Determinants Influencing Financial

Performance of Financial Institutions

in Azerbaijan

by

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Abstract

Forming financial and social stability, advancing commerce and production, and stimulating economic growth all depend on the existence and longevity of stable financial institutions. The evaluation of financial institutions' profitability is of the highest priority in the dynamic and constantly changing financial sector. The profitability of these institutions serves as a key indicator of their financial health, competitiveness, and ability to generate sustainable returns.

The purpose of this thesis is to examine how financial indicators and macroeconomic variables have affected the performance of financial institutions in Azerbaijan, both during and after the pandemic period. The research aims to identify which factors had the most significant impact on financial institution performance and determine how these factors influenced the industry. The study employed a quantitative research methodology and an explanatory research design to examine the relationships between the independent variables: financial leverage, liquidity, capital adequacy, company size, capital structure, GDP growth rate, inflation, COVID and the dependent variable: return on assets (ROA) which is used to measure profitability. The research was conducted with the following objectives: first, to assess how the leverage impacts the financial performance of financial companies in Azerbaijan; second, to identify how the liquidity influences the financial performance of financial firms in Azerbaijan; third, to examine how capital adequacy affects the financial performance of companies financial companies in Azerbaijan; fourth, to examine how capital structure affects the financial performance of financial companies in Azerbaijan; fifth, to determine the impact of company size on the financial performance of financial firms in Azerbaijan; sixth, to assess the influence of company debt to equity on the financial performance of financial firms in Azerbaijan; seventh, to assess the influence of leverage on the financial performance of financial firms in Azerbaijan and seventh, to identify how the inflation rate influences the financial performance of financial firms in Azerbaijan; eighth, to assess the influence of COVID on the financial performance of financial firms in Azerbaijan and seventh, to identify how the inflation rate influences the financial performance of financial firms in Azerbaijan . In addition, the study utilized an analysis of secondary data covering the time span of 2019 to 2022 and as empirical evidence, the sample consists of 40 financial institutions, most of which were banks then credit agencies, investment, and insurance companies. The timeframe considered in the study consisted of two years characterized by the pandemic period, namely 2020 and 2021, as well as

two years surrounding the pandemic, namely the pre-pandemic year of 2019 and the post-pandemic year of 2022.

By applying statistical techniques like descriptive statistics, correlation analysis and panel data regression method via STATA 13 software and a financial ratio analysis approach, the chosen data set was analyzed for the purpose of data analysis. The study results indicate that financial performance proxy by ROA is negatively influenced by debt to equity, financial leverage, inflation, COVID and company size while liquidity, and GDP growth have positive effect on the performance of financial companies. The regression result indicated that the relationship between financial leverage, company size and ROA is negative and significant. On the other hand, liquidity and GDP growth have a positive effect on the performance of financial companies but their effect is not significant at 5% significant level.

The study recommended that since financial leverage and financial performance are significantly negatively related, decision makers should take into account the implications of debt financing can be a risky investment for the financial firms while making a financial decision.

Keywords: Financial Performance; Determinants; Data Analysis; ROA; Leverage; Panel data

JEL Classification: C1; C33; E44; G20; G21

Referat

Maliyyə və sosyal sabitliyin formalaşdırılması, ticarət və istehsalın inkişafı, iqtisadi artımın stimullaşdırılması sabit maliyyə institutlarının mövcudluğundan və uzunömürlülüyündən asılıdır. Dinamik və daim dəyişən maliyyə sektorunda maliyyə institutlarının gəlirliliyinin qiymətləndirilməsi ən yüksək prioritetdir. Bu qurumların gəlirliliyi onların maliyyə sağlamlığının, rəqabət qabiliyyətinin və davamlı gəlir əldə etmək qabiliyyətinin əsas göstəricisi kimi çıxış edir.

Bu dissertasiyanın məqsədi həm pandemiya dövründə, həm də ondan sonra Azərbaycanda maliyyə göstəricilərinin və makroiqtisadi dəyişənlərinin maliyyə institutlarının fəaliyyətinə necə təsir etdiyini araşdırmaqdır. Tədqiqat hansı amillərin maliyyə institutunun fəaliyyətinə daha çox təsir etdiyini müəyyən etmək və bu amillərin sənayeyə necə təsir etdiyini müəyyən etmək məqsədi daşıyır. Tədqiqat müstəqil dəyişənlər arasında əlaqələri araşdırmaq üçün kəmiyyət tədqiqat metodologiyasından və izahlı tədqiqat dizaynından istifadə etmişdir: leveraj, likvidlik, kapital adekvatlığı, şirkətin ölçüsü, kapital strukturu, ÜDM-in artım tempi, inflyasiya, COVID və asılı dəyişən: aktivlərin gəlirliliyi. (ROA) gəlirliliyi ölçmək üçün istifadə olunur. Tədqiqat aşağıdakı məqsədlərlə aparılmışdır: birincisi, leverajın Azərbaycanda maliyyə şirkətlərinin maliyyə fəaliyyətinə necə təsir etdiyini qiymətləndirmək; ikincisi, likvidliyin Azərbaycanda maliyyə firmalarının maliyyə nəticələrinə necə təsir etdiyini müəyyən etmək; üçüncü, kapitalın adekvatlığının Azərbaycandakı şirkətlərin maliyyə şirkətlərinin maliyyə göstəricilərinə necə təsir etdiyini araşdırmaq; dördüncü, kapital strukturunun Azərbaycanda maliyyə şirkətlərinin maliyyə göstəricilərinə necə təsir etdiyini araşdırmaq; beşincisi, şirkətin ölçüsünün Azərbaycanda maliyyə firmalarının maliyyə göstəricilərinə təsirini müəyyən etmək; altıncı, şirkət borcunun kapitala olan borcunun Azərbaycanda maliyyə firmalarının maliyyə fəaliyyətinə təsirini qiymətləndirmək; yeddinci, leverecin Azərbaycanda maliyyə firmalarının maliyyə fəaliyyətinə təsirini qiymətləndirmək və yeddinci, inflyasiyanın Azərbaycanda maliyyə firmalarının maliyyə nəticələrinə necə təsir etdiyini müəyyən etmək; səkkizincisi, COVID-in Azərbaycanda maliyyə firmalarının maliyyə fəaliyyətinə təsirini qiymətləndirmək və yeddinci, inflyasiyanın Azərbaycanda maliyyə firmalarının maliyyə fəaliyyətinə necə təsir etdiyini müəyyən etmək.. Bundan əlavə, tədqiqatda 2019-2022-ci illəri əhatə edən ikinci dərəcəli məlumatların təhlilindən istifadə edilib və empirik sübut kimi nümunə 40 maliyyə institutundan ibarətdir, onların əksəriyyəti banklar, sonra kredit agentlikləri,

investisiya və sığorta şirkətləridir. Tədqiqatda nəzərdən keçirilən vaxt çərçivəsi pandemiya dövrü ilə xarakterizə olunan iki ildən, yəni 2020 və 2021-ci illərdən, həmçinin pandemiya ilə əlaqəli iki ildən, yəni pandemiyadan əvvəlki 2019-cu il və pandemiyadan sonrakı 2022-ci ildən ibarət olub.

STATA 13 proqramı və maliyyə nisbəti təhlili yanaşması vasitəsilə təsviri statistika, korrelyasiya təhlili və panel məlumatların reqressiyası metodu kimi statistik üsulları tətbiq etməklə, məlumatların təhlili məqsədi ilə seçilmiş məlumat dəsti təhlil edilmişdir. Tədqiqatın nəticələri göstərir ki, borc/ kapital, leveraj, inflyasiya, COVID və şirkətin ölçüsü ROA-nın maliyyə performans göstəricisinə mənfi təsir göstərir, likvidlik və ÜDM artımı isə maliyyə şirkətlərinin fəaliyyətinə müsbət təsir göstərir. Reqressiyanın nəticəsi göstərdi ki, leveraj, şirkətin ölçüsü və ROA arasında əlaqə mənfi və əhəmiyyətli dərəcəli təsirdədir. Digər tərəfdən, likvidlik və ÜDM artımı maliyyə şirkətlərinin fəaliyyətinə müsbət təsir göstərir, lakin onların təsiri 5% əhəmiyyətli səviyyədə təsir etmir.

Tədqiqat nəticələri göstərir ki, leveraj və maliyyə göstəriciləri yüksək dərəcədə mənfi əlaqəli olduğundan, maliyyə qərarları qəbul edilərkən borc maliyyələşdirməsinin maliyyə firmaları üçün riskli investisiya ola biləcəyini nəzərə almalıdırlar.

Açar sözlər: Financial Performance; Determinantlar; Data Analizi; ROA; Leverage; Panel məlumatları

JEL Təsnifatı: C1; C33; E44; G20; G21

Introduction

1.1 Background of the study

The financial sector is a significant contributor to the economy, and its financial performance is critical for economic growth and development. The core purpose behind the establishment of business entities is to generate revenue, maximize profits, and enhance the company's overall value. This, in turn, contributes to the leads to the ultimate prosperity and success of all parties engaged in the enterprise, fostering a mutually beneficial environment for stakeholders. In order to achieve these goals, companies in the financial sector must carefully manage their financial performance. This involves ensuring efficient allocation of resources, monitoring cash flow, and making strategic investment decisions. By doing so, these entities can not only drive economic growth but also attract investors and maintain the trust of stakeholders. Ultimately, a strong financial performance in the financial sector is crucial for the stability and progress of the overall economy.

By identifying the most important elements that contribute to financial institutions' outstanding financial performance, stakeholders can gain a better understanding of their inner workings and make more informed investment decisions. Additionally, this analysis helps regulators and policymakers monitor the market and implement necessary measures to ensure financial stability. Furthermore, identifying these key elements helps financial institutions make strategic decisions and allocate resources effectively, ultimately improving their overall performance and longevity in the market.

Due to their acts of mobilizing savings, allocating capital to the most productive investments, facilitating trade, providing credit, and managing risks, financial intermediaries are essential for enhancing the efficiency of the economy and reducing the impact of adverse events on it. The evolution of financial institutions such as commercial banks, saving and loan institutions, credit unions, insurance companies, investment banks, and finance companies is crucial in directing resources to areas where they are needed the most, promoting economic activity, and driving economic development. The article by Hicks (1969) analyzes the theory of how a better-developed financial

system can contribute to rapid economic growth, drawing on the example of the Industrial Revolution in England. The study emphasizes the importance of a well-functioning financial system in facilitating the efficient allocation of resources, thereby promoting economic growth. It highlights how the development of banks and financial institutions during the Industrial Revolution in England played a crucial role in providing funding for entrepreneurs and businesses, fueling economic development. This article establishes a strong link between the availability of financial services and the attainment of long-term, sustainable growth. It underscores the significance of a robust financial system in driving economic development and achieving sustained growth over time.

In general, financial institutions undergo an evaluation process that centers on their financial performance and profitability since these measures are fundamental indicators of an institution's success and capacity to produce consistent returns for investors. Financial performance refers to the achievement of a company's financial objectives over a predefined duration, which involves obtaining and distributing funds evaluated through a set of standards, including capital adequacy, solvency, liquidity, efficiency, leverage, and profitability (Fatihudin & Mochklas, 2018). It can affect factors such as the company's stock price, dividend policy, to attract diverse investments, potential for diversification, and the suitable level of risk for the business. Essentially, a company's financial performance has a ripple effect across various domains and holds the power to shape decisions that impact stakeholders like shareholders, investors, and management. Furthermore, the financial performance of a company can also greatly impact its reputation and brand image. A company that consistently delivers strong financial results is seen as stable and reliable, attracting more customers and investors. On the other hand, poor financial performance can lead to a negative perception of the company, causing stakeholders to lose trust and potentially seek alternatives. Additionally, a company's financial performance can also affect employee morale and motivation. A financially healthy company is more likely to offer better compensation packages, opportunities for growth, and job security, which in turn can boost employee loyalty and productivity. Ultimately, the financial performance of a company goes far beyond simple numbers and directly influences the overall success and sustainability of the business.

1.2 Statement of the problem

As stated by the Commission of European Communities in 2005, the financial sector within the Azerbaijan Republic comprises multiple components. The key components of the financial sector in

Azerbaijan, as stated by the Commission of European Communities in 2023, remain consistent with the previous descriptions:

These components consist of:

1. Banking Institutions: Banks hold a crucial role within the financial sector, offering diverse financial services like accepting deposits, extending loans, and providing various banking facilities.

2. Microfinance Institutions and Small Credit Unions: These entities cater to the distinctive financial requirements of individuals and small businesses by delivering microfinance solutions, including modest loans and savings products.

3. Insurance Firms: Insurance companies furnish a range of insurance products to individuals and enterprises, serving to mitigate risks and provide financial security against potential losses.

4. Leasing Entities: The financial landscape of Azerbaijan also encompasses several leasing companies. These businesses furnish leasing services, allowing individuals and businesses to lease assets like vehicles and machinery instead of purchasing them outright.

Collectively, these distinct entities constitute the financial sector of the Azerbaijan Republic, with each entity fulfilling a specific role in furnishing financial services and contributing to the economic advancement of the nation.

Financial institutions, such as banks, have a wide range of stakeholders including employees, management, government, creditors, depositors, investors, stockholders, and the general public. The government plays a crucial role in safeguarding the interests of the public as their developmental initiatives rely on tax revenue. As a result, the government gives the highest priority to bank performance and the factors that affect it. The performance of banks directly impacts the overall economic stability of a country. Financial institutions provide a convenient and secure way for people to save their money and earn interest on their savings. They also play a crucial role in allocating capital to businesses and entrepreneurs who need funds to grow and innovate. By acting as intermediaries, financial institutions connect savers with borrowers, ensuring a smooth flow of funds in the economy and fueling economic growth. Without these institutions, the process of saving and investing would be much more cumbersome and inefficient for individuals and businesses alike. Therefore, the government closely monitors and regulates the activities of financial institutions to prevent any misconduct or instability that could negatively impact the economy. Additionally, the government also collaborates with banks to provide financial support and assistance during times of crisis, further

emphasizing the importance of bank performance to the government. Creditors, especially depositors, are particularly concerned about the stability of the banking sector. Any disturbances or weaknesses in the sector can potentially trigger financial crises and result in the loss of deposits. Moreover, the lack of financial institutions would impede economic growth, as entrepreneurs and businesses would struggle to access the necessary capital to start or expand their ventures. Overall, financial institutions play a crucial role in streamlining the flow of money, allowing individuals and businesses to save, invest, and grow the economy efficiently. Consequently, ensuring the soundness and strength of banks is crucial to maintain the trust and confidence of creditors.

Investors, whether they are private or governmental, have a vested interest in the performance of banks. The success of their investments often relies on the financial support and stability provided by banks. The ability of banks to offer financial support to investors depends on their performance and liquidity levels. Higher levels of liquidity enhance the likelihood of investors obtaining financing from banks. In addition, banks with strong performance and stability attract more investors, as they are seen as reliable and trustworthy partners for their investment ventures. These investors rely on the banks' ability to generate returns and provide timely financial assistance when needed. Moreover, the level of liquidity also determines the banks' capacity to respond to investors' demands, whether it is for loans, credit lines, or other financial services. This symbiotic relationship between banks and investors highlights the critical role of banks' strength and liquidity in fostering trust and maintaining a healthy financial ecosystem.

