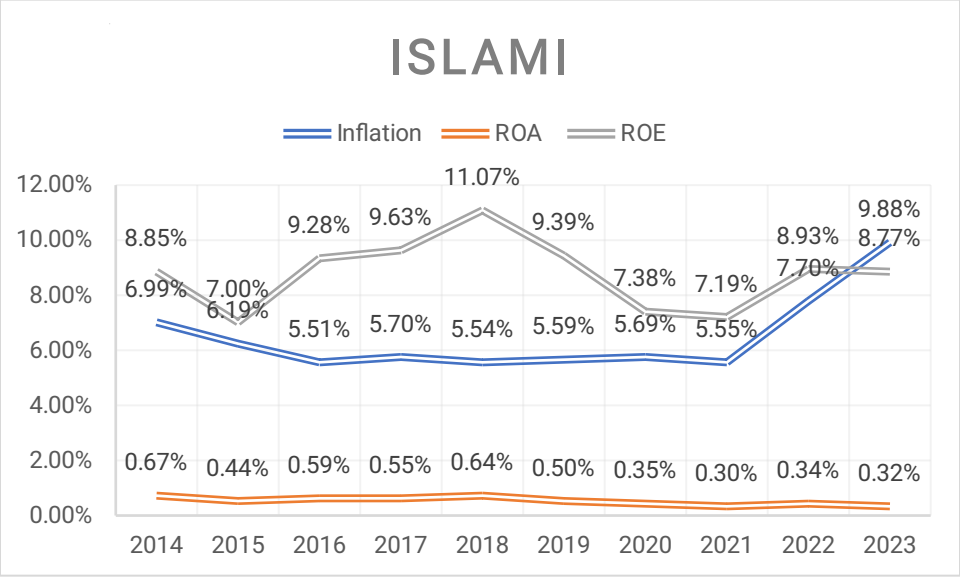

Summary of All Banks
0.25
0.2
0.15
0.1
0.05
0
2014
2019
Bank
Inflation
ROA
ROE


BRAC
Inflation
ROA
ROE
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
14.11%
13.32%
22.16%
22.14%
19.25%
15.60%
10.69%
11.00%
10.22%
11.95%
9.88%
6.99%
6.19%
5.51%
5.70%
5.54%
5.59%
5.69%
5.55%
1.09%
1.13%
1.89%
2.02%
1.87%
1.64%
1.19%
1.31%
1.14%
1.13%
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

BRAC: The inflation rate varied during the period with a rate of 6.99% in 2014, then the lowest rate of 5.51% in 2016, and the highest rate of 9.88% in 2023. The data shows moderate inflation rates between 2014 and 2021 (5.51%-6.99%) and an increase in 2022 and 2023 (7.70% and 9.88%, respectively).

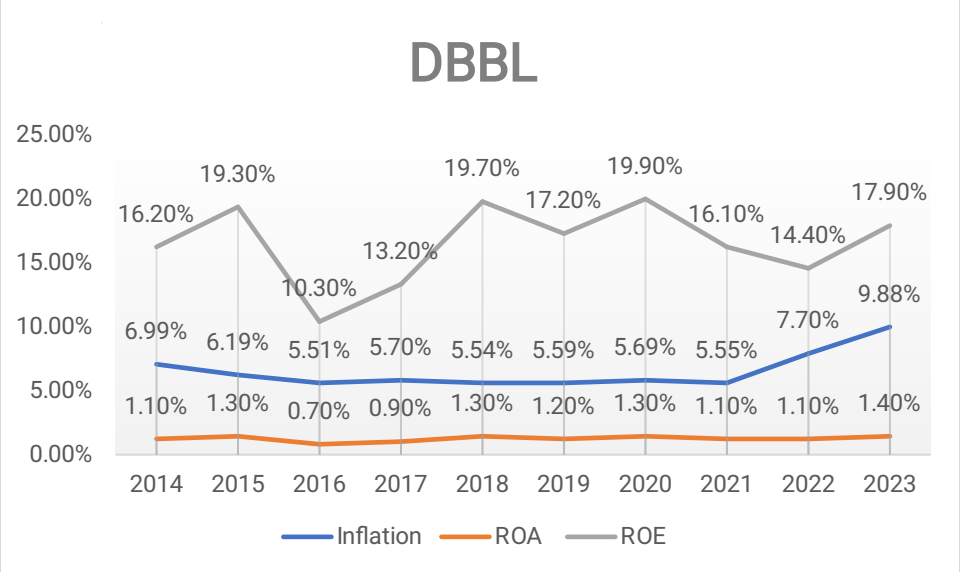
ROA values between 1.09% (2014) and 2.02% (2017) exhibit a slight drop to values as such as 1.13% in 2023. 2.02 ROA in 2017 was corresponded low inflation rate 5.70%, and thus the conditions for maximum usage of assets. But as inflation increased after 2021, ROA declined, which might suggest challenges in maintaining asset efficiency in the face of inflationary pressures.

ROE exhibits a parallel trend; peaking at 22.16% in 2016 and steadily decreasing to 10.22% (2022), with marginal recovery to 11.95% (2023). Peak ROE is also matched with a somewhat low inflation, which further confirms the idea that moderate inflation is good for profitability, through high lending margins and low expenses. The dramatic decline in ROE after 2019 is a testimony to the negative impact of growing inflation and also higher credit risk or lower lending wideness.



ISLAMI: ROA varied between 0.30% (for 2021) and 0.67% (for 2014). More interestingly, ROA is highest during moderate inflation (2014-2018) but drops markedly during high inflation (2022-2023), indicating that inflationary conditions may lead to less efficient asset usage.

