CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Impact of Bank Specific and Macroeconomic Variables on Bank Performance

by

Seerat Fatima

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the
Faculty of Management & Social Sciences
Department of Management Sciences

2021

I want to dedicate this achievement my parents, teachers and friends who always encourage and support me in every crucial time

CERTIFICATE OF APPROVAL

Impact of Bank Specific and Macroeconomic Variables on Bank Performance

by

Seerat Fatima

Registration No: (MMS183046)

THESIS EXAMINING COMMITTEE

S. No.	Examiner	Name	Organization
(a)	External Examiner	Dr. Aijaz Mustafa Hashmi	NUML, Islamabad
(b)	Internal Examiner	Dr. Arshad Hassan	CUST, Islamabad
(c)	Supervisor	Dr. Jaleel Ahmed Malik	CUST, Islamabad

Dr. Jaleel Ahmed Malik

Thesis Supervisor

November, 2021

Dr. Lakhi Muhammad

Head

Dept. of Management Sciences

November, 2021

Dr. Arshad Hassan

Dean

Faculty of Management & Social Sciences

November, 2021

Author's Declaration

I, **Seerat Fatima,** hereby state that my MS thesis titled "**Impact of Bank Specific and Macroeconomic Variables on Bank Performance**" is my own work and has not been previously submitted by me anywhere else for taking any degree. At any time if my statement is found to be incorrect even after my graduation, the University has the right to withdraw my MS Degree. y own work and has not been submitted previously by me for taking any degree from Capital University of Science and Technology, Islamabad or anywhere else in the country/abroad.

At any time if my statement is found to be incorrect even after my graduation, the University has the right to withdraw my MS Degree.

(Seerat Fatima)

Registration No: (MMS183046)

Plagiarism Undertaking

I solemnly declare that research work presented in this thesis titled "**Impact of Bank Specific and Macroeconomic Variables on Bank Performance**" is exclusively my research work with no remarkable contribution from any other individual. Small contribution/help wherever taken has been dully acknowledged and that complete thesis has been written by me.

I understand the zero tolerance policy of the Higher Education Commission and CUST towards plagiarism. Therefore, I as an author of the above titled thesis declare that no part of my thesis has been plagiarized and any material used as reference is properly cited.

I undertake that if I am found guilty of any formal plagiarism in the above titled thesis even after award of MS Degree, the University reserves the right to withdraw/revoke my MS degree and that HEC and the University have the right to publish my name on the HEC/University website on which names of students are placed who submitted plagiarized work.

(Seerat Fatima)

Registration No: (MMS183046)

Acknowledgement

In the Name of Allah, The Most Gracious, The Most Merciful. Praise be to God, the Cherisher and Sustainer of the worlds. All thanks to Almighty Allah, The Lord of all that exist, who bestowed me with His greatest blessing i.e. knowledge and Wisdom to accomplish my task successfully.

The process of this master thesis writing was a wonderful learning experience on my academic life which was filled with challenges and rewards. The completion of the present study leads a new beginning and a step forward towards my future and when writing this preface, a quotation by the famous Scottish Physicist James Clark Maxwell came to my mind. Maxwell once stated, "What is done by what is called myself is, I feel, done by something greater than myself in me." The question is justifiable. Did I really do this? Did I really manage to get it all together?

This preface provides a welcomed opportunity and chance to acknowledge the help and assistance of the people who with their intellectual insights or constructive criticism, other times in the form of friendship have helped me to develop this research.

I am very thankful to **Dr. Jaleel Ahmed Malik**, a great teacher, mentor and supervisor who made a difference in all aspect of my life. I am indebted to **Dr. Jaleel Ahmed Malik** for his valuable guidance, encouragement and dedicated support that enabled me to complete my MS Degree Program.

Seerat Fatima

Abstract

The objective of this study is to describe the impact of bank specific and macroeconomic variables on bank profitability. This study uses panel data. This study focuses on Pakistani banks and uses annual data. 2006-2018 thirteen years data is used for the investigation. Population of this study is all banks of Pakistan listed on PSX and sample is top 15 Banks. Top 15 banks are selected on the basis of capitalization. On the basis of hausman test fixed effect model is selected. The result suggested that bank specific and macroeconomic variables have significant impact on bank performance. This study uses return on assets, return on equity and net interest margin, non-performing loans and bank size as bank specific variables and inflation, liquidity ratio, exchange rate and gross domestic product used as macroeconomic variables. Bank specific variable and macroeconomic variables have significant impact on bank profitability. Result suggests that Bank specific Macroeconomic variables significantly determine the profitability of banks in Pakistan. Size of the nonperforming loans always cut of the profitability of banks. Increase in liquidity ratio enhances the profitability of banks. Increase in level of macroeconomic variables mostly leads to decrease in profitability in banks. To enhance the profitability of commercial banks it is suggested to take notice of non-performing loans and other macroeconomic variables.