The impact of GDP on bank performance in Azerbaijan has been a topic of debate among researchers, as there is no consensus on its influence. Several studies, such as those conducted by Seferli (2010), Nuriyeva (2014), suggest that GDP have negative impact on metrics like Return on Assets (ROA) and Return on Equity (ROE). The authors acknowledged that identifying a negative impact of GDP on banks' performance contradicted the existing literature. For example, foreign researchers across various timeframes, such as Demirgüç-Kunt and Huizinga (1999:396-398), as well as more recent authors like BAL & SÖNMEZER (2022), argue that GDP growth does have a positive and substantial impact on metrics such as ROA, ROE. These conflicting findings have led to questions regarding the relationship between GDP and bank performance.

To address this disparity, the focus of the study has shifted towards examining the individual components of GDP and their influence on bank performance. By dissecting the various elements of GDP, researchers aim to gain a better understanding of how each component affects the performance of banks.

1.3 Objective of the study

Given the financial turmoil and macroeconomic difficulties in the country for 2014 – 2016 period, which were largely influenced by a significant decline in oil prices and the devaluation of the national currency, it is crucial to investigate the factors that affect the financial sector. Indeed, the challenging economic landscape has compelled financial institutions to reevaluate their strategies and adjust to the new circumstances. The study's objective is to analyze the effects of these challenges on financial institutions' profitability and identify the key factors that have influenced financial decisions within the financial sector during 2019-2022.

By examining the impact of these challenges, such as the decline in oil prices and currency devaluation, the study aims to provide valuable insights into how banks have responded and adapted. This analysis can help identify the factors that have played a significant role in shaping financial companies' financial decisions, allowing for a greater understanding of the strategies employed to maintain or improve profitability in the face of adversity.

The primary objective of this study was to explore the accounting and macroeconomic determinants that significantly influence the financial institutions in case of Azerbaijan considering the fact that the determinants of bank profitability differ considerably from country to country across time.

1.3.1 Specific objectives

- To identify the impact of financial determinants of profitability of financial companies in Azerbaijan

- To assess the effect of macroeconomic factors on the profitability of financial companies in Azerbaijan.

1.4 Significance of the study

The outcomes and policy suggestions derived from this study are expected to hold value for decision-makers at the bank level. By understanding the factors that contribute to the success or failure of banks, decision-makers can make informed decisions regarding investments, risk management, and operational strategies. This study can provide valuable insights into improving the overall financial performance of banks and minimizing potential risks. Additionally, policymakers can use these findings to develop regulations and policies that promote stability and sustainability in the finance sector. This information can assist them in considering both favorable and unfavorable financial variables that have an impact on profitability. Furthermore, this research contributes to the current knowledge by providing empirical evidence on the effects of the COVID-19 pandemic on the performance of financial institutions in Azerbaijan. It fills a gap in the limited literature available, especially within the context of developing countries. The study specifically investigates how the COVID-19 pandemic has influenced financial firms' profitability, taking into account factors like the leverage ratio, liquidity ratio, and firm size. Additionally, the analysis includes macroeconomic factors such as GDP growth, and the inflation rate.

1.5 Scope and Limitation of the study

According to the previous studies on the Azerbaijan market there is an apparent gap in the literature regarding the determinants of profitability for financial institutions. While a few studies have been conducted on this topic, they have solely focused on bank performance and disregarded the impact of non-bank financial institutions; therefore, a model that effectively captures the complete financial institution profitability determinants has yet to be established. As a result, this study is a valuable contribution to the field and is relevant both for the academic community and the key stakeholders.

This research aims to conduct empirical research and theoretical analysis on the relationship between financial determinants and profitability. The database of this paper is based on annual reports of 40 financial companies in Azerbaijan industry, which were selected on the basis of data availability and is collected from the official sources of corresponding companies.

It is important to note that the accounting indicators used in this study solely reflect the historical performance of companies. These indicators do not capture the potential for future value creation. The accounting methodologies used by different firms to calculate profit and asset valuation can indeed

vary. This variation in accounting methods can have a significant impact on the comparability and consistency of financial data across different companies. Therefore, when analyzing financial information and drawing conclusions, it's crucial to take into account these differences in accounting practices.

Furthermore, it's important to acknowledge that the attached disclosures may not encompass all the required data in detail. Companies often have their own reporting practices and may choose to disclose certain information while omitting others. This can pose challenges when trying to obtain a comprehensive view of a company's financial position. As analysts, it's important to be aware of these limitations and exercise caution when interpreting financial data. If necessary, seeking additional information or clarifications from the companies can help ensure a more accurate and complete understanding of their financial situation.

The sample size and periods observed of the research paper were eliminated, as the data available was not available for specific years. Moreover, the timeframe of the study, which spans from 2019 to 2022, is significant because it covers pandemic period, during which the companies had to make crucial financial decisions to withstand the crisis. Although our main focus is profitability determinants, it must be noted that during the COVID-19 period the extent banking contributes to the economy has become more limited. Financial sector that was recovering from the devaluation process in 2019 was confronted with a new obstacle in the form of the pandemic.

1.6 Organization of the study

The thesis follows a structured format comprising five distinct chapters. The first chapter encompasses the background of the study, the statement of the problem, the study's objectives, the significance of the study, the scope or limitations of the study, and the organization of the paper. Moving on to the second chapter, a comprehensive analysis of the history of financial system of Azerbaijan is presented. In chapter three, there is a presentation of theoretical literature reviews covering indicators of accounting performance, along with an overview of empirical literature relating to the financial industry. Chapter four elaborates on the research methodology employed in the study. Moving on to chapter five, this section concentrates into the empirical findings based on research methodology. Finally, the sixth and concluding chapter of the paper presents the overall conclusion drawn from the study's findings, along with any recommendations that may arise.

Literature Review

This chapter establishes a theoretical foundation for comprehending the factors that drive profitability through analyzing existing academic literature. By conducting a literature review, the chapter identifies previous findings related to the topic and utilizes them to formulate 8 hypotheses, which will serve as the basis for the theoretical framework.

To establish a comprehensive definition, the chapter begins by breaking down the complex concept of financial performance and explores the relationship between financial performance and capital structure through an analysis of relevant theories. Subsequently, it identifies and explores the factors that impact financial performance within the germane literature, which in turn leads to formulation of hypotheses.

2.1 Capital Structure

Financial performance

A crucial component in evaluating the effectiveness and success of people, organizations, and systems is performance measurement. It involves the use of both non-financial and financial measures to provide a more comprehensive and accurate assessment of an entity's performance. In essence, financial indicators solely reflect the past performance of companies and fail to capture the future value they can generate. Therefore, relying heavily on financial indicators to evaluate a company's potential can be misleading. While these indicators provide valuable insights into a company's profitability, liquidity, and stability, they fail to capture intangible assets such as innovation, brand reputation, and employee talent, which are crucial for future growth. To gain a comprehensive understanding of a company's potential, it is important to consider a broader range of factors such as market trends, competitive landscape, and management strategies. Only by considering both financial indicators and qualitative factors can investors make informed decisions about a company's future prospects. By taking into accounting aspects other than financial results, non-financial measurements provide a more comprehensive assessment of performance. These metrics take into account a variety of factors, including social impact, the company's potential for sustainable development, environmentally friendly manufacturing practices, product quality, employee engagement, and customer - employee satisfaction. (Chen, 2020). These factors provide insights into an organization's general health and sustainability, as

well as its ability to generate long-term value. In contrast, financial indicators, representing an organization's operational and production characteristics primarily rely on financial data derived from its financial management activities. These indicators encompass various aspects, including measures of profitability, financial stability, asset management efficiency, and the effective utilization of capital (Chen, 2020). Combining non-financial measures with financial indicators allows for a more comprehensive and detailed assessment of performance. Nevertheless, in the context of this study, firm performance is evaluated using accounting-based and macroeconomic financial performance measures, considering the specific focus on financial firms. Including non-financial measures may introduce subjectivity and bias into the evaluation of financial firms' performance, making it less objective and consistent. The selection of measures aligns with the objectives of the study and ensures that the assessment of financial firms' performance remains relevant and consistent.

Theoretical framework

Academics and researchers have developed various theoretical frameworks to explore and grasp the link between capital structure and firm performance. The theories help in establishing the connections and interactions between the dependent and independent variables. They provide a framework to hypothesize how changes in the independent variables might result in changes in the dependent variable. These relationships play a vital role in comprehending the cause-and-effect mechanisms and patterns underlying the research problem. Further, these theoretical frameworks allow researchers to identify the optimal capital structure that can maximize firm performance. By understanding the relationships between different capital structure components, such as debt and equity, researchers can analyze how changes in these components impact key performance indicators like profitability, growth, and market value. This knowledge can then guide firms in making informed decisions regarding their capital structure, ultimately leading to improved financial performance and sustainable competitive advantage in the market. Furthermore, these frameworks also contribute to the broader body of knowledge in finance, as they shed light on the complexities and dynamics of the capital structure-performance relationship across different industries and contexts.

Modigliani-Miller theorem

The MM model, formulated by Nobel Prize recipients in Economics, Franco Modigliani and Merton Howard Miller, is widely recognized and extensively discussed in academic circles. The initial MM theorem describes the situations where choosing between debt and equity to finance a specific level of investment does not influence a firm's value, implying that there is no ideal leverage ratio. (Pagano, 2005) The main idea of this model, known as the "irrelevance proposition," states that under certain assumptions, the overall expenses of a company's capital and, consequently, the market value of the company, remain unchanged regardless of its capital structure. These costs are entirely determined by the return on total capital, assuming an ideally efficient market where all combinations of securities provide the same advantages and produce equivalent earnings. (JAROS, 2015)

The theorem also implies that a company's average cost of capital remains unchanged regardless of its debt level and structure. It represents the rate of return that investors require from firms with similar risk levels. Even though debt may seem cheaper without a risk premium, increasing leverage does not result in a decrease in the firm's average cost of capital. This occurs because any advantage gained from lower debt costs is exactly offset by the higher cost of equity capital. As a result, investment decisions can be entirely disconnected from financing considerations and should focus solely on maximizing firm value. (Pagano, 2005)

All in all, under certain ideal assumptions, the capital structure of a company does not affect its overall value or financial performance. In other words, the total market value of a company should remain the same, regardless of how it is financed through debt or equity. The choice between debt and equity financing is irrelevant, and there is no optimal leverage ratio that maximizes the firm's value. The firm's value is exclusively dictated by its fundamental business activities and the expected cash flows generated by its investments, regardless of whether those investments are financed with debt, equity, or a combination of both. Although the first MM theorem offers an important theoretical perspective on capital structure decisions, it is crucial to bear in mind that real-world markets are not flawless, and various factors can influence a company's capital structure decisions and financial performance. The key assumptions underlying MM assumptions include perfect capital markets (without taxes, transaction costs, or information asymmetries), no bankruptcy costs, homogeneous expectations among investors, no agency costs and inflation related to bankruptcy or borrowing money. Moreover, they also assume that complete and reliable information is available, thereby eliminating information asymmetry.

These assumptions provide a foundation for the Modigliani-Miller theory to analyze how companies should choose their capital structure to maximize their value. However, in the real world, these assumptions are rarely met, and various factors come into play. For instance, taxes and transaction

costs can significantly impact a company's capital structure decisions, as they affect the cost of debt financing and the tax shield benefit of interest payments. Additionally, agency costs, such as conflicts of interest between shareholders and management, can influence a company's financial performance and capital structure choices.

Because of the gap between theory and practice, 1958 version of MM theory was adjusted for taxation. Over time various criticisms and real-world observations pointed to the importance of taxes and other imperfections in capital markets. As a result, modern MM theory was introduced in 1963, which incorporates the effect of taxes on the firm's capital structure decision. This updated theory recognizes the tax benefits of debt financing, which arise from the deductibility of interest payments on debt from the company's taxable income. The key idea behind the tax benefit is that interest payments made by a company on its debt are considered tax-deductible expenses. By deducting these interest expenses from their taxable income, companies effectively reduce their tax liability. The theory also argues that, due to the tax shield benefit, companies can increase their overall value by using more debt in their capital structure. As a company takes on more debt, its interest payments increase, leading to larger tax deductions and thus lower taxes. The savings from the tax shield can result in an increase in the company's after-tax cash flows, which can ultimately lead to higher firm value or performance. (Ahmeti, Prenaj 2015). Nevertheless, it is essential to note that the M&M2 theory is still based on several assumptions and simplifications, and the real-world impact of capital structure decisions can be influenced by various other factors beyond just tax considerations.

These factors can include market conditions, industry regulations, and the overall financial health of the company. Additionally, the tax shield provided by debt financing may not always be fully realized, as there are limits to the amount of interest expense that can be deducted from taxes. Therefore, while the M&M2 theory highlights the potential benefits of using debt to increase firm value, it is important for companies to carefully analyze and assess their specific circumstances and risks before making any capital structure decisions.

Trade-off theory

The fundamental idea behind trade-off theory is the tax advantage of debt. By making interest expenses tax-deductible, companies can effectively reduce their taxable profits, leading to lower tax payments. This tax shield benefit becomes an incentive for companies to incorporate more debt into their capital structure, thereby increasing interest expenses and further lowering their tax liabilities. The trade-off

theory also acknowledges the potential costs and risks associated with higher levels of debt. As a company takes on more debt, it becomes more vulnerable to economic downturns, business challenges, or unexpected events. In the event of financial distress, the company may struggle to meet its debt obligations, increasing the likelihood of default or bankruptcy. These adverse outcomes can significantly impact the company's financial performance and overall value.

Thus, the trade-off theory emphasizes the balance that companies must strike between the benefits of the interest tax shield and the potential costs of financial distress. This concept is commonly known as the trade-off theory or the static trade-off theory of capital structure. The core idea is that every company has an ideal level of debt, which is often referred to as the firm's target debt level or its debt capacity in practical terms. There is an optimal point where the tax advantages of debt are maximized, but beyond that point, the increased risk of financial distress begins to outweigh the benefits. Companies need to find the optimal capital structure that aligns with their financial goals, industry dynamics, and risk tolerance to strike the right balance between debt benefits and costs for maximizing profitability. This decision is crucial as it can significantly impact a company's cost of capital, ability to invest in growth opportunities, and overall financial flexibility.

Factors such as interest rates, market conditions, and regulatory environment also play a role in determining the optimal capital structure. By carefully analyzing and understanding these variables, businesses can make informed decisions and ensure they are utilizing debt in a way that supports their strategic objectives and long-term sustainability. Ultimately, finding the right balance between debt and equity financing is essential for maximizing profitability and creating value for shareholders.

Pecking order theory

Myers (1984) formulated the pecking order theory of corporate capital structure as a response to the challenges posed by Modigliani and Miller's (1958) financing irrelevance proposition. While trade off theory analyzed firm's decision based on tax benefits, distress costs, and agency costs. However, it does not explicitly account for the consideration of timing, which can be an essential factor in real-world financial decision-making process. Timing is a crucial factor that pertains to the specific moments when certain financial actions, like issuing debt or equity, are executed, and how these decisions align with the company's overarching financial strategy and the prevailing economic conditions. This preference for non-discounted securities leads managers to choose debt financing over equity financing. Debt financing allows managers to avoid the adverse selection problem as the terms

and conditions of the debt are predetermined and do not rely on the valuation of the company's stock. Additionally, debt financing provides a tax advantage as interest payments are tax deductible, further incentivizing managers to choose this form of financing. Overall, the preference for non-discounted securities and the desire to avoid the adverse selection problem drive managers to opt for debt financing rather than equity financing.