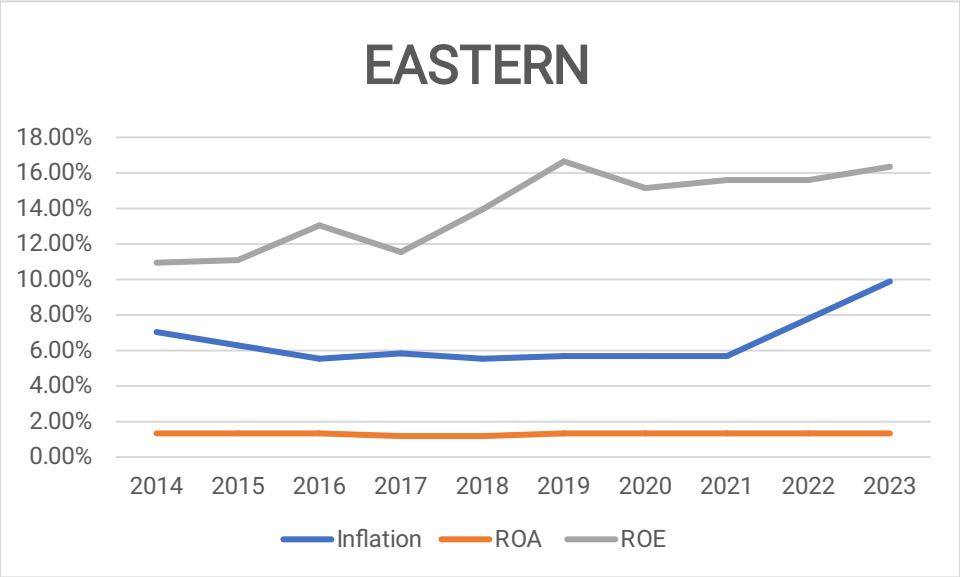
ROE ranged from 7.00% (2015) and 11.07% (2018). 2018 ROE is high, indicating profitability in periods of high inflation but sharply declining during periods of low inflation, implying challenges with profitability because with inflation rising costs are an increasing risk.



DBBL: The lowest ROA in 2016 occurred during a period of low inflation (5.51%), suggesting operational challenges despite favorable inflation rates. However, ROA generally remained stable, peaking in 2023 despite high inflation, possibly reflecting strategic improvements in asset efficiency.

ROE dropped during the low inflation period of 2016, rebounded strongly in 2018 and 2020 (19.70% and 19.90%, respectively), and declined slightly in 2022 before recovering

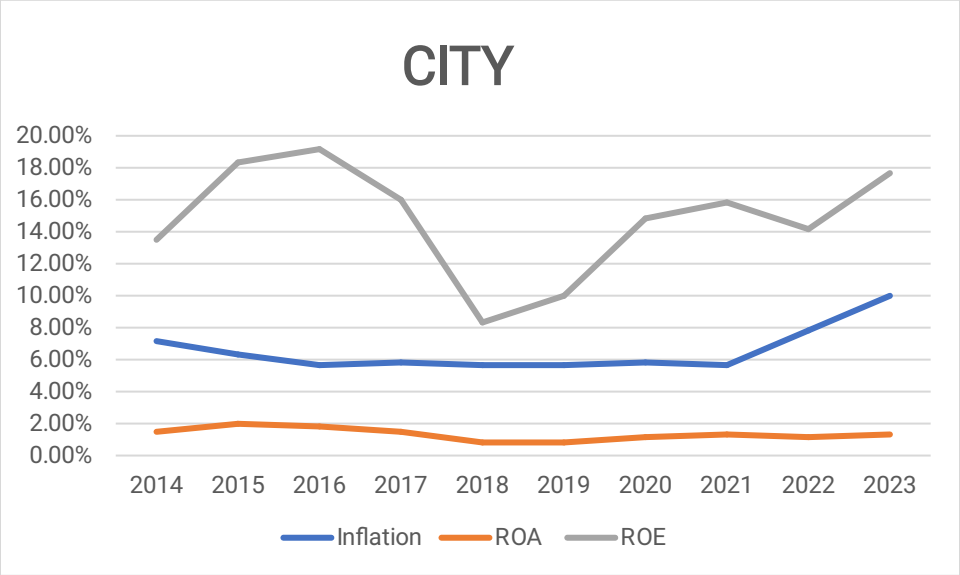
to 17.90% in 2023. The recovery during high inflation suggests effective equity management, even under economic stress.



EADTERN: ROA of 1.33% in 2016 demonstrates efficient use of assets during low inflation (5.51%). The 1.04% ROA in 2017 illustrates that profitability temporarily fell while the inflation rate remained steady at 5.70%. During moderate inflation (2014–2021) ROA has been stable which indicates strong operational efficiency. ROA career remained stable even during high inflation (2022–2023) and reflected the bank's ability to manage the inflationary pressure through effective cost management and user retention and acquisition strategies.

ROE went from 10.93% in 2014 to 16.52% (2019), declining each year until 2019 then is continuous growing. Highest return on equity (16.52%) in 2019 indicates enhanced return on equity amid high inflation (5.59%) in the period due to an effective profitability and risk management approach. 2014- The ROC (which was the lowest at 10.93%)