Keywords: Return on Asset, Return on Equity, Net Interest Margin, Bank Size, Non-performing Loan, Inflation, Liquidity, Exchange Rate, Gross Domestic Product.

Contents

List of Figures

List of Tables

Abbreviations

GDP   Gross Domestic Product

INF   Inflation Rate

LEXR Exchange Rate

NIM   Net Interest Margin

NPL   Non-Performing Loans

ROA   Return on Assets

ROE   Return on Equity

SIZE Bank Size

Chapter 1

Introduction

This part starts with the foundation of chose region, trailed by brief presentation; Problem Discussion concentrates which assist will peruse with understanding the knowledge of the exploration region. The issue conversations end with an exploration issue and explicit examination question. At last, the delimitation of the exploration and the attitude of the theory are introduced.

1.1   Background of the Study

Economic system plays very important role in an economy. For the development of the country it is important to have strong financial system. Financial system consist of different sectors, banking sector is one of those without whom a financial system can't work. The banks provide funding to businesses. Banks are one of the important source of funding for any business.in past some years banks change their banking management systems to improve their industry performance, in the management of the banking industry due to the sharp decline of banking institutions such as Lehman-Brothers and Bear Stearns. The issue of risk management has become a major issue in recent years. According to Regha (2008) disaster risk management is a process of identifying and evaluating business information for exposure and adoption of appropriate strategies to deal with such disclosures.

Traditionally, banks use their local currency as loans, earning interest on the interest rates charged on those loans. The very opposite of the use of banks is

that almost all of the real money of the bank is not close to its place, which means that its real value is not only paper, but that paper is what grows the economy.

The banking industry has been trying to differentiate its risks by investing as much as possible; this prevents unforeseen loan failures from liquidating the entire bank. However, this can lead to other problems.

Industry of financial services of US improved greatly as well as the financial markets. New financial and institutional tool are introduced, as well as new products and services in recent decades. Now a days, except banks many other types of financial consultants are introduced. In these financial consultants savings institutions, credit unions, insurance companies, pension funds, finance companies, and real estate investment trusts (REITS).

In recent few years bank assets have grown tremendously, in order to grow sometimes bank lose the market share in small things such as pension funds and mutual funds.. Nevertheless, at the end of 2000, banks have issued the account for all the financial analysts who have a significant share more than 23 percent of all assets.

The ability of banks to improve the asymmetries of information, bank is at the centre when to manage the risk and lenders. Skills are very important and essential for bank while issuance of components. For the effective and efficient production of financial services it is important to contribute to managerial incentives wisely. This is true that banks take loans to repay the loans, it is beneficial for the banks, and bank earns more profit by doing this. High credit rating on bank accounts the framework directs the risk taking of managers and their diligence in the production of financial resources by exposing the bank to the additional risk of debt default. Required aspect of credit, in at a level that does not have complete insurance, it also increases operational pressure and safety concerns increased risk of liquidity. These benefits often make banks more attractive to lenders.

Therefore, relationships of banking helps the customers to improve the financial performance as well increasing credit access to companies. By doing this there is less chance to borrow from public debt and equity markets. Variation of bank production, in contrast to the production of other types of lenders, based on the special features of the banking system: the support of Blurred assets with

a demand deposit. (For a big money chat the structure of commercial banks, Calomiris and Kahn (1991) and Flannery (1994).

Bank research is of great interest in macroeconomic as well microeconomic levels. From a macroeconomic banking perspective one of the types of financial interventions plays a special role in the movement plays a vital role in the distribution domestic of financial resources according to the market condition. So inefficiency of banking system is the major reason which causes the inefficient customer financial resources if human financial resources outperform and, as a result, lower prices economic growth and general environmental degradation, for consumers of services means banking services with a higher value lie and unavailability of services. In the view of macroeconomics it is the ability of shareholders how to run the business and how to earn more profits.