According to Myers, the issuance of securities is vulnerable to an adverse selection or "lemons" problem. The adverse selection problem arises in financial markets when companies possess confidential information about their financial health and future prospects, while investors have limited access to this information. As a result, investors may be reluctant to purchase securities issued by companies for concern that the company chose to issue securities despite having poor prospects. Moreover, managers have a greater understanding of their company's performance and financial position, and they may be hesitant to issue stock if they suspect it is undervalued. This is due to the possibility that investors will interpret the equity offering as a sign of poor future prospects, resulting in an undervaluation of the stock. When securities are overvalued, managers look to profit from their private information by issuing riskier securities. Aware of the disparity in information, rational investors protect themselves by pricing these securities at a discount. In order to avoid the adverse selection or "lemons" problem, managers prefer to invest in securities that are not subject to discounting. (Myers and Majluf, 1984)

The pecking order theory provides an approach for managers to navigate this challenging circumstance. Due to this theory, companies should structure their financing sources in a particular order, starting with internal funds and proceeding to equity only as a last resort. Internal funds are utilized first, ensuring that companies can avoid potential investor skepticism by not having to rely on external funding. Upon the use of internal funds, the company should issue more secure securities, as investors are more concerned about prospective equity mispricing than debt pricing errors. Therefore, according to the pecking order theory, if the company needs external financing, it should prioritize issuing debt before considering equity issuance. The firm should contemplate issuing stocks only when it has exhausted its capacity to take on additional debt. (Myers and Majluf, 1984)

In contrast to the MM propositions without taxes, a company's overall value may decrease if it fails to prioritize financing its projects with internal funds, debt, and then equity. Additionally, the pecking order theory is in opposition to the trade-off theory. In contrast to the trade-off theory, which claims that each firm has an established target level of debt, the pecking order theory does not support a predetermined leverage objective. Companies determine their debt-to-equity ratio based on their own

distinctive financing needs.

Although empirical evidence does not support following assumption, according to the trade-off theory, profitable firms with a low risk of default and consequently lower financial distress costs are predicted to utilize more debt financing. This should increase their value by means of the present value of the interest tax shield as well as offering additional leverage-related benefits. In reality, the most profitable firms in many industries are often the least leveraged as they generate substantial amount of cash internally, resulting with less reliance on external financing.

Therefore, the pecking order theory emerges from the information asymmetry problem between insiders and outsiders of the firm, suggesting a sequence for capital raising in which companies prioritize internal funds first, followed by external borrowing, and finally, equity issuance. This theory holds significant importance in ongoing research because it addresses the capital structure, a key independent variable under examination. Based on the principles of the pecking order theory, companies tend to prioritize internal sources of financing over external options. Conversely, the trade-off theory proposes that companies establish a target debt ratio and aim to align their capital structure with this desired ratio (Myers, 1984).

Additionally, the pecking order theory helps to explain why certain companies prefer to finance their investments through retained earnings rather than taking on debt or issuing stocks. This preference stems from the belief that external financing options can be costly and may signal negative information to investors. By prioritizing internal funds, companies can maintain optimal control over their capital structure and minimize the risks associated with external financing. Overall, understanding and applying the pecking order theory is crucial in examining the financial decisions and behaviors of firms in various industries.

2.2 Review of Empirical Studies

Determinants of financial institutions' profitability have been investigated in numerous research studies, with a predominant focus on commercial banks. This tendency may be due to the fact that banking industry has largest, diversified and widespread nature, which causes it to overlook the impact of non-bank financial institutions. Different researchers through the empirical analysis have paid a considerable attention into the growing body of literature, which was devoted to examine the profitability determinants in foreign countries. Despite the abundance of research conducted by non-native scholars on the progress of financial sector, limited empirical evidence exists concerning the

status of financial firms in Azerbaijan. This gap in the literature highlights the need for further research on the profitability determinants of financial firms in Azerbaijan. Understanding the factors that contribute to the success or failure of these institutions is crucial for policymakers and industry practitioners alike. Therefore, this study aims to fill this gap by analyzing the profitability determinants of financial firms in Azerbaijan, taking into account the unique characteristics of the country's financial sector. By doing so, it will provide valuable insights and recommendations for enhancing the overall stability and growth of the financial industry in Azerbaijan.

Nuriyeva (2014) investigated the impact of capital adequacy, asset quality, management quality, earning ability, liquidity, and size of the bank and GDP on profitability ratios such as ROE, ROA and NIM for the case of 15 Azerbaijani banks over the period from 2006 to 2012 period. The approach used to estimate the parameters of the model is fixed effect (FE) panel regression model. According to the findings of the study, capital adequacy, asset quality and the size have a significant and positive relationship with profitability ratios of ROA and ROE while management quality, earning ability and liquidity are negatively related with ROA and ROE. These findings suggest that banks with higher levels of capital adequacy, better asset quality, and larger sizes tend to have higher profitability ratios such as ROA and ROE. This indicates that having a strong capital base, fewer non-performing assets, and a larger customer base can contribute to higher profitability for Azerbaijani banks. On the other hand, the study also reveals that banks with better management quality, higher earning ability, and greater liquidity tend to have lower profitability ratios. This suggests that efficient management practices, higher earnings generation, and sufficient liquidity can have a negative impact on profitability ratios, potentially due to increased expenses or risk-taking behavior. Moreover, the macroeconomic variable, GDP, has a negative and statistically significant impact on profitability. This implies that when GDP per capita decreases, profitability tends to increase.

Hasanov, et. al (2018) in their study about Azerbaijan banking industry and the bank specific and macroeconomic determinants affecting its profitability investigated the sample of 22 commercial banks over the quarterly period of 2012 to 2018. In order to minimize endogeneity issue, the researchers preferred Panel Generalized Method of Moments model. Bank specific indicators: capital, bank size, loan and oil prices, inflation expectation as macroeconomic variables were statistically significant and had positive effect on ROA. Additionally, the depreciation of exchange rates was found to have a strong negative impact on the financial performance of the banks. This implies that when a country's currency devalues, it can adversely affect the profitability of commercial banks. The researchers also found that liquidity risk had a significant negative impact on the financial performance of the

commercial banks in the sample. This suggests that banks with higher liquidity risk may experience lower returns on assets (ROA). As the research has found, banks in Azerbaijan are particularly responsive to liquidity risk, which implies that any undertakings related to risk could potentially have adverse effects on profitability. Therefore, it is crucial for banks to maintain an adequate level of liquidity to reduce the impact of liquidity risk and optimize their profitability. Banks could achieve this by implementing effective liquidity management practices to ensure that they have adequate buffers to meet their financial commitments even in adverse conditions.

Seferli (2010) undertook a study to explore the macroeconomic factors impacting the financial performance of banking sector in Azerbaijan. The study focused on two independent variables: GDP and inflation. The data for the research was gathered from the audited financial statements of 29 banks, spanning the period from 2003 to 2008. An unbalanced panel with individual random effect was utilized to estimate the model parameters. The findings of the research unveiled that GDP exerted a negative impact on financial performance but this effect was statistically insignificant influence on financial performance. Furthermore, the impact of GDP on financial performance varied across the banks, indicating heterogeneity among the institutions. This suggests that factors other than GDP play a crucial role in determining the financial performance of banks. On the other hand, the significant negative influence of inflation on financial performance highlights the importance of managing inflationary pressures for banks to maintain their profitability and stability.

Ali Sulieman Alshatti (2016) conducted a study to analyze the influence of bank-level indicators on bank profitability in Jordan. The research encompassed a period from 2005 to 2014, and data from 13 banks were utilized. The findings of the study unveiled that indicators like capital adequacy, capitalization, and leverage had a positive impact on bank profitability, as assessed by Return on Assets (ROA). The researchers further identified a range of factors that positively influenced bank profitability in Jordan. Specifically, capitalization and leverage demonstrated a positive influence on Return on Equity (ROE) when used as proxies for profitability. However, it was also observed that asset quality had a negative effect on banks' performance, irrespective of the independent variable employed in the analysis. The researcher suggests that the negative effect of the asset quality variable on the study is a result of the structure of banks' assets. This finding highlights the importance for banks to review the quality of their assets in order to reduce credit risk associated with them. This suggests that banks in Jordan need to focus on improving the quality of their assets in order to enhance their overall profitability.

Khan, et al (2015) explored factors that affect the financial performance of financial sectors in

Pakistan. The data for this research was collected from audited financial statements of 145 financial companies and processing firms listed for the period of 2008 to 2012. By applying panel data technique, they found out that financial performance indicators are significantly affected by the ratio of leverage, liquidity, risk, size, and tangibility. Furthermore, companies with high leverage levels can be at risk of experiencing financial distress when they fail to fulfill their debt obligations. Consequently, future loan acquisition may be difficult for such companies. However, high leverage levels also have the potential to increase shareholders' return on their invested capital, and make effective use of tax benefits resulting from borrowing. Additionally, the researchers found that size has a negative impact on financial performance indicators, indicating that larger firms may face challenges in maintaining their profitability and efficiency. This highlights the importance of implementing effective strategies to improve performance and competitiveness in the industry.

Iacobelli (2017) conducted a study on the financial performance of top 16 global banks according to market capitalization between the periods of 1980 and 2015, analyzing nine variables by GMM and fixed effect models. The analysis was also carried out using sub-sample periods, specifically from 1980 to 1997 and from 1998 to 2015. The research found that profitability of profitability of top international banks was positively influenced by capital and productivity for the first 2 periods. On the other hand, operating efficiency and credit risk had a negative impact on profitability. The impact of certain variables on banks' profitability varied across different time periods. For example, operating efficiency had a positive influence on profitability from 1980 to 1997, but had a significantly negative impact from 1998 to 2015. Similarly, size had a positive effect in the initial study period, but exhibited a negative effect in the subsequent period. Additionally, credit risk had a detrimental effect on profitability in both time periods. However, the extent of this impact was greater in the second period, suggesting that banks became more sensitive to credit risk over time. These findings highlight the dynamic nature of the banking industry and the need for banks to continuously adapt their strategies to changing market conditions. Overall, the study demonstrates that the relationship between certain variables and profitability can evolve over time, emphasizing the importance of regularly reassessing and adjusting business practices. This shift in impact can be attributed to the differential impact of escalating loan loss provisions on smaller and newer banks compared to larger banks. In the first period, smaller and newer banks were less affected by the increase in loan loss provisions, which allowed them to maintain their profitability. In contrast, larger banks experienced a more pronounced impact on their profitability due to the higher volume of loan loss provisions.

Ali Saleh Alarussi and Sami Mohammed Alhaderi (2018) have looked into factors affecting financial

performance in aspects of finance (financial statements of firms) and the market. Data were collected from 120 listed non-financial firms on the Bursa Malaysia, covering the period from 2012 to 2014. Pooled OLS regression was applied to analyze the data. Under the financial perspective, a financial variable is surrogated by return on equity (ROE) and earnings per share (EPS). The variables of influencing factors are similar to those of previous studies and include some variables in the model such as firm size, WC, company efficiency, liquidity, and leverage. The results showed that the factors that have a significant and positive effect on financial performance include total sales, WC, and asset turnover ratio; (iv) factors of debt equity ratio and leverage have a strong negative impact on financial performance; (iii) the proportion of liquidity has a negative and insignificant impact on business results In conclusion, the study suggests that large and expanding firms that effectively manage their assets are able to enhance their operating income, leading to improved profitability.

Mercan et al (2023) carried out a study on the relationship between asset return ratios and financial indicators of 40 firms in Georgia for 8 years between 2013 and 2020 and panel data analysis and random forest method (RVI) is implemented as a robustness check. The study included various important bank specific performance indicators such as net loans, non-performing loans, capital adequacy ratios, asset size, sufficiency, concentration, liquidity ratio, diversification and operational efficiency; macroeconomic variables: inflation, interest rate and GDP; financial performance factors: return on assets (ROA), return on equity (ROE) and net interest margin (NIM). According to the study, the most significant bank-specific factors that impact bank profitability are net loans, non-performing loans, and capital adequacy ratios. Conversely, other bank-specific indicators such as asset size and liquidity ratio have relatively minor statistically significant effects on bank profitability. Furthermore, despite being a vital macroeconomic determinant, the inflation rate does not appear to have any noticeable impact on the profitability of the analyzed banks. This finding emphasizes that fluctuations in inflation rate do not influence the profitability levels of the banks examined, highlighting the resilience of their financial performance despite macroeconomic conditions. The results suggest that better management of loan portfolios, adherence to capital adequacy requirements, as well as other factors, can lead to improved bank profitability. According to the findings of the study, the profitability of commercial banks in Georgia, as measured by indicators such as return on assets (ROA), return on equity (ROE), net interest margin (NIM), and profit before tax (PBT), demonstrates a positive correlation with the country's GDP. This indicates that as the GDP of Georgia grows, the profitability of commercial banks tends to increase as well. On the other hand, the study reveals a negative correlation between bank profitability and inflation on a macroeconomic scale. Consequently, as

inflation rates rise, the profitability of commercial banks in Georgia tends to decrease. Additionally, the study highlights a positive relationship between ROE and factors such as bank size, liquidity ratio, and GDP. This shows that larger banks, those with higher levels of liquidity, and banks operating in an environment of higher GDP tend to have higher return on equity.

The main aim of Haider, J., & Mohammad, K. U. (2022) 's study is to identify the factors affecting the financial performance of banks in South Asian and European economies using an unbalanced panel data set. The study employed six years of quarterly bank-specific data from the top 10 countries in South Asia and Europe, selected based on their highest GDPs. The researcher utilized the return on assets (ROA) and return on equity (ROE) as proxies (dependent variables), while using the factors of size, liquidity, COVID-19, GDP growth rate, HHI, efficiency, age, interest income, capitalization strength, credit quality, and growth of deposits as independent variables. The results of this study showed that liquidity and bank size have insignificant effects on the financial performance of both economies. Furthermore, GDP, which is the macroeconomic factor, demonstrated a positive impact on ROA and ROE ratios. The impact of COVID-19 on the return on equity (ROE) of banks in South Asia was found to be negligible, in contrast to the negative effect observed in the European Union (EU). The research revealed that the pandemic had an adverse effect on the ROE of banks in the EU, leading to reduced returns. In contrast, for South Asian banks, the impact was positive, leading to improved performance even surpassing pre-crisis levels. These findings suggest that the COVID-19 pandemic affected different regions' banking sectors in different ways. While banks in the EU experienced reduced ROE due to the pandemic, South Asian banks seemed to have adjusted well and managed to perform better. The reasons behind the differing impacts could lie in factors such as regional differences in economic structure, regulations, and the severity of the pandemic's impact.