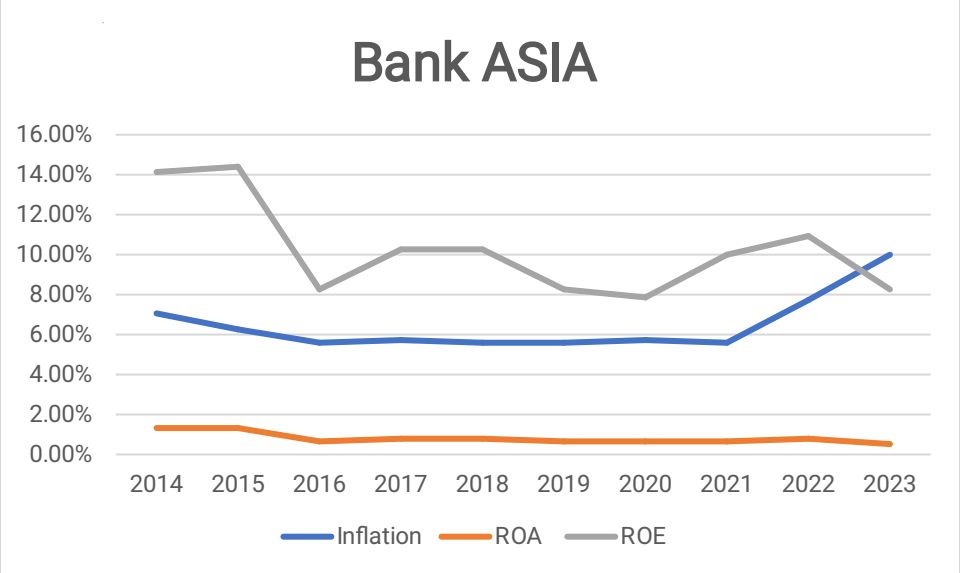
reflects relatively lower returns on equity Beside higher inflation at that time (6.99%). ROE remained above 15% despite high inflation in 2022–2023, which is suggestive of the resilience of Eastern Bank and its ability to generate shareholder returns despite adverse macroeconomic conditions.



CITY: The ROA for City Bank was in a range of from 0.70% (2018 and 2019) to 1.90% (2015) over the years, depicting an increase from 2012 to 2015 followed by a decline from 2018. With the ROA peaking at 1.90% in 2015 there was low inflation (6.19%) and we see high asset utilization efficiency. ROA reaches as low as 0.70% in 2018 and 2019, consistent with stable but relatively high inflation (5.54%–5.59%) during that time period, indicating potential challenges with operational efficiency or increased costs in 2018 and 2019. ROA recovers in 2020-2023, reaching 1.20% in 2023, showing better profitability despite high inflation (9.88%).

ROE across the years - the least being 8.20% in 2018 and the most being 19.00% in 2016; clearly, the returns to shareholders were highly volatile during this time. A ROE of

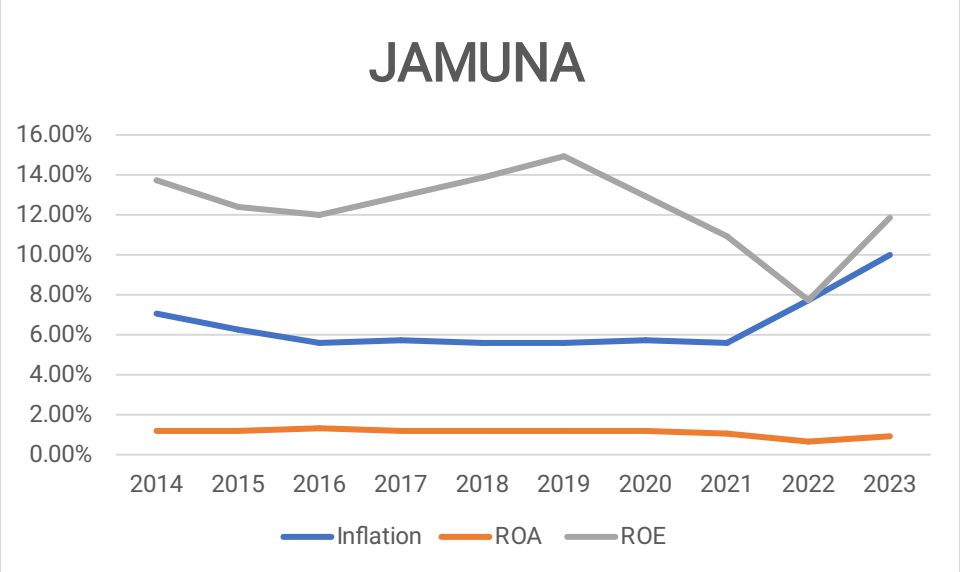
19.00% in 2016 indicates strong equity management and high profitability, taking into account low inflation in 2016 (inflation 5.51%). The 8.20% ROE is the lowest among 2018 and correspondingly, the ROA is also lower, thus, returns to the shareholders and profitability have declined. During 2020–2023, ROE improved gradually and was 17.60% in 2023, reflecting City Bank's resilience and ability to adapt amidst inflationary pressures while providing returns to shareholders.



Bank ASIA: The ROA of Bank Asia was lowest at 10.51% (2023) and highest at 1.28% (2014) with a decreasing ROA trend over the years, though certain period experienced minor recoveries. In 2014 the highest ROA of 1.28% indicates efficient utilization of assets in the phase of moderate inflation (6.99%). The last ROA of 0.51% with inflation still high (9.88%) in 2023 suggests serious obstacles to profitability either because operational costs are getting higher or revenues are lower. ROA was relatively stable from 2017 to 2018 with a recorded ratio of 0.76% but displayed a declining trend

starting from 2019 even though inflation levels showed variability.