Growth of banking sector recognized after 1990 when banks are free to make changes according to their demand. The bank is the financial institution in which money provided to the lenders and deposits of bank account holders are protected. Customers can withdraw the funds by check. Banks are the financial intermediaries. The function of financial intermediaries is to sell and buy the products designed by them and make money. Banks earn interest by selling of bonds. Pakistani banking sector was not developed at the time of partition, banking sector has faced many difficulties to be up stairs of development.

Development of banking sector was targeted by the government of Pakistan strategies were made in 1980s (Hardy & Patti, 2001) banking sector was released in latter 1990s by the government of Pakistan and revoked. Government has created private state banks to keep market-based banks; these market based banks create flexibility to open new private banks. Objective of establishment of banking sector was to enhance the management system. Revenue of banks increased through enhancement of quality of goods and services provided by banks. In addition, the rest provided for debt management. The withdrawal of rules was seen at interest rates and the development of the financial market helped create competition environment in the Pakistani banking industry (Akhtaret al., 2010). In 1990, Government of Pakistan formed new independent banks and close two financial

institutions according to the act of 1974. The government has relaxed policy to open up private banks, which encouraged a lot for growth and earn profits. In 2010, the total numbers of banks 9,348 as a whole. According to Khalabat (2011) Pakistan has 25 local private banks, 5 public commercial banks, 4 special and 6 foreign banks. Currently, 46 banks including 39 local banks and seven foreign banks under the regulation of state bank of Pakistan. In local banks there are four specialized banks, five in the public sector, five in the private sector Islamic banks, eight small banks and 17 private banks (State Bank of Pakistan, 2012).The facts and figures showed Pakistani banking industry is growing tremendously.

The analysis of the banking sector has undergone major changes over the past three decades in Pakistan's banking sector. In the mid-1970s local banks were state-owned by the government. State bank ownership has led to financial instability and a decline in financial institutions. Recognizing the inefficiency of national policy, the government decided to make the government its banks that were not held in the late 1980s. In the late 1990's the government introduced reforms in the financial sector. The banking sector was liberated with the permission of private banks to operate nationally and internationally under financial freedom.

Nigerian researcher Obamuyi (2013) study on the bank performance on 20 banks from period 2006-2017 seven year data. He use income and interest rate and economic variables and found significant impact on bank performance. In Pakistan a research was conducted from 2006-2010 period of time with the variables bank size, non-performing loans Riaz (2013) also conclude significant results.

Sohail, Iqbal, Tariq and Mumtaz (2013) use short term data and internal items to investigate bank performance. Internal items such as purchases, inventory and debt structure. They found a significant impact on bank performance.

1.2   Theoretical Background

There are number of theories on commercial and Islamic bank's performance. According to the traditional economics model, company's first goal is to achievme

maximum profit in the year. For achievement of this goal companies adopt various market structure, create competition and maximize the short term profits Abhishek Tripathi (2019).

Theories for enhancing the productivity of the firm can be classified into five major theories, profit maximization theory, managerial theories, behavrial theories, structure conduct performance paradigm and the transaction cost approach Hornby (1995).

Most of the banks use this approach to maximize their profits. Banks are the backbone of any economy and economic system. Basic purpose of Islamic and commercial banks is to maximize their profits.

Sobia Ehsan (2015) use agency theory for their study. Agency theory is applicable when there is a conflict between the ownership and management. Owners are principal and managers are agents, when there is conflict between principal and agent agency problem exist, to resolve agency problem agency theory is applicable. After that they found that the performance of banks in Pakistan increased as the ownership rate increased from 0% to 31% on average. Increased performance is defined by active monitoring. Bank performance has declined as the number of patents increased from 31% to 78% on average. This decline in the performance of banks is the result of a highly focused ownership that allows for the acquisition of land by a few shareholders.

It was the ultimate goal of any business that leads to the success of market leadership and captured invincible talent. All of it was important for organizations and was part of the strategic goal of the organization (Mwita, 2000, as stated in Abbas & Yaqoob, 2009). Getting training was considered an extra effort to excel and work on one's work but now it is a matter of opinion. The basic need for training to learn change and adapt to workplace development Garner (2012). And it was an undeniable fact that in responding to changing work habits if employees are not given opportunities to expand their professional experience then this was likely to lead to skills shortages. The lack of skills described by Greenhaus, Callanan, and Godshalk (2000) has been the lack of advanced technology and advanced technology needed to carry out organizational tasks.