2.3 Hypothesis development

2.3.1 Size

Haris et .al (2018) examined the effects of bank level indicators on bank profitability in Pakistan, and the study revealed an inverted U-shaped relationship between bank size and profitability. The findings indicate that an increase in assets can positively impact profitability up to a certain point, but beyond that point, further increases in assets may lead to a decrease in profitability. The researchers identified several factors that positively impact bank profitability in Pakistan, such as higher solvency, financial structure, operating costs, labor productivity, market power, and economic growth. These factors

contribute to the initial increase in profitability as banks grow in size. However, beyond a certain threshold, the negative effects of increased complexity and regulatory burden start to outweigh the benefits of scale. This suggests that there is an optimal bank size for maximizing profitability, and banks should carefully consider their growth strategies to avoid crossing that threshold. Study of Ahmad Al-Harbi (2019) has looked into determinants influencing profitability of 686 conventional banks in the Organization of Islamic Cooperation (OIC) states between the periods of 1989 to 2008 through ordinary least squares fixed-effects model. Results denoted positive effect of firm size, loan ratio, net interest margin and non-interest income margin on non-bank industry profitability; on the contrary, non-performing loan ratio and cost to income ratio show adverse influence on profitability ratio of ROE. The study found that larger non-bank institutions tend to be more profitable, as they have economies of scale and can take advantage of market opportunities. The study of Imtiaz et al (2019) has looked into determinants influencing the profitability of the non-bank institutions industry in Bangladesh between the periods of 2013 and 2017 by utilizing multiple regression analysis. Results denoted a positive effect of firm size, loan ratio, net interest margin, and non-interest income margin on non-bank industry profitability; on the contrary, non-performing loan ratio and cost to income ratio show an adverse influence on the profitability ratio of ROE. The study found that larger non-bank institutions tend to be more profitable, as they have economies of scale and can take advantage of market opportunities. On the contrary, in Khan, et al (2015) study of size has a negative impact on financial performance indicators, indicating that larger firms may face challenges in maintaining their profitability. Similar to previous studies, Khalifa, K. M., & Shafii, Z. (2013), Iveta Paleckova, (2016), Ali Saleh Alarussi, Sami Mohammed Alhaderi, (2018), Nuriyeva (2014), Rohman, A., & Nurkhin, A. (2023) found a positive impact of bank size on its profitability for transition economies including Azerbaijan. Hence, the hypothesis is as follow:

H1. Firm size has a positive impact on the financial institutions' financial performance

2.3.2 Capital adequacy

Study Rai et al. (2018). The research aims to examine the influence of both bank-specific and macroeconomic variables on the performance of financial institutions in Nepal. The study focuses on three key performance indicators: return on equity (ROE), return on assets (ROA), and net interest margin (NIM). The researchers selected several independent variables, including capital adequacy ratio, asset quality, management efficiency, liquidity management, GDP growth rate, and inflation, to

determine their impact on the dependent variables. The results suggest that a higher capital adequacy ratio is linked to increased levels of return on equity and return on assets. Similarly, Yuan, et al (2022), Xiazi, X., & Shabir, M. (2022), O'Connell, M. (2023), Mercan et al (2023) , Nuriyeva (2014) found a positive impact of capital adequacy on profitability ratio. Hence, the hypothesis is as follow:

H2. Capital adequacy has a positive impact on the financial institutions' financial performance

2.3.3 Liquidity

Katusiime, L. (2021) examined the effect of COVID -19 on profitability of Uganda's banking system between 2000-2021 by applying Autoregressive Distributed Lag (ARDL Bound) testing approach. According to the results, in the short run, liquidity ratio has negative and significant effect on bank profitability. However, in the long run, the study found that liquidity ratio has a positive and significant impact on bank profitability. This suggests that while initially, an increase in liquidity may have a detrimental effect on profitability, but over time it can lead to improved financial performance for banks in Uganda. Numerous influential studies, including those focused on transition economies, have identified a negative relationship between credit or liquidity risk and profitability. Conversely, due to Eric Kofi Boadi & Samuel Antwi & Victor Curtis Lartey, (2013)'s article, liquidity has positive impact on profitability. Ali Saleh Alarussi and Sami Mohammed Alhaderi (2018), Roman and Sargu (2015), Nuriyeva (2014) found a negative effect of liquidity on profitability. Hence, the hypothesis is as follow:

H3. Liquidity has a negative impact on the financial institutions' financial performance

2.3.4 Financial leverage (debt/ asset)

The objective of this research is to investigate the connection between profitability and the underlying determinants of profitability for 11 Kuwaiti banks listed between 2013 and 2020. The study employs relevant data and employs the generalized method of moments (GMM) model for statistical analysis. Based on the results of previous research from Alharthi (2022), it is stated that leverage has a significant negative impact on the earnings of the listed Kuwaiti banks' financial performance. The results that implies above mentioned can be found at Hossain, T . (2020), Fareed, et al (2016), Hasan et al. (2014), Ali Saleh Alarussi and Sami Mohammed Alhaderi (2018), Mirza, (2013) Different results

are found in the research written by Nirajini & Priya (2013), who explained that leverage has a positive impact on the banks financial performance. Eric Kofi Boadi & Samuel Antwi & Victor Curtis Lartey, (2013), Ali Sulieman Alshatti (2016) also found that there is a positive relationship between leverage and profitability of firms. Findings from previous research indicate that financial leverage exerts a positive and significant influence on bank performance. Nonetheless, empirical studies have also demonstrated instances where the association between profitability and leverage manifests as negative. Consequently, the hypothesis is as follow:

H4. Financial leverage has a negative impact on the financial institutions' financial performance

2.3.5 Capital structure (debt/equity)

Study Gazi et al., (2021) The research focuses on investigating how specific factors unique to individual banks, as well as macroeconomic factors, impact profitability within the banking sector of Bangladesh. To achieve this, a sample of 32 banks was selected, and their performance over a ten-year period from 2011 to 2020 was analyzed. The study utilized a panel data research methodology and employed the OLS regression model to analyze the data. Results indicated that the higher the debt to equity ratio, the lower the return on assets. Similarly, a negative impact on the profitability is confirmed in studies done by Assad Naim Nasimi. (2016), N. Tariq Bhutta and A. Hasan (2013), Mirza, (2013).

On the other hand, according to Yuan et al. (2022), while debt to equity ratio has positive impact on ROA, it is adversely associated with ROE.

H5. Capital structure has a negative impact on the financial institutions' financial performance

2.3.6 COVID

Previous literature review by Dong (2021) suggests that COVID outbreak adversely affected financial performance. This aligns with the findings of Elnahass et al. (2021), who also identified a negative relationship between COVID variable and profitability of banking sector. From Katusiime, L. (2021)'s findings, it is evident that the epidemic has a negative and significant impact on bank profitability, particularly regarding Net Interest Margin (NIM). This impact is more prominent when considering the long-term version of the model. Additionally, Javeria Haider, Khalil Ullah Mohammad (2022) found

no consistent influence of COVID variable on financial performance. When examining the effect of the Covid-19 pandemic on banks, the inclusion of a Covid-19 dummy variable revealed that both Return on Assets (ROA) and Return on Equity (ROE) experienced negative impacts during the Covid-19 period, resulting in significant decreases. The magnitude of the negative impact was similar for both ROA and ROE. However, when comparing the influence of the pandemic on banks across the two continents, distinct differences became apparent. The effect of the pandemic on the Return on Equity (ROE) in South Asia was insignificant, while in the European Union (EU), there was a negative impact on ROE. This suggests that the pandemic adversely affected the ROE of EU banks. Conversely, the South Asian banks experienced a positive impact, resulting in an improvement in performance that exceeded pre-crisis levels. Based on these diverse findings, the hypothesis can be formulated as follows:

H6. Covid-19 has a negative impact on the financial institutions' financial performance

2.3.7 GDP growth

Due to research by Rai, Poonam regarding the impact of the GDP on financial performance, a higher GDP growth rate would result in a higher return on assets and return on equity. The results showed that GDP growth has a positive impact on the Nepalese financial institutions' financial performance. However, the results of a similar study by Nuriyeva (2014) and Seferli (2010) indicate that the GDP adversely affects financial firms' financial performance. According to Zambrano Farías et al (2022), GDP growth has a positive impact on the firm's financial performance in Spain and Italy. Athanasoglou et al. (2006)' s paper suggests a positive association between profitability and economic boom. This is because during an economic boom, there is an increase in the demand for credit transactions, which in turn improves the solvency of a bank's customers. As a result, banks experience improved profitability during periods of economic growth. Another notable piece of research by Yüksel et al (2018) claims that economic growth has positive influence on bank profitability. This outcome leads to the conclusion that higher GDP levels correspond to increased bank profitability, particularly within the context of post-Soviet countries. Result of Yao et al (2018)' analysis indicate that GDP growth impacts profitability positively. As a result, the hypothesis is as follows:

H7. GDP growth has a positive impact on the financial institutions' financial performance

2.3.8 Inflation

Yüksel et al (2018) tried to understand the factors that influence bank profitability in Post-Soviet Countries. According to the results, a positive impact is found from inflation to the bank profitability. In addition, the impact of the inflation rate on profitability depends on whether it can be foreseen or not. When inflation is expected, banks can readily adapt their interest rates to align with the projected inflation rate. Moreover, findings of Athanasoglou et al. (2006) paper suggest that inflation has a significant and positive effect on profitability. This means that during periods of inflation, banks experience a greater increase in income compared to their costs. One possible explanation for this phenomenon is that bank customers, in contrast to bank managers, struggle to accurately predict future inflation. On the other hand, due to the research of Yao et al (2018) the coefficient values attributed to inflation (INF) are significantly negatively associated with all indicators of profitability, except for NIM which displays a negative impact that lacks statistical significance. The outcomes of this study imply that the management of banks in Pakistan was unable to effectively predict and adjust for forthcoming inflation within the analyzed time frame. Mirza (2013) showed that inflation rate has negative impact on performance as when inflation rises costs and expense also increase which results with a decrease in profit. Furthermore, Zambrano Farías, et al (2022) also showed that inflation affects bank profitability negatively by using regression analysis in their studies. Based on prior findings, 8th hypothesis is formulated as follows:

H8. Inflation has a negative impact on the financial institutions' financial performance

Research Hypotheses

Following research hypotheses were developed according to the findings derived from the prior empirical literature:

- H1: There exists a positive relationship between company size and profitability of financial institutions.

- H2: There exists a positive relationship between capital adequacy ratio and profitability of financial institutions.

- H3: There exists a negative relationship between liquidity and profitability of financial institutions.

- H4: There exists a negative relationship financial leverage and profitability of financial institutions.

- H5: There exists a negative relationship between debt/equity and profitability of financial institutions.

- H6: There exists a negative relationship between COVID variable and profitability of financial institutions.

- H7: There exists a positive relationship between GDP growth variable and profitability of financial institutions.

- H8: There exists a negative relationship between inflation variable and profitability of financial institutions.

Review of Azerbaijan financial market

3.1 Overview of the history of Azerbaijan economy and financial market

The economy of Azerbaijan remains heavily centered around oil and natural gas, which constitute the primary sources of its export earnings and government revenue. Based on the data for the year 2022, the oil and gas sector played a significant role by contributing a substantial 47.8% to the overall GDP of the country. Moreover, a significant portion of the budget, approximately 52.7%, was derived from revenues generated by the oil sector. Additionally, oil products constituted a dominant share of 92.5% in the nation's total exports. Therefore, since late 1990s oil and recently gas has been significant contributor of notable improvement in living standards experienced in Azerbaijan. As a result of hydrocarbon export revenues, in recent years the Azerbaijani government has successfully achieved significant growth in budget expenditures and revenues. The diversification of the economy beyond oil and natural gas has contributed to growth in various economic sectors and this expansion has also opened up new opportunities for the country's financial institutions, predominantly serving to businesses unrelated to petroleum.

Banks play a dominant role in Azerbaijan's financial sector, accounting for approximately 95% of the total assets within the sector. On the other hand, the non-banking financial sector is not well-developed and experienced significant challenges, notably after the currency devaluations in 2015. In Azerbaijan, there are a total of 122 financial institutions in the financial industry. Of these, 25 are categorized as banks, 41 are credit unions, and 56 are other nonbank entities. The majority of the sector is dominated by banks, which hold 97% of the total assets. Nonbank entities, on the other hand, control the remaining 3% of assets.

Furthermore, between 2011 and 2014: the count of profitable banks in Azerbaijan rose from 30 to 35, culminating in a net profit of 370.5 million Manat by the close of 2014.With steady upward trends in macroeconomic indicators confirming the importance of banks to the economy, the banking industry continued to develop in 2014. Over the course of the year, there was an apparent rise in the assets of the banking sector, reaching a total of AZN 25,183 million. This rise amounted to AZN 4,797 million, or a 24% increase. Financial intermediation expanded during this period. The public's deposits exhibited continuous growth, reaching a ratio of 20.8% to the GDP. However, in the latter half of 2014, the global economy entered a distinct phase characterized by diminished growth and demand. This shift

resulted in declines in commodity prices, particularly affecting oil prices. The global decline in oil prices has detrimental effects on all countries that rely on oil exports, including Azerbaijan. The nation witnessed significant declines in export revenues in this scenario, accompanied by a rise in currency outflows for international debt and obligations. So the previously mentioned combination resulted in a noteworthy deficit in the balance of payments.

The economic management system, which has been relying on significant oil revenues for the decade preceding, has lost its ability to effectively regulate. To counter this, the Central Bank decided to weaken its currency by 33.55% on February 21, 2015, with the intention of delaying a rapid depletion of reserves. This scenario resulted in borrowers with foreign currency denominated loans having to pay 33.4% more in terms of the national currency, reducing their ability to repay credits and consequently leading to an increase in non-performing loans. Furthermore, as the real sector had long operated under a fixed exchange rate framework, this devaluation put a great deal of pressure on it. The significant decrease in oil prices combined with the devaluation of currencies in oil-rich nations, contributed to a prominent increase in the demand for foreign exchange within Azerbaijan's financial markets.

The first devaluation of the manat on February 21st, 2015, was generally consistent with trends seen in other emerging economies: national currencies collapsed, inflation erupted out of control, the financial sector lost its stability, and foreign exchange reserves drastically dropped. The decrease in value first had an effect on the financial industry, making it hard to pay back debts made in foreign currencies and resulting in the depreciation of assets. Quite a few of banks and non-bank credit organizations discontinued their operations, resulting in around 33% of banks and 20% of non-bank credit organizations being impacted. The International Bank of Azerbaijan (IBA), the largest bank in the country, encountered the possibility of bankruptcy. However, the government intervened by providing sufficient financial resources to restore a significant percentage of the bank's assets while taking on its obligations regarding to international debt. Despite government backing, banks and consumers were left to handle the problem of repaying dollar loans, which led to a sharp increase in non-performing loans and created issues for the financial industry. ("How Did Azerbaijani Banks Face a 'Test' of Devaluation?," n.d.) Furthermore, there were cutbacks in budget spending, a decrease in the minimum lending in the banking sector, and a downturn in economic activities. Throughout this period, the banking sector was significantly restricted lending in the local currency.

The intensification of the economic meltdown, along with issues in the banking sector, had an adverse effect on credit trends following the devaluation. As a result, the credit portfolio of banks saw a contraction of 24.4% at the end of November 2015, meaning a reduction of 5.67 billion USD,

eventually leaving it at a value of 17.6 billion USD. Moreover, a decline in credibility within the banking industry led to a decrease in the amount of money being deposited and saved, consequently influencing fluctuations in the structure of currency. ("Analytical Balance of Commercial Banks (end of the period)") In the aftermath of the devaluation, financial institutions displayed minimal inclination to provide loans in the domestic currency, whereas customers aimed to steer clear of loans in foreign currency. A major devaluation occurred on December 21, 2015. The Central Bank officially announced the transition to a floating exchange rate system after clearly stating that it was unable to control the prevailing circumstances. (" The Economy of Azerbaijan in 2015: Independent View") The goal of these actions was to promote exports and prevent loss of exchange reserves from the country. The Bank pursued a strict anti-inflationary monetary policy in light of the current macroeconomic environment. All in all, resource dependency led to the most significant crisis of the century in 2015. The economic management, which was highly dependent on fuel revenue for a prolonged duration, encountered an unforeseen difficulty as a result of a significant decrease in oil prices. The devaluation of the manat prompted a surge in dollarization, which weakened the balance sheets of banks and had negative impacts on essential financial indicators of the country. The corresponding deterioration of financial reliability indicators raised serious concerns regarding the overall financial health of the country.