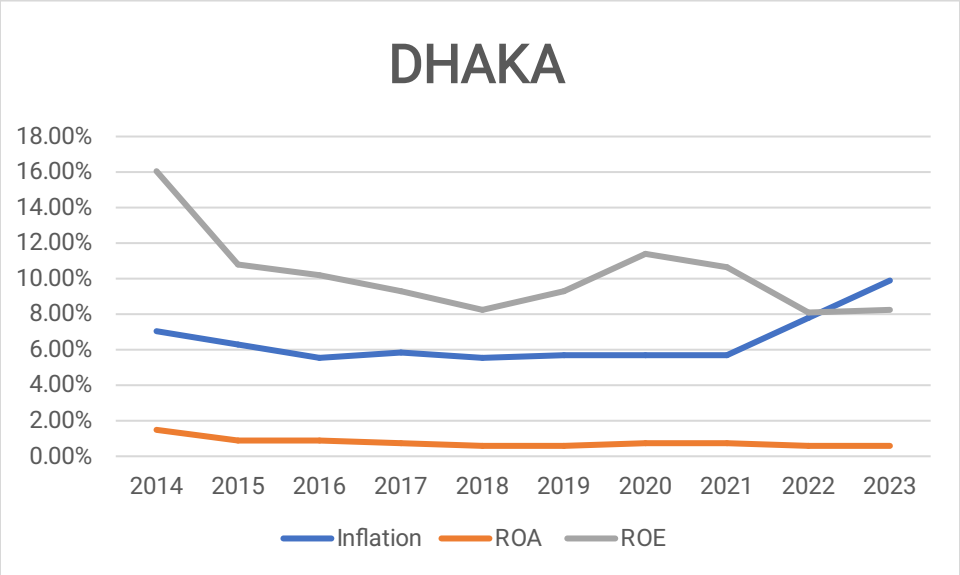
ROE over this period also varied substantially, at 7.81% (2020) and at 14.36% (2015). Highest ROE value 14.36% in 2015 demonstrates strong growth in profitability and efficiency with equity used across the low inflation of 6.19%. The lowest ROE of 7.81% in 2020 corresponds to the lowest profitability and challenges in generating returns for shareholders during stable inflation (5.69%). ROE shows a minor recovery in 2022 (10.88%) but declines again to 8.24% in 2023, suggesting difficulties in adapting to inflationary pressures.



JAMUNA: ROA for Jamuna Bank varied between 0.58% (2022) and 1.21% (2016), showing a decline in recent years, especially during periods of high inflation. Here we can see in the year 2016 we get the highest ROA of 1.21%, that reflects strong asset utilization during a period of relatively low inflation (5.51%). And we get the lowest ROA of 0.58% in 2022, during high inflation (7.70%), that indicates significant challenges in profitability, likely due to increased costs or reduced earnings from assets. After 2021 A

notable decline in ROA occurred, coinciding with rising inflation, signaling inefficiencies in managing inflationary pressures. ROA slightly recovered to 0.80% in the year of 2023, that's reflecting some improvement despite continued inflationary challenges.

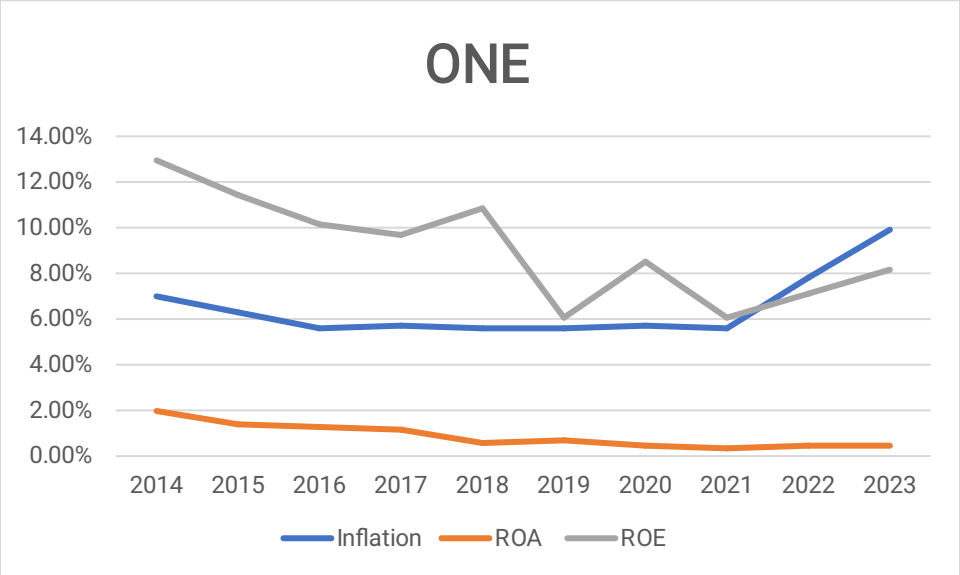
In this graph we can see the ROE ranged from 7.69% (2022) to 14.80% (2019), showing a sharp decline during high inflation periods. The highest ROE we het the year of 2019 of 14.80% a demonstrates strong profitability and efficient use of equity during stable inflation (5.59%). And the lowest ROE of 7.69% in 2022 highlights the strain on shareholder returns during rising inflation (7.70%). The ROE was drop after 2021, that indicates the challenges faced in maintaining equity efficiency as inflation escalated. After that the ROE slightly improved to 11.85% in 2023, reflecting some recovery in shareholder returns despite high inflation (9.88%).



DHAKA: A higher ROA indicates more efficient management of assets. A high ROA especially in the year 2023 (9.88%), suggests the bank has become more efficient in utilizing its assets to generate profit in recent years. The sharp drop in ROA from the

year 2014 to 2016, could indicate periods of lower profitability or higher asset growth that did not immediately translate into profit. The recovery from year 2020 and onward signals a positive shift in asset utilization efficiency.