M Imran & aiman tanveer (2015) work on human resource development (HRD) model. HRD is a system in an organization which facilitates their workforce to change work behavior through training, educate them over a period of time by introducing HRD model they concluded bank profitability impact significantly on the training and development. They focus this study in Pakistan.

Variety of factors influence bank profitability these factors are management, size, placeand time Haslem (1968) and it belongs to of great interest to see how profits are affected by the risks facing trade banks. Over the past few years Pakistani banking sector improve tremendously and more strong system, increase in interest rate and stability is evidence of banks stability. In 2008 Pakistani banking sector bear crisis of liquidity and money laundering the consequences shows a significant impact of growth of banking sector.

Banks can easily handle crisis situations if they have too much money. Banking sector should manage profitable activities like debt, deposits, assets etc. Banking sector plays a staggering role in the development of country's economy. In Pakistan, profits (before tax) reached 176 rupees in 2014. It showed an increase of 44% compared to 2013. % in 2014 compared to 1.1% and 12.3% in 2013 CAR (Capital Adequacy Ratio) increased from 15.1% to 15.5% in 2014 (State Bank of Pakistan, 2015).

Dilley (2012) definition of banking as a financial institution to manage lends trade or lend, growing debt and operating on assets. Development of all the nations is based on the financial institutions of the country. Apart from the fact that there are differing views on the meaning of these organizations in the country-related financial development, the common view is that they are considered because of economic order and, therefore, the basis of the economic system (Abdul-Razak 2011).

An economic survey take place in December 2016-2017 shows capital adequacy ratio 16.2% and interest rate 10.7%. CAR shows more increase than interest rate. Pakistan is rated as the fastest growing Islamic economy. According to the report of London's market analysts' magazine Indonesia,Malaysia, Turkey and Egypt, are the top four competitors. GDP of Pakistan was 5.7% in early October 2017.

1.3 Research Gap

This study goes through various previous studies. Most investigators used return on assets (ROA), return on equity (ROE) to measure profit. (Fan Li, Yijun Zou) used a capital adequacy ratio (CAR) and a non-performing loan rate (NPLR) because of what changed is not important. Other studies Owojori et al (2011) using asset quality, efficiency and value for human capital found that return on assets (ROA), return on equity (ROE) had significant impact on bank profitability.

Anis Sabrina Iskandar, Norliza Che-Yahya, Zainora Ab Wahid, (2019) return on asset (ROA), return on equity (ROE), interest rate and capital adequacy ratio (CAR), credit risk, efficiency and financial values. As a result they found a credit risk of 5% significant, efficiency 1%, a critical credit rate of 10% with a fair value equation. Cash adequacy ratio (CAR) is found to be insignificant. According to Jumana Muhammad Toufaili, (2019) return on assets (ROA), return on equity (ROE) and net interest income. They use bank size, capital adequacy ratio (CAR), liquidity ratio, credit risk, inflation, remittance, and interest rate as independent variables. They found that bank size, insufficient interest rate, credit risk, interest rate had negative effects and bank profitability had significant impact on inflation. This study bridge the gap on significant and insignificant variables of previous studies. This study uses bank specific variables along with macroeconomic variables. Bank specific variables are return on assets (ROA), return on equity (ROE) and net interest margin (NIM) and macroeconomic variables are bank size (Size), non-performing loans (NPL), liquidity ratio (LQR), inflation (INF), exchange rate (EXR) and gross domestic products (GDP).

1.4 Problem Statement

Banking sector is a backbone of every financial institute in all around the world, with its branches and subsidiaries in every economy. Commercial banks handle deposits, which they combine together as loans, operating methods, etc. It is noteworthy that banks have gained more interest in maintaining their position in the industry, especially in the face of political and economic uncertainty. Economic

development is a dynamic and sustainable process that relies heavily on resource mobilization, investment, and efficiency in various sectors of the economy. Therefore, a strong banking sector is critical to growth, job creation, wealth creation, poverty alleviation, entrepreneurship and Goss Domestic Product (GDP) growth.

1.5 Research Questions

Research questions for this study are as follows;

RQ 1:

Is there impact of bank size on bank's profitability?

RQ 2:

What is the impact of non-performing loans on bank's profitability?