By January 1, 2016, there were 157 additional financial institutions in the nation, including credit unions, non-bank credit institutions (NBCIs), and other entities that provided restricted banking services in addition to the 43 banks that were already present. Moreover, the Financial Market Supervisory Authority (FIMSA) was established in the early months of 2016 with the aim of improving the licensing, regulation, and oversight of securities markets, encompassing various activities such as investment funds, insurance, credit organizations, and payment systems. The closure of banks following to the devaluation of the manat has had an adverse effect on service points, leading to a reduction in the number of available alternatives for customers and prompting both individuals and businesses to redeposit their funds in what are perceived as the most secure and largest banks. The declining performance of the banking sector, significant financial losses experienced by banks, and instances of defaults by certain institutions have significantly weakened trust in the banking system. The Central Bank and afterwards the Financial Market Supervisory Authority (FIMSA) systematically terminated the licenses of banks that were determined to pose no threat to the system. Furthermore, the license of "Demirbank" OJSC was terminated, in accordance with a directive issued by the Board of Directors of the Financial Market Supervisory Authority on December 22, 2017. The decision was made due to the banks' aggregate capital falling below the minimum capital requirement set by

regulatory authorities, and the adequacy ratio of the aggregate capital being less than the legislatively required a threshold of three percent as well as failure to meet their obligations to the creditors. ("The Economy of Azerbaijan in 2017 (Comprehensive Analysis)," n.d.) In all, the number of 14 commercial banks experienced closure following to the initial devaluations, whereby 2 closures occurred after to the first devaluation, and 12 closures happened following the subsequent major devaluation. They were shut down due to issues such as non-performing loans, inadequate asset quality, liquidity problems, and the general economic decline. The diminished public confidence in the banking system resulting from bank closures and the noticeable decline in yearly profit on foreign currency deposits have culminated in an drastic decline in deposits. Although there has been a decrease in overall deposits, the year 2017 witnessed an increase in deposits made by ordinary individuals. The volume of deposits in 2017 had a 1.5% increase, rising from AZN 7.5 billion in 2016 to AZN 7.6 billion. This growth may be mostly attributed to deposits denominated in the local currency. Although the Central Bank's public announcement to abandon the exchange rate corridor and officially allow the manat to float in 2017, it seems that a true floating exchange rate has not been implemented. Contrary to this official stance, the exchange rate between the dollar and the manat has remained fixed at 1.70 since April 2017.

 On the other hand, despite the adverse effects of the 2015 devaluation, it has been reported that the domestic insurance industry has continued to exhibit an upbeat pattern over the past five years. After the currency collapse, some insurance companies closed down and others merged, leading to a reduction in the number of domestic insurance companies in Azerbaijan. By the end of 2017, the total number of insurance companies operating in the country had decreased from 25 in previous years to 21.

As of April 2018, the nation housed a total of 30 banks, consisting of two banks that were state-owned and 28 banks that were privately owned. Among these, 15 banks had foreign capital engagement, consisting of 2 locally operating branches of foreign banks.

Figure 1 Structure of Banking assets, AZN million
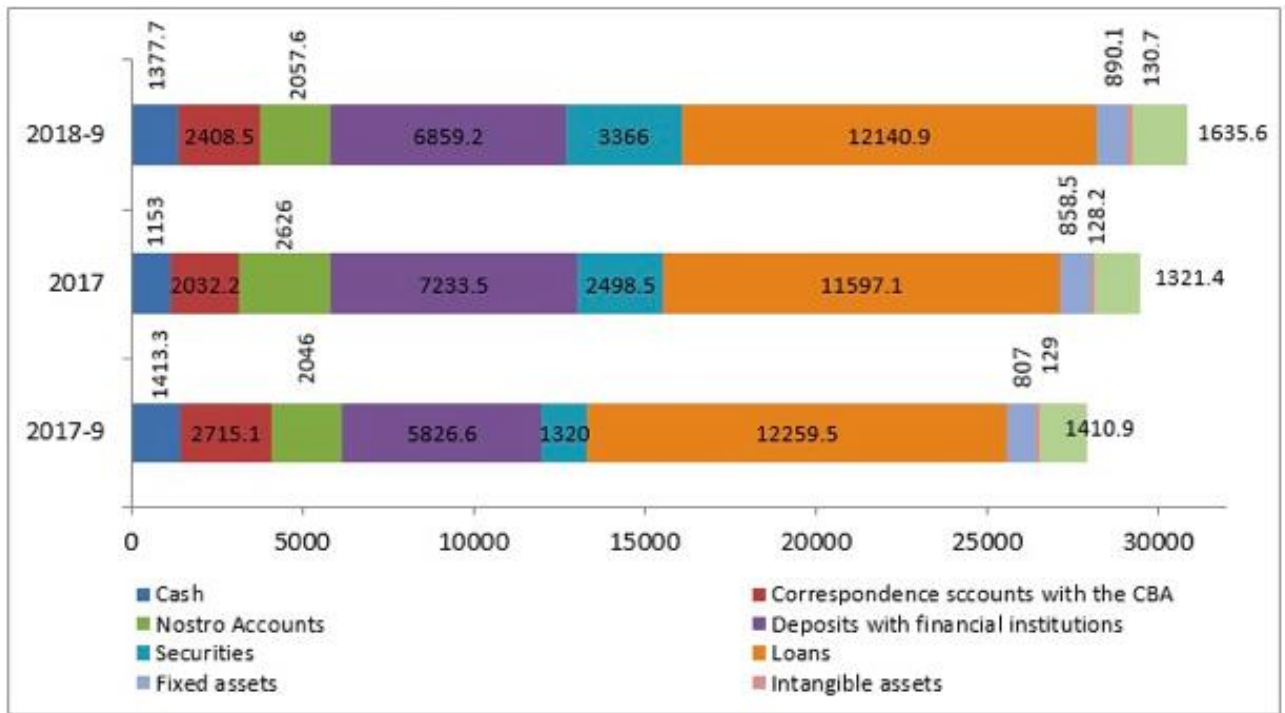
Source: **Financial Market Supervisory Authority.**

According to the table 2, Deposits from individuals and legal entities, including financial institutions, made up 77.6% of bank liabilities as of October 1, 2018. This represents a significant increase of 76% compared to the previous year. The second largest source of funding for banks was loans obtained from other financial institutions, but this figure decreased from 8.7% to 8% due to a decrease in loans extended by banks. Additionally, the proportion of securities issued by banks as part of their total liabilities decreased from 7.7% to 7.3%.

The government has taken the initiative to implement reforms in the finance sector, with the goal of improving the stability of the banking industry and facilitating better financial intermediation for the private sector. These efforts, coupled with the recovery of oil prices, have played a crucial role in promoting both macroeconomic stability and economic growth. Notably, the Gross Domestic Product (GDP) grew by 0.2% in 2017 and expanded further to 1.5% in 2018. This positive trend has also led to a decrease in poverty, with the poverty rate falling to 5.4% in 2017. Furthermore, the rate of inflation has shown a decline, reducing from 12.8% in 2017 to 2.7% in 2019. During the year 2019, the Gross Domestic Product (GDP) of Azerbaijan witnessed a growth of 2.2%, resulting in a total GDP value of €42.9 billion. In 2019, Azerbaijan's banking sector included a total of 30 operational banks, two of which were state-owned, while the other 28 were privately owned. The country was also home to 14

banks with foreign capital involvement, with more than 50% of foreign capital proportion in seven of these banks. In addition, there were a total of 90 non-bank credit organizations, out of which 45 held the status of credit unions. In 2019, there has been an increase in the deposits held by both financial and non-financial institutions in Azerbaijan. As a result, the funds held by financial institutions in banks grew by 14.1%, reaching €907.1 million, while deposits held by non-financial organizations experienced an even greater increase of 23.1%, reaching €7,555.3 million. Quantitative and qualitative measures in Azerbaijan's banking sector have shown favorable developments due to several key factors. These include the reinforcement of economic stability, a decrease in inflation, reduced volatility in exchange rates, and an increase in business activities and household incomes. These factors have contributed to the positive trends observed in Azerbaijan's banking industry.

3.2 Azerbaijan Financial Sector During and After Pandemic period

In fact, a stable and effective banking system is essential to withstand negative shocks and financial distress, especially in the case of economies that depend heavily on commodities. Without a reliable banking system, these economies are exposed to fluctuations in commodity prices and may face difficulties in adjusting to market changes. Additionally, a stable banking system helps to manage systemic risks and instills confidence in investors, enabling the efficient allocation of capital and promoting economic growth. The banking sector in Azerbaijan faced significant challenges in 2015 due to the severe impact of two sequential devaluations. These challenges included a sharp increase in non-performing loans, a decrease in liquidity, and heightened risks, which had a negative impact on economic growth. In response to these challenges, the Azerbaijani government implemented strategic development initiatives within the banking sector to mitigate the adverse effects of the devaluations. As a result of these initiatives, there has been a positive advancement in the credit and deposit landscape within the banking sector, leading to improved conditions. Moreover, Azerbaijan's foreign trade has been indirectly affected by economic downturns in Russia and Iran. Engaging in a conflict with Armenia has imposed additional economic costs on Azerbaijan. The reduction in oil prices was accompanied by two waves of measures implemented to curb the spread of the virus. These measures subsequently resulted in Azerbaijan's GDP decreasing by 2.7% in the first half of 2020, as reported by The World Bank in the same year. This suggests that the pandemic and its economic impacts have had far-reaching effects beyond national borders, with neighboring countries also being impacted. (AYDIN, 2022)

On April 27, the Central Bank's Board took a series of decisions that transferred all managerial authority, including control over general meetings of bank shareholders, for Atabank OJSC, AGBank OJSC, NBCBank OJSC, and Amrah Bank OJSC to a provisional administrator. Subsequently, the licenses of Atabank OJSC and Amrah Bank OJSC were revoked on April 28, followed by the revocation of licenses for AGBank OJSC and NBCBank OJSC on May 12. ("The Azerbaijani Banking Sector During Pandemic and War," n.d.) This event had significant implications for the banking sector in Azerbaijan. The number of operational banks in Azerbaijan decreased to 26 following some closures. While the pandemic coincided with the events, the root cause of the situation can be traced back to the significant devaluation of the currency that occurred in 2015. This devaluation had a severe impact on banks, resulting in roughly one-third of them being forced to exit the market. According to official data provided by the Central Bank, the closures were primarily a result of these banks' total capital falling below the minimum capital requirements set by the Central Bank. Specifically, these banks had capital amounts less than the stipulated minimum threshold of 50 million manat. This suggests that the revocation was a regulatory action taken to ensure compliance with capital adequacy standards rather than being directly linked to the pandemic. Moreover, during pandemic period, the concentration within the banking sector was significantly high, as the four largest banks hold more than 60% of the total assets in the sector. At the end of 2020, Azerbaijan had a total of 26 banks, with 7 of them being predominantly owned by foreign entities, and 2 primarily owned by the state. The banking sector witnessed a significant event with the closure of four banks early in the year.

Similar to other sectors of Azerbaijan's economy, the banking industry faced significant challenges in 2020. The sector's contribution to the overall economy was constrained, and accessibility to banking resources became more difficult due to declining revenues. As businesses struggled to generate revenue, loan repayments were delayed and the number of non-performing loans increased. Additionally, individuals were hesitant to take on loans or make large investments due to job losses or reduced income, leading to a decrease in demand for banking services. Consequently, banks had to adapt their strategies and implement cost- cutting measures to minimize the impact of these challenges and ensure the stability of the financial system.

In 2020, there was a 2% decrease in banks' assets, which amounted to AZN 32 billion ($18.8 billion), and a corresponding 2% decline in bank liabilities, totaling AZN 27.3 billion ($16 billion). As per the records of the Central Bank, in the year 2020, the net lending by Azerbaijani banks experienced a decline of 3.5%, dropping from AZN 13.7 billion to AZN 13.3 billion. However, in 2021, there was a significant 20% growth in banks' assets, totaling AZN 38.5 billion ($22.6 billion), while bank liabilities

rose by 19%, reaching AZN 33.5 billion ($19.7 billion). On the other hand, the lending growth in 2020 displayed a fluctuating pattern. Before the implementation of quarantine measures in the first quarter, there was a 2.6% growth in lending. However, during the second quarter, which aligned with strict quarantine restrictions, lending experienced a decline of 7%. In the following summer months, there was a modest increase of 2.3%, but this was followed by a decrease of 1.1% in the final quarter of the year. This volatility in lending growth can be attributed to the various factors and uncertainties brought about by the pandemic and related restrictions.

Throughout the year, businesses and consumers faced financial uncertainties due to the pandemic, causing them to cut back on borrowing. Additionally, the restrictions implemented during the second quarter of 2020 severely limited economic activity, leading to reduced demand for loans. Although the slight increase in lending during the summer months indicated some recovery, the ongoing uncertainties and potential fear of a second wave of infections likely contributed to the subsequent decline in lending during the final quarter. Overall, the pandemic and its related restrictions created a challenging and unpredictable environment for borrowers and lenders alike, resulting in the volatile growth patterns observed in lending throughout the year.

Due to 2022 data, Azerbaijan follows a bank-centric financing model, and as such, the banking system plays a central role as the primary financial intermediary for the economy. The measurement of the financial depth of the banking sector, as indicated by the ratio of bank assets to GDP, stands at 35.2%. Additionally, the ratio of the loan portfolio to GDP, another indicator of financial depth, is at 14.6% (or 28% when considering non-oil GDP). These figures indicate that Azerbaijan's banking sector has relatively low financial depth when compared to benchmark countries, suggesting potential for future growth in the sector.

There are a total of 25 banks operating in the country, with two of them being state-owned. Foreign capital is invested in 11 of these banks, and one foreign bank has established a local branch. The sector's service network encompasses 487 branches, 91 departments, 2,997 ATMs, and a workforce of 22,800 employees. In terms of accessibility, there are six branches per 1,000 square kilometers, and there are 29 ATMs per 100,000 people. It's noteworthy that the expansion of the service network has been limited in comparison to the previous year, with only a 2% increase in the number of branches and a 3% increase in ATMs. This trend can be attributed to the growing prevalence of digital service solutions in the banking sector, including enhancements to mobile applications and the expansion of digital card offerings by banks.

A substantial increase in the banking sector's balance sheet occurred in response to heightened economic activity and the expansion of banks' resource bases. Over the course of the year, the banking sector's assets saw a 22% surge, equivalent to 8.6 billion manat, reaching a total of 47.1 billion manat. Simultaneously, liabilities experienced a 24% growth, amounting to 7.9 billion manat, and reaching a total of 41.4 billion manat.

As of the end of 2022, the composition of the banking sector's assets consists of 39% net loan portfolio, 37% liquid assets, 11% deposits and loans placed with financial institutions, and 13% other assets. In contrast, the bulk of the banking sector's liabilities stem from deposits made by legal entities. Specifically, 54% of liabilities are attributable to legal entity deposits, 28% to individual deposits, 12% to obligations owed to financial institutions, and 6% to other liabilities. In addition, the primary source of financing for the sector is its current liabilities, with a significant emphasis on deposits from legal entities.

In the financial sector, banking system achieved an increased Return on Assets (ROA). This achievement occurred in the context of total assets growing by 22.3%, equivalent to 8.6 billion manats. Concurrently, the volume of risk-weighted assets experienced a 13.4% increase, amounting to 3.2 billion manats. Consequently, the ratio of risk-weighted assets to total assets decreased from 4.5% to 57%. Notably, starting in 2021, there has been a tightening of prudential requirements. This includes higher ROA requirements for consumer loans, particularly those considered riskier, and the incorporation of operational and market risks in the ROA calculation.

Even though there was an increase in Return on Equity (ROE), the growth rate of assets exceeded it during the year. In 2022, the Return on Assets (ROA) stood at 27.0 billion AZN, with 25.3 billion AZN attributed to loans, 0.3 billion AZN from market operations, and 1.4 billion AZN originating from operational risks.