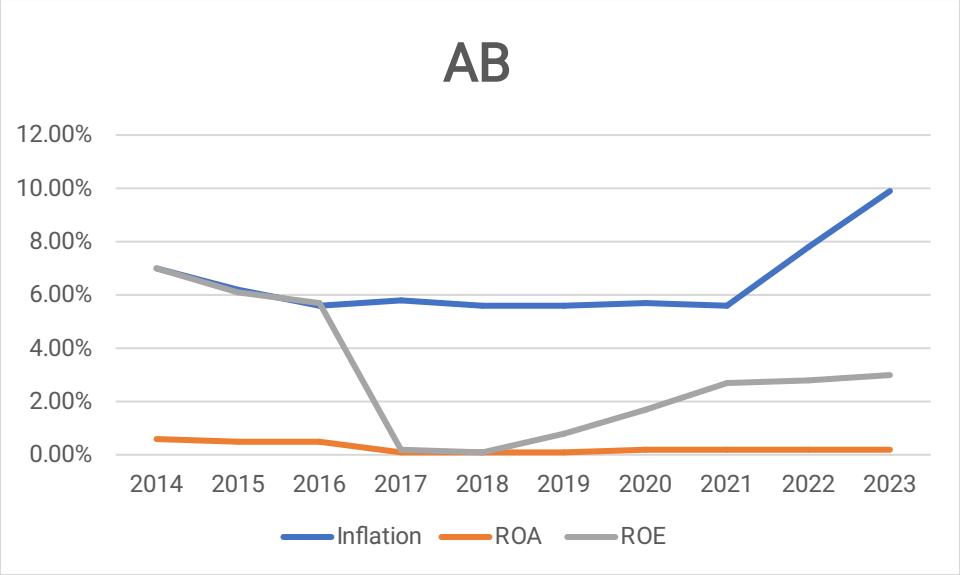
A higher ROE like the 15.92% in the year 2014, suggests that the bank was initially more effective at using shareholder equity to generate profits. The ROE was decrease over the years especially after 2014, could indicate increasing costs, lower profit growth, or inefficient equity utilization. After the year 2021 the ROE slight recovery suggests efforts to improve profitability, but the relatively lower ROE in recent years (8-10%) indicates that while profitability has improved, it may not be as high as it once was in 2014.



ONE: In this graph we can see the high ROA we get in the year of 2014 (6.99%) indicates that the bank was efficient in generating profit from its assets in the early years. The ROA was decline from the year 2014 to 2017 suggests a period of reduced asset efficiency, possibly due to increased assets that weren't immediately converted into

profit. However, from the year 2020 a significant recovery onwards, peaking in 2023, indicates that the bank has improved its asset utilization, suggesting enhanced operational efficiency and possibly better profit generation from assets.

In the year 2014 we get A high ROE of 12.88% indicates that ONE bank was highly effective at generating profits from its equity in the initial years. After that continuous decline, particularly reaching an alarmingly low value in 2021 (0.25%), suggests significant inefficiencies in utilizing shareholder equity or potentially increased costs that were not offset by revenue growth. From 2022 and 2023 the slight recovery happened in ROE, that indicates improvements, but the ROE is still far below the level seen in 2014, signaling that equity utilization is not as strong as it once was.



AB: Here we can see the initial high ROA in 2014 (6.99%) indicates strong profitability relative to assets. The decline through 2016, with a relatively lower ROA of 5.51%, shows a period where asset efficiency decreased. The ROA drop in 2017 and 2018 to near 0% suggests a challenging period for the bank in terms of asset utilization, possibly due to declining profits or mismanagement of assets. However, the steady recovery from the year 2020 onwards, culminating in 9.88% in 2023, reflects an improvement in how efficiently the bank is using its assets to generate profits.

In the above chart we can see the ROE of 6.95% in 2014 shows that the bank was initially able to generate moderate returns on equity. The sharp drop to near zero in the year 2017 and 2018 suggests that the bank faced severe challenges in generating profits relative to its equity, potentially due to inefficiencies or financial difficulties. After that the ROE gradual increase after 2019, with a more notable rise in 2023 (2.95%), indicates that the bank has improved profitability, but it still lags behind its initial performance in 2014.

5.2 Correlation Statistics Analysis

Correlation statistics			
No.	Bank	ROA	ROE
1	BRAC	-0.560	-0.444
2	ISLAMI	-0.378	-0.036
3	DBBL	0.403	0.097
4	EASTERN	0.151	0.274
5	CITY	0.004	0.260
6	B ASIA	-0.080	0.030
7	JAMUNA	-0.713	-0.374

8	DHAKA	-0.142	-0.150
9	ONE	-0.100	-0.057
10	AB	0.119	0.204

The correlation statistics between Return on Assets (ROA) and Return on Equity (ROE) for the given banks can be interpreted as follows:

1. **BRAC**: ROA (-0.560) and ROE (-0.444) show a moderate negative correlation, suggesting that an increase in certain financial factors could reduce profitability ratios for BRAC.
2. **ISLAMI**: ROA (-0.378) has a weak negative correlation, and ROE (-0.036) shows almost no correlation, indicating minimal impact of related factors on profitability.
3. **DBBL**: ROA (0.403) and ROE (0.097) show a weak positive correlation, that implying a slight positive relationship with profitability metrics.
4. **EASTERN**: ROA (0.151) and ROE (0.274) have weak positive correlations, suggesting that certain influencing factors positively impact profitability but to a small extent.
5. **CITY**: ROA (0.004) and ROE (0.260) indicate almost no correlation for ROA and a weak positive correlation for ROE.
6. **Bank Asia (B ASIA)**: ROA (-0.080) and ROE (0.030) suggest almost no correlation, reflecting little relationship between the studied variables.
7. **JAMUNA**: ROA (-0.713) and ROE (-0.374) show a strong negative correlation for ROA and a moderate negative correlation for ROE, implying significant inverse relationships.
8. **DHAKA**: ROA (-0.142) and ROE (-0.150) have weak negative correlations, indicating a slight inverse relationship with profitability.
9. **ONE**: ROA (-0.100) and ROE (-0.057) suggest weak negative correlations, implying minimal inverse relationships.
10. **AB**: ROA (0.119) and ROE (0.204) show weak positive correlations, reflecting slight positive impacts on profitability.