Non-bank credit institutions (NBIs) continue to have a limited role in financial intermediation. In 2022, their market share in the financial system, as measured by assets, was only 1.08%. Over the course of the year, the licenses of four non-bank credit organizations were canceled, reducing the total number of active NBIs to 95. Out of these, 14 have foreign capital investment, with 11 of them having more than a 50% foreign capital share.

In 2022, the balance sheet of the Non-Bank Financial Company (NBFC) sector expanded. The total assets of BOKTs operating in the country increased by 33%, amounting to 127 million manats, and primarily driven by the net loan portfolio. During the same period, the net loan portfolio saw a 37%

growth, totaling 108 million manats, with the majority of this increase attributable to consumer loans, amounting to 62 million manats.

3.3 Trend analysis

The global average banking ROA ratio, according to theglobaleconomy, is 1.57 percentage between the periods of 1999-2021. Azerbaijan's 1999-2021 average for banking sector has been around 2.33%. By looking at this statistics, it seems obviously that we have more profitability than the world's mean. There are countries with less financial performance level. Australia, for example, has profitability of 0.87 percent.

Figure 2 *Banking system profitability, million AZN*
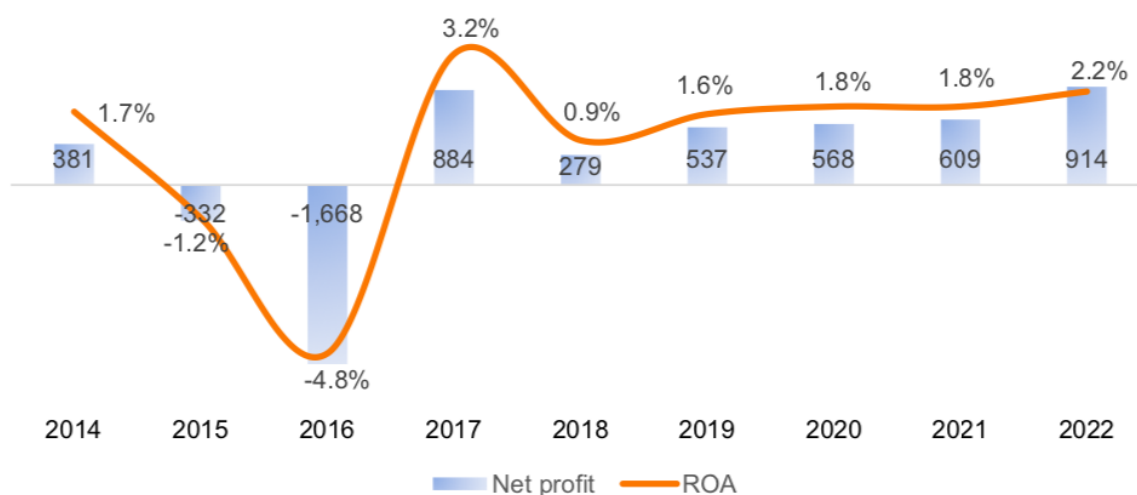
Source: CBA

Due to the graph 3, the profitability indicators of the banking sector demonstrate an upward pattern**.** The net profit of the banking system experienced an upward trend of 50% in 2022, reaching

914 million AZN, compared to the previous year's net profit of 305 million AZN. The banking system was successful in increasing profitability despite its challenging external environment and conditions.

Figure 3 Decomposition of ROA
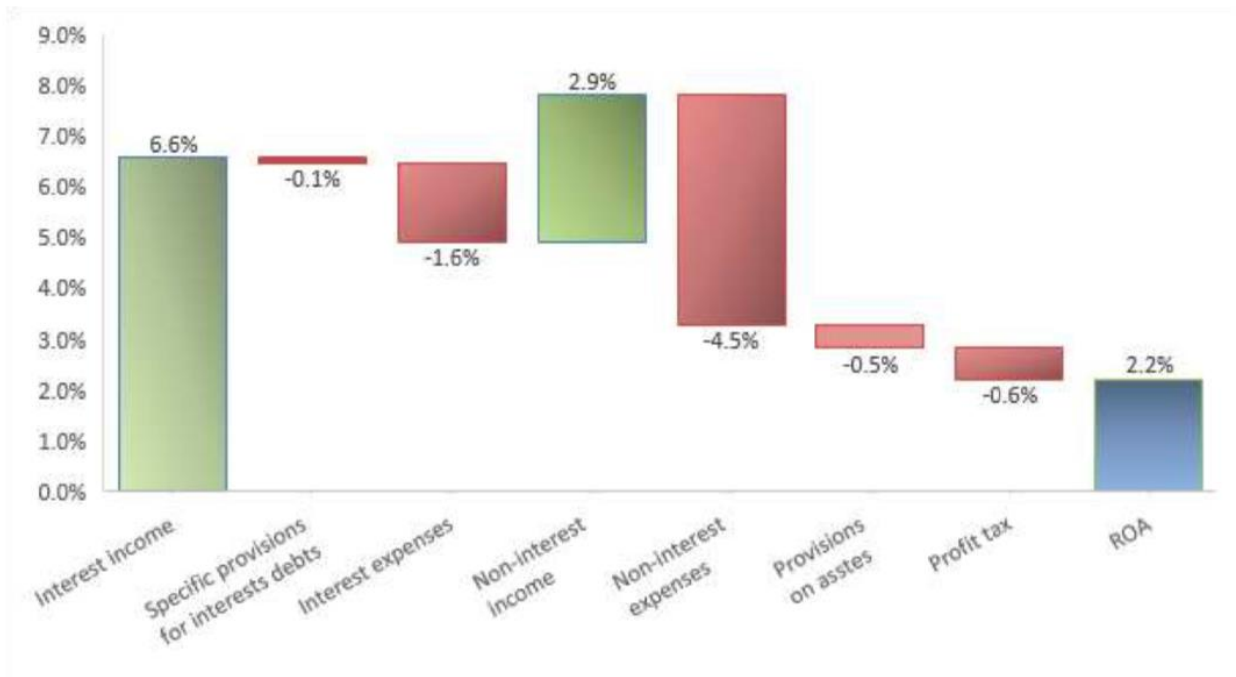
Source: CBA

Due to the graph 4, the return on assets (ROA) of the banking industry had a 0.4 percentage point increase, reaching 2.2%. Interest income, which accounted for 6.6% of average assets, identified as the key driver of return on assets. The sector's boosted non-interest expenditures, equal to 4.5% of average assets, are compensated for both interest and non-interest revenue. Nevertheless, despite the increase in banking sector profitability and the number of profitable banks, the growth rate of the sector's assets was greater than that of profitability, resulting in a decline in ROA.

Figure 4 *Profitability indicators of life insurance companies, million AZN*
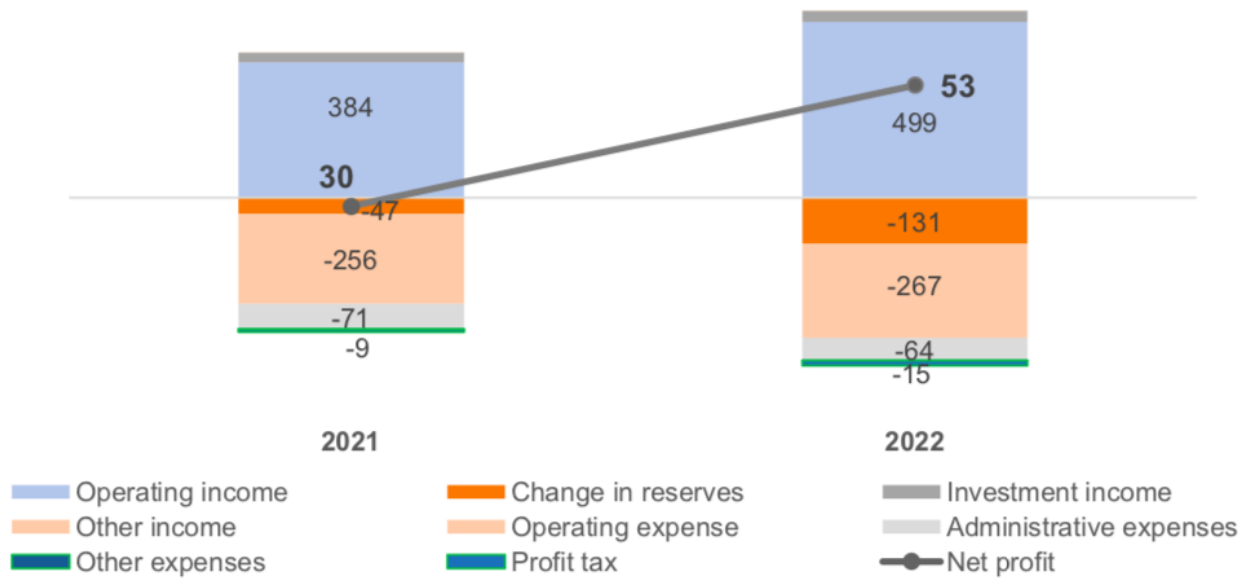
The non-life insurance industry had a decline in profitability, with a fall of 23% (equivalent to AZN5.0M), resulting in a total of AZN17M. This decline may be attributed to a year-on-year drop in operating income of 5% (equivalent to AZN25M). Simultaneously, there was an increase in operational costs and other expenses by 9% (equivalent to AZN11M) and 3.2 times (equivalent to AZN13M), respectively, which played a role in the decline in net profit.

Figure 5 Profitability of investment companies

Net profit, mln.AZN | ROA | ROE

Year	2019	2020	2021	2022
ROE	20.8%	25.0%	25.2%	23.2%
ROA	6.3%	11.1%	10.3%	8.4%
Net profit	2.7	6.0	8.7	9.1
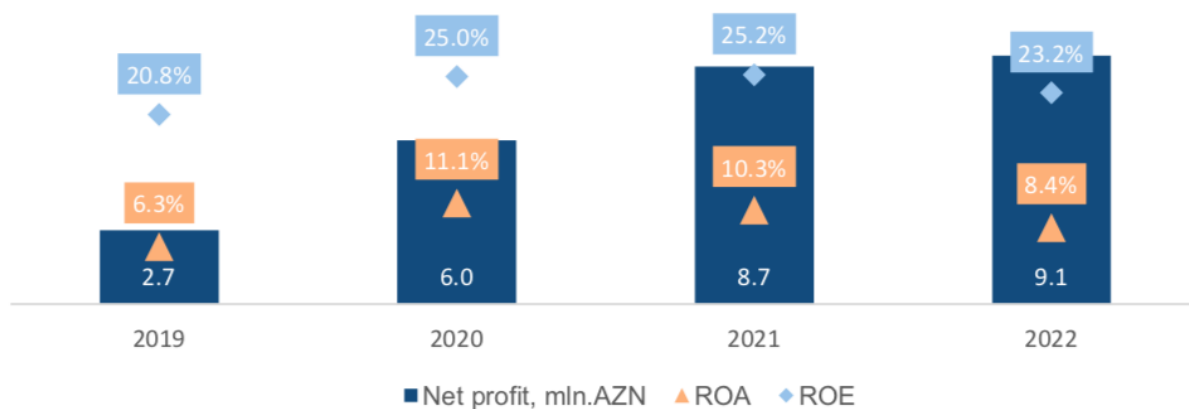
Source: CBA

The profitability of investment companies has remained consistently positive. The net profit of investment businesses had a 4.6% growth, equivalent to AZN0.4M, resulting in a total net profit of AZN9.1M. Despite the sector experiencing an increase in profitability, there was a larger growth observed in assets and capital, resulting in a decline in the indices of return on assets (ROA) and return on equity (ROE) to 23.2% and 8.4% respectively.

Research Methodology and Data Description

Based on the observations built on the literature we have chosen ROA ratio as a proxy for financial performance and following 8 independent variables 1) company size, 2) capital adequacy, 3) liquidity, 4) leverage, 5) debt/equity ratio, 6) COVID, 7) GDP growth, 8) inflation. As it is indicated, the level of measurement employed for accounting specific variables in this research was the ratio level. The research can be categorized as quantitative study due to its methodology, which deals with number, logic, formulas and numerical data. Relationships between dependent and independent variables were hypothesized. This study used panel regression analysis method to research hypothesis and to understand the panel regression data, descriptive statistics, correlation method was applied.

4.1 Data Source

Accounting specific data collection taken from secondary sources is compiled from the published audited annual financial statements of financial institutions through official websites within a 4-years period from 2019 to 2022. A panel data set encompassing data from 40 financial companies, that were functioning in Azerbaijan throughout the time period under consideration, for this research is constructed by merging information obtained from both the World Bank and the annual financial reports of the institutions. The sample contained 23 commercial banks, 7 investment companies, 6 credit institutions and 4 insurance companies. Some firms from the list were excluded due to non-availability of annual reports at the time of conducting the study. The World Development Indicators database (http://data.worldbank.org) and (http://worlddata.info) has been used to collect the annual macroeconomic data that has been gathered. Benchmark model used in this paper is as following:

$$ROA = \beta_0 + \beta_1 * size + \beta_2 * capad + \beta_3 * liq + \beta_4 * finlev + \beta_5 * debteq + \beta_6 * COVID + \beta_7 * GDPgrowth + \beta_8 * inflation + \varepsilon$$

ROA is return on asset, size is firm size, capad is capital adequacy, liq is liquidity, finlev is leverage, debteq is capital structure, COVID is dummy variable for COVID-19, GDPgrowth is growth in GDP or economic growth, and inflation is inflation rates for consumer price, and ε is error.

4.2 Variables

As it is indicated, a total of 9 variables have been chosen to conduct this study. Among them, one was the dependent variable and the other 8 were the explanatory or independent variables.

4.2.1 Dependent Variable

According to the majority of literature available, bank's and other financial firms' performance has been measured by Return on Asset (ROA) or Return on Equity (ROE) ratios. In this paper, ROA ratio has been used as the measure of financial institution's profitability. ROA is a widely used financial ratio in analyzing the profitability of a company. By dividing net income by total assets, it provides insight into how effectively a company is utilizing its assets to generate profit. A higher ROA value suggests that the company is operating efficiently and generating more profits per unit of investment. This ratio is particularly useful for comparing the performance of different companies within the same industry, as it helps in evaluating their ability to generate returns on their assets.

The formula for ROA is defined as: ROA = Net Income / Total Assets.