Summary:

- Banks such as BRAC and JAMUNA exhibit stronger negative correlations, which might need more attention regarding financial strategies.
- DBBL, EASTERN, CITY, and AB show weak positive correlations, indicating moderate financial stability or relationships with profitability.
- ISLAMI, B ASIA, DHAKA, and ONE reflect minimal or insignificant correlations, suggesting stability but low sensitivity to influencing factors.

5.3 Regression Statistics Analysis

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.01079	0.00224	4.81513	0.00001	0.00634	0.01524	0.00634	0.01524
X Variable 1 (ROA)	-0.02717	0.03409	-0.79692	0.42743	-0.09482	0.04049	-0.09482	0.04049

- **Regression (F-statistic: 0.63508, Significance F: 0.42743)**: The F-statistic tests whether the overall regression model is a good fit for the data. A Significance F value (p-value) of 0.42743 (greater than 0.05) means the model is not statistically significant, indicating that ROA does not significantly predict the dependent variable.
- **X Variable 1 (ROA Coefficient: -0.02717)**: This coefficient suggests a weak negative relationship between ROA and the dependent variable. For every unit increase in ROA, the dependent variable decreases by 0.02717, but this relationship is not statistically significant (p-value: 0.42743 > 0.05).

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.117570	0.022705	5.178079	0.000001	0.072512	0.162628	0.072512	0.162628
X Variable 2 (ROE)	-0.064334	0.345432	-0.18624	0.852640	-0.74983	0.621165	-0.74983	0.621165

- **Regression (F-statistic: 0.03469, Significance F: 0.85264):** The F-statistic tests whether the regression model is statistically significant. A p-value (Significance F) of 0.85264 (greater than 0.05) shows that the overall model is not significant, meaning

ROE does not explain the variation in the dependent variable.

- **X Variable 2 (ROE Coefficient: -0.06433)**: This indicates a weak negative relationship between ROE and the dependent variable. For every unit increase in ROE, the dependent variable decreases by 0.06433. However, the p-value (0.85264) is much greater than 0.05, meaning the relationship is not statistically significant.

Both regression models indicate weak and statistically insignificant relationships between inflation and profitability metrics (ROA and ROE).

5.4 Inflation Relation Through Descriptive Statistics

		Descriptive Statistics			
Inflation		*ROA*		*ROE*	
Mean	0.06434	Mean	0.009042	Mean	0.1134311
Standard	0.001351596	Standard	0.000457625	Standard	0.00462274

Error		Error		Error	
Median	0.05695	Median	0.0099	Median	0.10905
Mode	0.0699	Mode	0.011	Mode	0.0928
Standard Deviation	0.013515961	Standard Deviation	0.004576249	Standard Deviation	0.046227395
Sample Variance	0.000182681	Sample Variance	2.09421E-05	Sample Variance	0.002136972
Kurtosis	1.626664446	Kurtosis	-0.440213132	Kurtosis	0.134948367
Skewness	1.649098785	Skewness	0.152197142	Skewness	-0.079257636
Range	0.0437	Range	0.0201	Range	0.2208
Minimum	0.0551	Minimum	0.0001	Minimum	0.0008
Maximum	0.0988	Maximum	0.0202	Maximum	0.2216
Sum	6.434	Sum	0.9042	Sum	11.34311
Count	100	Count	100	Count	100
Largest(1)	0.0988	Largest(1)	0.0202	Largest(1)	0.2216
Smallest(1)	0.0551	Smallest(1)	0.0001	Smallest(1)	0.0008
Confidence Level(95.0%)	0.00268186	Confidence Level(95.0%)	0.000908027	Confidence Level(95.0%)	0.009172518

1. **Inflation**: The distribution of inflation is right-skewed with moderate variability. The majority of the values are clustered around the mean of 6.43%.
2. **ROA**: ROA has low values on average and relatively small variability. It indicates low profitability relative to assets in the sample, with a near-symmetric distribution.
3. **ROE**: ROE shows higher variability than ROA, with a mean of 11.34%. The distribution is near-normal and symmetric, suggesting that profitability relative to equity is more stable.

These statistics provide an overview of the data distribution, central tendency, and variability for Inflation, ROA, and ROE, which can help in further inferential analyses or comparisons.

5.5 Findings of the Study

1. After all the analysis we found a negative relationship between inflation and bank profitability.

2. We also found that if the inflation rate increases positively then bank profit ROA and ROE may decrease as it shows a negative effect.

3. The correlation analysis shows that the relationship between profitability metrics (ROA and ROE) and the banks varies widely, with some banks showing weak positive correlations and others showing moderate negative correlations.

4. The regression analysis reveals that the impact of inflation on ROA is statistically insignificant (p-value = 0.427), and the relationship is weak and negative, suggesting inflation does not significantly predict changes in ROA.

5. The regression analysis indicates that the relationship between inflation and ROE is statistically insignificant (p-value = 0.853), showing a weak and negative effect that does not meaningfully explain variations in ROE.

6. The descriptive statistics highlight that ROA has low variability and near-symmetry in distribution, while ROE demonstrates a wider dispersion and near-normality, suggesting profitability is more stable when measured relative to equity.

Chapter 6: Recommendations and Conclusion

6.1 Recommendations

- For Policymakers:

1. **Monitor Inflation Trends**: The analysis given the negative correlation between inflation and profitability metrics (ROA and ROE) for several banks, policymakers should prioritize controlling inflation through effective monetary policies.
2. **Strengthen Regulatory Frameworks**: To support the banks in maintaining profitability during high inflation periods, the regulators should enhance policies on liquidity management and risk mitigation.
3. **Encourage Economic Stability**: Economic policies goal at reducing volatility in inflation can create a more predictable environment for banking operations, promoting long-term profitability.

- For Banks:

1. **Improve Cost Management**: Banks like BRAC and Jamuna Bank, which demonstrated significant negative correlations, that should focus on reducing operational costs and improving efficiency to counteract inflationary pressures.
2. **Enhance Asset Utilization**: Banks with declining ROA, such as Bank Asia should prioritize strategies to optimize asset usage and improve returns.
3. **Focus on Equity Management**: Banks like Islami and ONE Bank, which showed minimal or declining ROE, that should implement measures to enhance shareholder value by effectively managing equity.
4. **Diversify Revenue Streams**: Banks should explore diversified revenue-generating opportunities, such as fee-based income and digital banking solutions, to offset the negative impacts of inflation.

- For Investors

1. **Evaluate Inflation Sensitivity**: Investors should consider banks' historical performance during inflationary periods as a criterion for making investment decisions.
2. **Focus on Resilient Banks**: Banks like Eastern and DBBL, which displayed positive or stable correlations, that could be more resilient and attractive for long-term investments.
3. **Monitor Financial Indicators**: Regular assessment of ROA and ROE trends can provide insights into a bank's profitability and risk management capabilities.

6.2 Conclusion

The study shows the impact of inflation on the profitability of selected banks in Bangladesh using key financial metrics such as ROA and ROE. The findings highlight varying degrees of sensitivity to inflation among banks, with some exhibiting significant negative correlations and others demonstrating resilience.

Key Insights:

1. **Inflation and Profitability**: The rising inflation adversely impacted profitability for most banks, particularly BRAC, Jamuna, and Bank Asia, while DBBL and Eastern Bank showed resilience.
2. **Correlation Analysis**: The negative correlations were more prevalent, indicating that inflationary pressures pose challenges to maintaining consistent financial performance.
3. **Regression and Descriptive Statistics**: Regression results indicated weak and statistically insignificant relationships, suggesting that other macroeconomic factors may also influence profitability.

The study underscores the need for both proactive policy interventions and strategic adjustments by banks to mitigate the adverse effects of inflation. Policymakers must focus on ensuring macroeconomic stability, while banks should prioritize efficiency, innovation, and robust risk management to sustain profitability.

References

1. Cohen, B. H., & Kwan, S. H. (2000). Measuring the default risks of banks using equity returns. Journal of Banking & Finance, 24(6), 881-899. https://doi.org/10.1016/S0378-4266(99)00113-1
2. Khan, M. A., Aftab, M., & Anjum, R. (2018). Interest rate volatility and banking sector profitability in Pakistan. Journal of Economic Studies, 45(4), 593-608. https://doi.org/10.1108/JES-08-2016-0167
3. Rahman, M. M., & Jahan, N. (2018). Inflation and bank profitability: Evidence from Bangladesh. Bangladesh Development Studies, 41(3), 57-77.
4. Çelik, T., & Öztürk, H. (2015). The impact of inflation on bank profitability: Evidence from Turkey. International Journal of Economics and Finance Studies, 7(2), 51-62.
5. Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2006). Bank-specific, industry-specific, and macroeconomic determinants of bank profitability. Journal of International Financial Markets, Institutions and Money, 18(2), 121-136. https://doi.org/10.1016/j.intfin.2006.07.001
6. Cohen, K. J., & Kwan, S. H. (2000). Inflation and financial market performance: Evidence from the banking sector. Journal of Financial Services Research, 17(3), 275-290. https://doi.org/10.1023/A:1018741509274
7. Khan, M. T., Ahmed, A., & Javed, M. T. (2018). Inflation, interest rate volatility, and bank profitability: Evidence from developing countries. Economic Modelling, 75, 250-265. https://doi.org/10.1016/j.econmod.2018.06.017
8. Rahman, M. M., & Jahan, S. (2018). The impact of inflation on banking

profitability: Evidence from Bangladesh. Bangladesh Journal of Banking and Finance, 35(2), 35-50.

9. Çelik, T., & Öztürk, A. (2015). Inflation and its effects on banking profitability: An analysis of the Turkish banking sector. Istanbul University Journal of Social Sciences, 15(3), 123-139.
10. Jin, Y., & Sutherland, D. (2011). Bank capital adequacy during inflationary pressures: A cross-country study. International Review of Financial Analysis, 20(3), 121-130. https://doi.org/10.1016/j.irfa.2011.01.002

Appendix

Appendix A: List of Selected Banks and Financial Data (2010-2022)

- **Description**: This appendix includes detailed financial data of the selected banks in Bangladesh from 2014 to 2023. This data covers key profitability indicators, such as Return on Assets (ROA) and Return on Equity (ROE), and other metrics that were used to analyze the impact of inflation.

Market Cap (BILLION)		
1	BRAC	85.48
2	ISLAMI BBL	84.36
3	DBBL	42.01
4	EBL	31.51
5	CITY	29.37
6	B ASIA	19.94
7	JAMUNA	17.38
8	DHAKA	11.07
9	ONE	9.27
10	AB	7.17

Appendix B: Inflation Data for Bangladesh (2010-2022)

- **Source**: Bangladesh Bureau of Statistics, Bangladesh Bank
- **Description**: This appendix presents the annual inflation rate in Bangladesh from

2014 to 2023, used as a benchmark for comparing bank profitability trends.

Year	Inflation
2014	6.99%
2015	6.19%
2016	5.51%
2017	5.70%
2018	5.54%
2019	5.59%
2020	5.69%
2021	5.55%
2022	7.70%
2023	9.88%

Appendix C: Sample Analysis - Comparative ROA and ROE by Inflation Period

- **Description**: A detailed breakdown of ROA and ROE performance across different inflationary periods.