4.2.2 Independent Variables

After analyzing the relationship between profitability and other firm specific indicators for financial companies, several independent variables have been chosen from the literature. These independent factors were size, capital adequacy, liquidity ratio, financial leverage and debt to equity ratio, GDP growth, COVID, inflation

a) Company Size: Consistent with numerous previous studies, we employ the total assets of the bank as an indicator to approximate its size. It is calculated by using the natural logarithm of total assets of a company. Firm is expected to improve profitability, as it gets bigger, thereby, firm size is expected to have a positive effect on financial performance. For example, a large multinational bank with significant assets and a wide customer base may be able to generate higher profits due to economies of scale, increased market power, and the ability to offer a diverse range of financial products and services. As a result, its size would positively impact its profitability indicators such as return on assets or return on equity.

b) Capital Adequacy Ratio (Capital Strength): The capital ratio of total equity to total assets is also called as capitalization of strength. The capital adequacy ratio serves as an indicator of a firm's capital strength. High level of adequacy shows that institution is strong enough to maintain its financial stability. It is expected to have positive correlation with profitability. The formula for CA is defined as: Total Equity/ Total Assets. For example, if a company has a high capital adequacy ratio, meaning it has a significant amount of equity in relation to its total assets, it can better absorb potential losses and maintain stability during economic downturns. This would ultimately lead to higher profitability, as the company is able to protect its assets and generate higher returns.

c) Liquidity Ratio: This ratio is used to measure company's ability to meet its short-term obligation. High liquidity ratio indicates that firm has sufficient asset to quickly convert into cash to pay off its short-term liability and thus a positive relationship is expected to occur between liquidity ratio and profitability. The ratio is calculated as cash and cash equivalents/total assets. For example, a manufacturing company with a high liquidity ratio may be able to quickly sell excess inventory or collect outstanding accounts receivable, allowing them to meet their short-term obligations without difficulty. This increased liquidity would then lead to higher profitability as the company can allocate their cash towards investments or expansion opportunities, generating higher returns.

d) Financial Leverage Ratio: Leverage ratio is calculated as total liability divided by total assets. The greater the debt to asset ratio is greater level of dependence on outsiders so higher leverage ratio has adverse effect on profitability. For example, if a company has a high financial leverage ratio due to a significant amount of debt, it may have to allocate a significant portion of its cash towards interest payments and principal repayments. This could limit the company's ability to invest in growth opportunities and hinder profitability. On the other hand, if the company has a low leverage ratio, it would have less dependence on external financing and can retain more profits for reinvestment, leading to higher profitability.

e) Debt to Equity ratio (Capital structure): Leverage ratio is calculated as total debt divided by total equity. It indicates degree to which a company finances its operations via debt relative to equity. The higher leverage ratio leads to high risk of loans becoming bad debt and as a result lowering the profitability. For example, if we consider a manufacturing company that has a high leverage ratio and heavily relies on debt to finance its operations. If the economy faces a downturn and the company's sales decrease, it would struggle to meet its debt obligations, potentially leading to defaulting on loans and experiencing financial distress.

f) COVID variable: Dummy variable analysis is carried out for the time before COVID-19 and during COVID-19 for financial firms to see how their profitability was impacted and changed during the time of the pandemic and how determinants of profitability changed due to COVID outbreak for Azerbaijan's financial institutions.

g) GDP growth: The use of Gross Domestic Product (GDP) as an indicator contributes to the evaluation of overall economic activity. Additionally, the growth in GDP plays a crucial role in maintaining economic stability, which subsequently reduces the business risk faced by banks within such a stable economic context. The logic behind this hypothesis is that strong economic growth can create favorable business conditions, leading to increased consumer demand, higher sales, and ultimately improved financial performance for companies operating within those economies. As a result, utilizing GDP as an indicator provides valuable insights into the performance of banks and the broader economy as a whole.

h) Inflation: Inflation refers to the overall increase in the prices of goods and services within an economy. Typically, rising inflation rates are linked to higher loan interest rates, leading to increased income for banks. The connection between bank profitability and inflation expectations remains ambiguous. In our research, we utilize current inflation as a proxy for anticipated inflation and examine how it impacts the profitability of commercial banks. For example, if current inflation is high, banks may face higher borrowing costs and reduced lending activity, ultimately affect their profitability. It proposes that companies operating in economies with high inflation rates may face challenges in maintaining their financial performance. Therefore, it is expected that companies operating in economies with lower inflation rates will have a higher likelihood of achieving better financial performance.

4.3 Research method

The data was analyzed utilizing the STATA version 13 software to calculate and evaluate the data and the results were presented in the tables as follows: descriptive statistics, correlation analysis and regression analysis. In this research, we use the panel regression analysis technique to find the influence of accounting-specific and macroeconomic factors on financial performance. First we need to determine whether multi-collinearity problem exists among the independent variables through Correlation Matrix and Variance Inflation Factor (VIF). Second, we establish the appropriate model fit by employing various tests such as the F-test, Breusch and Pagan Lagrangian multiplier test, and

Hausman test within our research sample. Lastly, we employ the Breusch-Pagan / Cook-Weisberg to evaluate the existence of heteroskedasticity issue. If heteroskedasticity is identified, we will utilize robust standard error estimation.

Empirical Results

5.1 Descriptive Statistics

This section discusses overall descriptive statistics of how financial institutions performed on average for each period and as total in economy. The descriptive statistics of explanatory and dependent variable of ROA using STATA is reported and organized in Table 1. The table contains following variables: minimum, maximum, mean, standard deviation values of given independent and dependent variables of sample composed of 40 financial firms between periods of 2019-2022. The mean values of the independent factors company size, capital adequacy, liquidity, financial leverage and debt/equity ratios in the past 4 years are 5.56, 0.30, 0.24, 0.69 and 4.63 respectively, which shows that company size is the most used up factor.

The mean return on assets (ROA) is 2.9%, accompanied by a standard deviation of 4.9%, indicating huge fluctuation in their asset returns. This suggests that, on average, a profitable bank gained a 2.9% profit before tax for every unit invested in the company's assets. As it is known, if the standard deviation is 2 or more, the data is considered as having somewhat moderate variability. As a result, values are more widely spread from the mean, which indicates that there is greater diversity between data points. However, the highest-performing financial institution achieved a 40% profit before tax for each unit invested in their assets. Minimum and maximum of ROA are 0.129 and 0.40 respectively.

The highest company size value observed was 9.42 points, while the lowest was 2.78 points. Average size of the firms as by the natural logarithm of assets, on average, for the 160 observations made by 40 companies from the year 2019 to 2022 is 5.56 points. This suggests that, on average, company size contribution to the profitability of banks is about 556 percent.

Capital adequacy has maximum of 99.2% and a minimum of 5.3% with an average of 30% and standard deviation of 23%. On average, capital adequacy of financial institutions in Azerbaijan achieve a return of 30% percent, with a relatively moderate standard deviation of 23%. From these results, we can conclude that, the capital adequacy of the banks varies significantly. The range between the

minimum and maximum value indicates that there is huge diversity in terms of capital adequacy levels among the financial companies. The variation could be consequence of differences in financial health or risk exposure among the companies. Furthermore, it can be concluded that there are financial companies that do not comply with the requirements set by Central bank. According to the requirements, banks must hold the adequacy ratio of the total capital at a level not exceeding 12 %, and capital adequacy ratio of the first level - 6 %.

Table 1 Descriptive statistics

```
. summarize  ROA compsize capad liq finlev debteq GDPgrowth inflation COVID

    Variable |        Obs        Mean    Std. Dev.        Min         Max
-------------+--------------------------------------------------------------
         ROA |        160    .0299152    .0498839   -.1298028    .4082919
    compsize |        160     5.56344    1.250394    2.786969    9.424239
       capad |        160     .301391     .233033    .0539823    .9923176
         liq |        160     .245761    .1950497     .005139    .8955422
      finlev |        160    .6958732    .2385037    .0076824    .9460177
-------------+--------------------------------------------------------------
      debteq |        160    4.630463    4.016001    .0077419     17.5246
   GDPgrowth |        160         2.1    3.872821        -4.3         5.6
   inflation |        160     .064675    .0457393       .0261       .1385
       COVID |        160          .5    .5015699           0           1
```

Debt to equity ratio shown in the Table 1 has high mean value of 4.63, standard deviation of 4.01, which is the highest deviation showing great variance between each ROA observed and the mean value. The maximum and minimum value is 17.52 and 0.007 points.

In addition, financial leverage ratio has an average value of 69.5% and standard deviation of 23.8% so 69.5% of debt was utilized to finance the total assets of the firms and the result indicate that, on average, financial firms in the industry have financed their asset by using more debt than equity. Consequently, it can be concluded that most financial firms in the industry are highly leveraged. The

standard deviation of 23.8% indicates the extent of variability in the levels of debt used relative to total assets. The range of observations include lowest recorded observation, where a firm had no debt used to finance its total assets, to the highest recorded observation, in which a firm used 94.6% of its debt to finance its total assets. This observation highlights the diverse financing strategies adopted by different companies, wherein some heavily relied on debt for asset financing while others opted for minimal or no debt.

The average liquidity of these companies is 24.5%, calculated as the proportion of cash/ total assets. This implies that, on average, for every unit of total assets, there are 2.45 units of cash available to settle it as and when it becomes due. The data has a standard deviation of 0.195, indicating the extent of variability in this liquidity measure. The range spans from a minimum observation of a firm with .005 worth of cash to settle each unit of total assets, to a maximum observation of a firm with 0.895 worth of cash to settle each unit of total assets. This variation demonstrates the different liquidity levels across these companies, in which some have considerable amount of reserves of cash compared to their total assets while others have relatively less coverage.

Likewise, the mean GDP growth rate stands at 2.1, accompanied by a standard deviation of 3.87 points. In terms of inflation, the rate spans from 0.02 points to 0.13 points, averaging at 6 percent, with a standard deviation of 4 percent.

5.2 Correlation Analysis

Table 2 Correlation Coefficients

```
. correlate  ROA compsize capad liq finlev debteq GDPgrowth inflation COVID
(obs=160)

                     ROA compsize    capad      liq   finlev   debteq GDPgro~h

        ROA       1.0000
   compsize      -0.3864    1.0000
      capad       0.4143   -0.4903    1.0000
        liq       0.0937   -0.0601    0.0392    1.0000
     finlev      -0.4156    0.4500   -0.9801   -0.0392    1.0000
     debteq      -0.3321    0.3398   -0.7524   -0.0322    0.7493    1.0000
  GDPgrowth      -0.0402    0.2166   -0.0593   -0.0193    0.0525    0.0793    1.0000
  inflation      -0.1330    0.5135   -0.0815   -0.0857    0.0569    0.1009    0.5863
      COVID       0.0029   -0.2879    0.0726    0.0572   -0.0498   -0.0938   -0.3756

                  inflat~n    COVID

  inflation       1.0000
      COVID      -0.3865    1.0000
```

The Table 2 describes relationship between given explanatory and exploratory variables. A correlation coefficient is a statistical tool used to assess the degree of association between the relative movements of two variables. According to the Pearson correlation analysis, there is positive relationship between

ROA and capital adequacy, liquidity ratios and COVID and the values are 0.41, 0.09 and 0.002; on the contrary, company size, financial leverage, debt over equity, GDP growth and inflation have negative relationship with performance indicator and values estimated are -0.38, -0.41, -0.33, -0.04, -0.13 respectively. As it is seen from the findings, the relationship between ROA and company size, liquidity, financial leverage and debt/equity are very week and insignificant while capital adequacy has moderate correlation with ROA ratio. Positive and moderate correlation exists between ROA and capital adequacy meaning if capital strengthening is occurring ROA profit of firms is going to increase.

Moreover, a correlation value of 0.8 or higher between explanatory variables is the generally accepted to address multicollinearity issue. When the correlation is higher than this, there may be problems with multicollinearity in the regression analysis because it indicates a strong linear relationship between the variables. In order to address this multicollinearity issue, one might think about reviewing the variables and possibly removing or modifying them. Moreover, it is evident that there exists a significant correlation between capital adequacy and financial leverage ratios, as indicated by an estimated value of 0.98, beyond the threshold of 0.8. This suggests the potential presence of a linear correlation and multicollearity problem among these parameters.

As previously mentioned, the correlation between return on assets and capital adequacy is moderately positive, but the correlation between capital adequacy and liquidity ratios is slightly positive. This observation suggests that an increase in the total equity to total asset ratio is linked with greater profitability measures, namely Return on Assets (ROA). The variable of capital adequacy displays a negative correlation with other independent variables, including financial leverage, GDP growth, company size, debt to equity, and inflation. Nevertheless, a statistically insignificant correlation coefficient of 0.07 exists between capital adequacy and the COVID variable.

Based on the correlation coefficients table, it can be shown that Liquidity has a negative and weak association with almost all variables, with the exception of capital adequacy and ROA. As has been stated, there exists a negative correlation between liquidity and factors such as company size, debt/equity, financial leverage, inflation, and GDP growth. However, it should be noted that the correlation coefficients observed in this study are not indicative of significant relationships. These correlation coefficients are weak, so it can be assumed that the amount of these independent variables will decrease as liquid assets increase. However, it is worth noting that there exists a positive link between Liquidity and ROA. This suggests that as the size of a bank increases, it is more likely to own a greater amount of profit.

GDP growth, as a macroeconomic determinant, has a negative correlation with half of independent variables. Inflation, which has a moderate correlation with GDP growth, is one of the independent variables that possess a positive correlation with GDP growth as a macroeconomic determinant. GDP growth has negative correlation with capital adequacy, ROA and liquidity. This implies that a rise in the Gross Domestic Product per capita will have an adverse effect on profitability ratios, capital adequacy and liquidity.

The correlation relationships in our dataset are preliminary and not final estimation results. They offer insights into future regression results, with GDP growth, non-interest income/interest income ratio, Capital Adequacy Ratio, inflation rate, and loans/deposits ratio showing positive associations.

5.3 Multicollinearity

Multicollinearity is an undesired scenario in which there's a high degree of correlation among the independent variables. Therefore, if there is a presence of multicollinearity among the independent variables, the regression outcomes will not yield accurate findings. We can check multicollearity issue through either Correlation matrix or Variance Inflation Factor. Due to the previous analysis of correlation matrix there is a possibility of multicollearity between capital adequacy and financial leverage variables.

Table 3 VIF results

```
. vif
```

Variable	VIF	1/VIF
capad	28.17	0.035496
finlev	26.56	0.037651
debteq	2.36	0.423496
inflation	2.18	0.458750
compsize	2.00	0.499582
GDPgrowth	1.64	0.608036
COVID	1.26	0.792604
liq	1.01	0.988648
Mean VIF	8.15	

Myers (1990) wrote that if variance inflation factor (VIF) is more than 10 (VIF ≥ 10) then it is a concern for the model. In the words of Rogerson (2001), in his publication "Statistical Methods for Geography" by Sage, the presence of multicollinearity may be indicated if the Variance Inflation Factor (VIF) exceeds an acceptable level of 5 among the independent variables .The same logic has been applied in this scholarly article. Furthermore, Montgomery (2001) explained that tolerance statistics values below 0.1 illustrates major problem. Due to the Table 3, VIF values remain more than 25 for capital adequacy and financial leverage with tolerance values less than 0.1 so there is a perfect relationship between leverage and capital adequacy. As a result, one of the variables should be removed. In our paper, it is chosen to remove the capital adequacy ratio.

Table 4 VIF result after removing variable "capital adequacy"

```
. vif
```

Variable	VIF	1/VIF
finlev	2.70	0.369805
debteq	2.31	0.432194
inflation	2.18	0.459304
compsize	1.88	0.531736
GDPgrowth	1.64	0.608235
COVID	1.26	0.794219
liq	1.01	0.988733
Mean VIF	1.86	

Following the capital adequacy ratio removal, we can observe from the Table 4 that none of the variables are having VIF greater than 10 then it can be concluded that there is no multicollinearity problem amongst profitability ratio and independent factors as VIF and tolerance statistics are within accepted range.

Discussion of regression results

Table 5 F test

```
. xtreg  ROA compsize liq finlev debteq  GDPgrowth inflation COVID, fe

Fixed-effects (within) regression              Number of obs      =        160
Group variable: con_cod                        Number of groups   =         40

R-sq:  within  = 0.1967                         Obs per group: min =          4
       between = 0.2736                                        avg =        4.0
       overall = 0.2144                                        max =          4

                                                F(7,113)           =       3.95
corr(u_i, Xb)  = -0.4772                        Prob > F           =     0.0007
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
compsize	-.0098146	.0045071	-2.18	0.032	-.018744	-.0008852
liq	.0671534	.034526	1.95	0.054	-.0012488	.1355557
finlev	-.0916712	.0409991	-2.24	0.027	-.1728979	-.0104445
debteq	-.0026326	.0025412	-1.04	0.302	-.0076672	.0024019
GDPgrowth	.0000794	.0010062	0.08	0.937	-.001914	.0020729
inflation	.0144917	.1112168	0.13	0.897	-.2058487	.2348322
COVID	-.0116498	.0068933	-1.69	0.094	-.0253067	.0020071
_cons	.1487174	.0337666	4.40	0.000	.0818197	.2156151

sigma_u	.03543578	
sigma_e	.03757724	
rho	.47069535	(fraction of variance due to u_i)

```
F test that all u_i=0:      F(39, 113) =      2.59           Prob > F = 0.0001
```

We will analyze empirical findings that have been collected to explain how changes in independent factors affect dependent variables in this part of the study. First we need to decide whether to use the simple ordinary least square (OLS) or fixed effect panel data regression. When we check F-test appearing as a footnote under the outcome table, if it reaches statistical significance then it is better off with fixed effect. Due to the Table 5, results indicate that fixed effect is appropriate for our data, because the p-value (0.0007) is less than 0.05.

In order to decide between random effect model and pooled OLS regression, we need to conduct The Breusch-Pagan Lagrange multiplier test.

The null and alternative hypotheses for the Breusch-Pagan Lagrange multiplier test are as follows:

H0: The pooled OLS model is adequate

H1: The pooled OLS model is not adequate

Table 6 LM test

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        ROA[con_cod,t] = Xb + u[con_cod] + e[con_cod,t]

        Estimated results:
                                    Var         sd = sqrt(Var)
                        _____

                  ROA       .0024884             .0498839
                    e        .001412             .0375772
                    u       .0005788             .0240581

        Test:   Var(u) = 0
                                  chibar2(01) =      16.21
                             Prob > chibar2 =      0.0000
```

Breusch and Pagan's Lagrangian multiplier test results in Table 6 indicate that random effect panel data regression is more appropriate for sample sizes than OLS since the p-value is 0.0000. Following this, the Hausman test will be applied to determine whether the fixed effects model or the random effects model is the better option for the data at available.

The null and alternative hypotheses for the Hausman test are as follows:

H0: The random effect model is more efficient

H1: The random effect model is not efficient

Table 7 Hausman Test

hausman fe re, sigmamore

	——— Coefficients ———			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
compsize	-.0098146	-.0094124	-.0004022	.002385
liq	.0671534	.0305722	.0365812	.0271966
finlev	-.0916712	-.0661368	-.0255344	.0308011
debteq	-.0026326	-.0006953	-.0019374	.0020173
GDPgrowth	.0000794	.0001335	-.000054	.0001569
inflation	.0144917	-.0235588	.0380505	.0459486
COVID	-.0116498	-.0096732	-.0019766	.0015495

```
                   b = consistent under Ho and Ha; obtained from xtreg
        B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

           chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                   =           5.75
         Prob>chi2 =        0.2183
         (V_b-V_B is not positive definite)
```

The results in Table 7 show that our model support the random effect hypothesis since the chi-square statistic's p-values are quite high at the 5% level of significance: p-value (0.2183) is more than 0.05. We accept null hypothesis under this assumption because random effect model is more efficient than fixed effect model. The random effect is due to the fact that, although the intercept may differ among the selected banks, the intercept of each bank does not change over time.

Due to the regression output in Table 8, the R^2 value is 23.31%, which suggests that the explanatory variables in our model can only explain 23.31% variation in ROA. The remaining (66.7%) variation is caused by other external factors.

Table 8 Random effect model

```
. xtreg ROA compsize liq finlev debteq GDPgrowth inflation COVID, re

Random-effects GLS regression              Number of obs    =        160
Group variable: con_cod                    Number of groups =         40

R-sq:  within  = 0.1805                     Obs per group: min =         4
       between = 0.3021                                    avg =       4.0
       overall = 0.2331                                    max =         4

                                            Wald chi2(7)     =      39.24
corr(u_i, X)   = 0 (assumed)                Prob > chi2      =     0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
compsize	-.0094124	.0038561	-2.44	0.015	-.0169702	-.0018546
liq	.0305722	.0216028	1.42	0.157	-.0117684	.0729129
finlev	-.0661368	.0274294	-2.41	0.016	-.1198974	-.0123762
debteq	-.0006953	.0015702	-0.44	0.658	-.0037729	.0023823
GDPgrowth	.0001335	.001	0.13	0.894	-.0018264	.0020934
inflation	-.0235588	.1020107	-0.23	0.817	-.223496	.1763785
COVID	-.0096732	.0067592	-1.43	0.152	-.022921	.0035745
_cons	.1300892	.0219103	5.94	0.000	.0871458	.1730325
sigma_u	.02405805					
sigma_e	.03757724					
rho	.29072665	(fraction of variance due to u_i)				

P value levels for accounting variables: company size, liquidity, financial leverage, and debt/equity are 0.015, 0.157, 0.186, 0.016, and 0.658, respectively. While p value levels for macroeconomic factors are 0.894 for GDP growth, 0.817 for inflation and 0.152 for COVID. Since company size, and financial leverage ratio's p-values are below 0.05, it can be concluded that these ratios are statistically significant factors. On the other hand, liquidity, GDP growth, inflation, COVID and debt/equity ratios have no significant influence on ROA so in these cases the relationship between ROA and these variables will not be measured in the regression model.

Estimated coefficients of the model reveal that liquidity and GDP growth are only variables that have positive effect on profitability ratio of ROA, while remaining ratios negatively affect ROA. The findings of the analysis indicate that COVID does have a negative impact on financial firm

profitability, which is evident in terms of previous literature review. By taking findings null hypothesis of liquidity ratio can be rejected while GDP growth one can be accepted.

Overall company size ratio have negative and significant impact on profitability, it is evident from the outcome that when company has smaller size and low capital adequacy it leads to more return up to a point. So in this case we can reject null hypothesis. Likewise, financial leverage has a negative and significant effect on profitability and it means that financial leverage has direct connection with ROA. To conclude, null hypothesis for financial leverage case can be accepted. In contrary, inflation, COVID and debt to equity have a negative and insignificant effect on the ROA ratio. As a result, we can accept null hypothesis for these last 3 variables.

5.4 Heteroskedasticity test

Table 9 Breusch – Pagan Test

```
. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of ROA

        chi2(1)      =      67.66
        Prob > chi2  =     0.0000
```

A test for homoscedasticity is also conducted using Breush–Pagan/Cook–Weiberg test for heteroskedasticity. Furthermore, the residuals are being examined for the presence of heteroscedasticity. The null hypothesis is homoskedasticity (or constant variance). When the Lagrange Multiplier (LM) coefficient from the Breusch-Pagan Test is compared to the chi-squared critical value, it suggests that there is heteroscedasticity in the residuals. As p-value, which is 0.000 is lower than 0.05 we can reject homoscedasticity and conclude homoscedasticity. In the end, we do not accept Ho and deduce the problem of heteroskedasticity in model.

Next we are going to use the option 'robust' to obtain heteroskedasticity-robust standard errors. The estimation is applied to minimize heteroskedascity problem. Table 9 indicates possibility of heteroscedasticity in the data.

5.5 Robust test

Given the presence of non-independent error components and heteroscedasticity in the data, this method is used to create a more skeptical rejection zone for hypotheses. The results obtained in Table 10 are similar to the findings in Table 8 where random effects model is employed. Most variables retain their sign and significance and it proves that results in random factors model is consistent. If we check values, it is observed that the company size still has a statistically significant negative impact on profitability and now it is very strong assumption about the null hypothesis.

Table 10 Robust test

```
. xtreg ROA compsize liq finlev debteq GDPgrowth inflation COVID, re vce(robust)

Random-effects GLS regression              Number of obs      =        160
Group variable: con_cod                    Number of groups   =         40

R-sq:  within  = 0.1805                     Obs per group: min =          4
       between = 0.3021                                     avg =        4.0
       overall = 0.2331                                     max =          4

                                           Wald chi2(7)       =      88.30
corr(u_i, X)   = 0 (assumed)               Prob > chi2        =     0.0000

                                 (Std. Err. adjusted for 40 clusters in con_cod)
```

ROA	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
compsize	-.0094124	.0029892	-3.15	0.002	-.0152711	-.0035536
liq	.0305722	.0253941	1.20	0.229	-.0191994	.0803438
finlev	-.0661368	.0343821	-1.92	0.054	-.1335244	.0012508
debteq	-.0006953	.0011953	-0.58	0.561	-.0030379	.0016474
GDPgrowth	.0001335	.000881	0.15	0.880	-.0015933	.0018602
inflation	-.0235588	.0979679	-0.24	0.810	-.2155724	.1684549
COVID	-.0096732	.0075947	-1.27	0.203	-.0245586	.0052121
_cons	.1300892	.0211868	6.14	0.000	.0885638	.1716146
sigma_u	.02405805					
sigma_e	.03757724					
rho	.29072665	(fraction of variance due to u_i)				

5.6 Testing of Hypothesis:

The objectives of our research paper were to study the impact of accounting variables and macroeconomic variables on the financial performance. The model developed demonstrates the various significant variables related to independent factors influencing the financial performance of the companies belonging to Azerbaijan financial industry.

The null hypothesis framed earlier has been accepted or rejected as below:

HO1 is rejected as there is negative relation between the company size and Profitability.

HO2 is rejected as there is positive relation between the liquidity and Profitability.

HO3 is accepted as there is negative relation between the financial leverage and Profitability.

HO4 is accepted as there is negative relation between the debt to equity and Profitability.

HO5 is accepted as there is negative relation between the COVID and Profitability.

HO6 is accepted as there is positive relation between the GDP growth and Profitability.

HO7 is accepted as there is negative relation between the inflation and Profitability.

Limitations and Recommendation

There are several limitations to this study, which may restrict the ability to apply the results to a wider population, and it suggests the need for further research. Because of the time constraint and limited data availability, not all financial institutions were included in the analysis. Furthermore, conducting a study for duration of 4 years exhibits insufficient results to examine the factors influencing financial performance. Low R^2 leads to conclusion that including more bank-specific or macroeconomic indicators could possibly lead to higher variation in ROA.

Due to limitations in data availability and time constraints, I solely relied on Return on Asset (ROA) as a measure of bank profitability and was unable to calculate Return on Equity (ROE). Therefore, for future studies, incorporating both ROA and ROE to provide a more comprehensive assessment of bank profitability would be useful, as ROE is generally considered a more encompassing indicator. Furthermore, due to the novelty of the research topic and the limited previous comprehensive research connecting the pandemic with both finance-specific and macroeconomic factors, there is a constrained timeframe for analysis. To expand the scope of future studies, it is suggested that increasing number of independent variables will yield more useful information and will enhance further the scope of the future studies.

Furthermore, addition of macroeconomic independent variable and increased sample size, observation period could increase reliability of generalization. Moreover, incorporating other variables such as interest rates, and import, export could provide a more comprehensive understanding of the relationship between the financial sector and the non-financial sector. These macroeconomic factors can greatly impact the profitability of both sectors and their interdependencies. Additionally, extending the observation period beyond the current timeframe would allow for a more robust analysis of trends and patterns over time. This would help in identifying any long-term effects or fluctuations in profitability within the sectors. Overall, by considering these suggestions, future research can enhance the reliability and applicability of its findings, contributing to a more in-depth understanding.

Conclusion

This study examined to determine contribution of company size, capital adequacy, liquidity, financial leverage, debt/equity, COVID, GDP growth and inflation towards the profitability, for 40 firms in finance industry of Azerbaijan. Annual data for the periods between 2019 and 2022 are analyzed by using panel regression approach.

The regression result of our paper shows that if we consider ROA as a performance measure, then company size and financial leverage ratios have a significant effect on the determination of the probability of financial companies. Greater attention should be paid to these variables. The empirical findings from the random effect model reveal that financial leverage is found to be negative and statistically significant at the one percent level, implying that one unit change in leverage will lead to a -0.091 unit change in return on asset (ROA). Besides, the company size is found to be negative and statistically significant at the one percent level, implying that one unit change in size will lead to a 0.009 unit change in return on asset (ROA). It was also identified that the liquidity and GDP growth ratios have a positive relationship with the financial performance of firms, as the coefficients of these variables are positive; this result gives information that when liquidity and GDP are high, firms earn more money. Meanwhile, the remaining ratios—size, capital adequacy, financial leverage, debt to equity, and COVID—have a negative relationship with financial performance.

In conclusion, this analysis has revealed the key factors that contribute to the financial performance ratios of financial institutions in Azerbaijan. Based on these findings, it can be concluded that firms with smaller sizes and low leverage ratios would earn more than their counterparts.

In consideration of the significant inverse relationship observed between financial leverage and profitability, as measured by return on assets (ROA), it is advisable for regulatory bodies to promote the optimization of capital structure among smaller financial institutions. This objective can be attained through the promotion of responsible borrowing practices and the maintenance of an appropriate debt-to-equity ratio by enterprises. There is potential to build financial education programs targeted for smaller enterprises with the aim of enhancing awareness regarding the significance of maintaining an optimal level of leverage.

The presence of an upward relationship between liquidity and financial performance implies that organizations derive advantages from maintaining higher levels of liquidity. It is essential for regulatory agencies to prioritize the significance of implementing efficient liquidity management strategies inside financial institutions. Regular assessments of liquidity risk and the implementation of effective liquidity management measures play an essential role in preserving the stability and resilience of financial institutions.

The observed relationship between GDP growth and financial performance implies that financial institutions stand to gain from an economic boom. It is vital for regulatory authorities to carefully monitor and encourage initiatives that foster economic expansion. Policies aimed at stimulating economic growth can have an indirect positive impact on the financial industry by establishing a more favorable business environment.

In regard to the inverse correlation observed between debt-to-equity ratios and financial performance, it is important for financial institutions to place a high level of importance on the implementation of prudent debt management practices. Regulatory authorities have the ability to encourage corporations to formulate plans aimed at reducing and restructuring their debt obligations in situations when necessary. This could involve providing guidance regarding potential financing alternatives and implementing incentives to encourage businesses to lower their debt obligations.

The COVID-19 pandemic has had a significant influence on financial performance, highlighting the criticality of developing resilience to external shocks. It is crucial for regulatory authorities to actively promote the development and consistent renewal of contingency plans inside financial institutions, in order to enhance their capacity to successfully address unanticipated circumstances. These plans should include stress-testing scenarios and risk mitigation strategies.

It is fundamental for regulatory authorities remain consistent in allocating resources towards research and data gathering activities aimed at effectively monitoring the financial well - being of institutions operating within the finance industry. Regular assessments play a crucial role in the identification of developing trends and potential dangers, hence facilitating proactive regulatory measures as and when required.

The implementation of these recommendations has the potential to enhance the strength and resilience of the financial system, hence creating positive outcomes for the economy as a whole and the stakeholders involved.

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Table 11 Variables Description

Variables	Abbreviation	Decription
Return on Asset	ROA(Y)	Net income/ total assets
Company size	Compsize	Logarithm of Total Assets (log)
Capital adequacy	Capad	Total Equity/ Total Assets
Liquidity	Liq	Cash and cash equivalents/ Total Assets
Financial leverage	Finlev	Total Liability/ Total assets
Capital structure	Debteq	Total Liability/ Total equity
Covid	COVID	Dummy variable equals 1 if the country is in lockdown, 0 otherwise
GDP growth	GDPgrowth	GDP for the year (t) – GDP for the year (t-1) Source: worldbank
inflation	Inflation	inflation for consumer price Source : worlddata