ROA of BBL	ROE of BBL	ROA of IBBL	ROE of IBBL	ROA of DBBL	ROE of DBBL	ROA of EBL	ROE of EBL	ROA of CBL	ROE of CBL
1.09%	14.11%	0.67%	8.85%	1.10%	16.20%	1.28%	10.93%	1.40%	13.40%
1.13%	13.32%	0.44%	7.00%	1.30%	19.30%	1.23%	10.95%	1.90%	18.30%
1.89%	22.16%	0.59%	9.28%	0.70%	10.30%	1.33%	12.94%	1.70%	19.00%
2.02%	22.14%	0.55%	9.63%	0.90%	13.20%	1.04%	11.41%	1.40%	15.90%
1.87%	19.25%	0.64%	11.07%	1.30%	19.70%	1.15%	13.83%	0.70%	8.20%
1.64%	15.60%	0.50%	9.39%	1.20%	17.20%	1.30%	16.52%	0.70%	9.90%
1.19%	10.69%	0.35%	7.38%	1.30%	19.90%	1.22%	15.04%	1.10%	14.80%
1.31%	11.00%	0.30%	7.19%	1.10%	16.10%	1.28%	15.51%	1.20%	15.80%
1.14%	10.22%	0.34%	8.93%	1.10%	14.40%	1.21%	15.46%	1.00%	14.10%
1.13%	11.95%	0.32%	8.77%	1.40%	17.90%	1.27%	16.33%	1.20%	17.60%
ROA of BAL	ROE of BAL	ROA of JMNB	ROE of JMNB	ROA of DBL	ROE of DBL	ROA of OBL	ROE of OBL	ROA of AB	ROE of AB
1.28%	14.09%	1.06%	13.68%	1.34%	15.92%	1.87%	12.88%	0.54%	6.95%
1.26%	14.36%	1.16%	12.39%	0.86%	10.74%	1.39%	11.32%	0.48%	6.03%
0.65%	8.13%	1.21%	11.89%	0.77%	10.15%	1.20%	10.07%	0.44%	5.68%
0.76%	10.21%	1.11%	12.92%	0.69%	9.21%	1.05%	9.62%	0.01%	0.13%
0.76%	10.21%	1.10%	13.83%	0.54%	8.18%	0.56%	10.80%	0.01%	0.08%
0.59%	8.16%	1.11%	14.80%	0.56%	9.28%	0.59%	6.00%	0.05%	0.74%
0.53%	7.81%	1.10%	12.93%	0.70%	11.28%	0.44%	8.51%	0.10%	1.65%
0.64%	9.89%	0.98%	10.88%	0.65%	10.53%	0.25%	6.01%	0.16%	2.63%

0.67%	10.88%	0.58%	7.69%	0.49%	8.09%	0.45%	7.01%	0.17%	2.78%
0.51%	8.24%	0.80%	11.85%	0.48%	8.14%	0.43%	8.06%	0.17%	2.95%

Appendix D: Regression Analysis for ROA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.080241196
R Square	0.006438649
Adjusted R Square	-0.003699732
Standard Error	0.004584707
Observations	100

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.3349E-05	1.3349E-05	0.635076686	0.427425731
Residual	98	0.002059915	2.10195E-05		
Total	99	0.002073264			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.01079	0.00224	4.81513	0.00001	0.00634	0.01524	0.00634	0.01524
X Variable 1 (ROA)	-0.02717	0.03409	-0.79692	0.42743	-0.09482	0.04049	-0.09482	0.04049

Appendix E: Regression Analysis for ROE

SUMMARY OUTPUT

Regression

Statistics	
Multiple R	0.018809964
R Square	0.000353815
Adjusted R Square	-0.009846657
Standard Error	0.046454 43
Observations	100

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	7.48531E-05	7.48531E-05	0.034686118	0.852639891
Residual	98	0.211485 38	0.002158 014		
Total	99	0.211560 233			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.117570	0.022705	5.178079	0.000001	0.072512	0.162628	0.072512	0.162628
X Variable 2 (ROE)	-0.064334	0.345432	-0.186242	0.852640	-0.749833	0.621165	-0.749833	0.621165

Appendix F: Descriptive Statistics

		Descriptive Statistics			
Inflation		*ROA*		*ROE*	
Mean	0.06434	Mean	0.009042	Mean	0.1134311
Standard Error	0.001351596	Standard Error	0.000457625	Standard Error	0.00462274
Median	0.05695	Median	0.0099	Median	0.10905
Mode	0.0699	Mode	0.011	Mode	0.0928
Standard Deviation	0.013515961	Standard Deviation	0.004576249	Standard Deviation	0.046227395
Sample Variance	0.000182681	Sample Variance	2.09421E-05	Sample Variance	0.002136972
Kurtosis	1.626664446	Kurtosis	-0.440213132	Kurtosis	0.134948367
Skewness	1.649098785	Skewness	0.152197142	Skewness	-0.079257636

Range	0.0437	Range	0.0201	Range	0.2208
Minimum	0.0551	Minimum	0.0001	Minimum	0.0008
Maximum	0.0988	Maximum	0.0202	Maximum	0.2216
Sum	6.434	Sum	0.9042	Sum	11.34311
Count	100	Count	100	Count	100
Largest(1)	0.0988	Largest(1)	0.0202	Largest(1)	0.2216
Smallest(1)	0.0551	Smallest(1)	0.0001	Smallest(1)	0.0008
Confidence Level(95.0%)	0.00268186	Confidence Level(95.0%)	0.000908027	Confidence Level(95.0%)	0.009172518