RQ 3:

Is there impact of inflation on bank's profitability?

RQ 4:

What is the impact of liquidity ratio on bank's profitability?

RQ 5:

Is there impact of exchange rate on bank's profitability?

RQ 6:

What is the impact of GDP on bank's profitability?

1.6 Research Objective

This study has the following research objectives;

RO 1:

To examine the relationship between bank size and bank's profitability.

RO 2:

To explore the relationship between non-performing loans and bank's profitability.

RO 3:

To determine the relationship between inflation and bank's profitability.

RO 4:

To examine the relationship between liquidity ratio and bank's profitability.

RO 5:

To explore the relationship between exchange rate and bank's profitability.

RO 6:

To determine the relationship between gross domestic products and bank's profitability.

1.7 Significance of the Study

Main focus of the banks is to maximize their profits and provide facilities to the businesses and households. The reason to investigate this study is to measure bank performance under the macroeconomic variables. For this study Pakistani banks were selected. Therefore, this test is based on the provision of proof of experimentation in the issuance of money to banks in Pakistan during the period 2006-2018. This study describes the bank profitability of Pakistani banks under bank specific and macroeconomic variables. Main focus of the study is to explore the profitability of the banks.

1.8 Scope of the Study

Scope of the study is not much broader. This investigation is limited only focus the few of the bank specific variables and few of the macroeconomic variables. This study mainly focuses on the bank specific and macroeconomic variables form 2006-2018, thirteen years' time period. For this investigation this study selected top 15 banks listed on Pakistan stock exchange. Bank choose for this study on the basis of capitalization.

1.9   Research Plan

This study coordinated as follows. Chapter 1 introduction is the very basic chapter of any study it tells about background of the study, scope of the study, problem statement. In this chapter identify their research questions and research objectives, what to do and how to do. Chapter 2 is all about the literature review of selected variables which are bank specific along with macroeconomic variables and theoretical framework. Bank specific variables are return on assets, return on equity, net interest margin macroeconomic variables are bank size, non-performing loans, inflation, liquidity ratio, exchange rate and gross domestic products. Chapter 3 is what methodology is going to use for this specific study. This study will use banks as population sample size is 15 top listed banks in PSX. Chapter 4 is about results and discussion which are found from descriptive statistics, correlation matrix analysis and regression analysis. Last chapter 5 is data analysis and conclusion, this chapter is about conclusion of the study, future directions and limitation.

Chapter 2

Literature Review

Chapter 1 was all about the introduction, background of the study, problem discussion. The previous chapter we identify what to do and how to do. In this chapter we will present literature review for profitability indicators (return on assets, return on equity and net interest margin) and macroeconomic variables (bank size, non-performing loans, inflation, liquidity ratio, exchange rate and gross domestic products).

Saunders et al. (2009) describe key texts in his book "Main sources of great work". Primary data sources include published sources, government publication and unpublished sources. Published sources are financial reports, government publications are white papers, newspapers and magazines, and letters, memos, committee minutes are urn published sources. Subsequent publications are the second sources of literature which are the researches done in past, it includes books and journals. Higher education sources refer to indexes and abbreviations, encyclopedias and bibliographies. They are used and useful to find value.

The investigation of banking operations and other financial institutions is also important, a popular point in educational research as in many professions. Unusual procedures and strategies, for example, "Financial assessments, estimates of executions, or expenditures" have been used to achieve this goal. In some studies, the combination of these strategies was thus accepted by Tarawneh (2006). Both methods used to calculate the assets and equity of banks.

Experiments had used specialized information technology to test their data with the aim of having the exhibition of various financial institutions tested. The commercialization of the banking system can be measured by hand using certain key factors, for example, production, melting, credit risk, and the absence of liquidity, expertise and development Subayyal (2008). Previous studies proved that accessible texts on this subject that in previous experiments; these visual aids are often used separately. In any case, this test will try to combine the markers and make full use of them to investigate double financial streams.

This section has two locations. In one part; a concise overview about literature exists identified by effective indicator of homicide. In the second part; performance definitions in the financial sector.

2.1 Performance Indicators

2.1.1 Profitability (ROA, ROE, NIM)

Bank's primary goal is to earn profit of preventing unforeseen misfortune, as it also improves future profits by growing its business and investing in resources (Bank 2010; Hamad 2014). The total profit after the test grant of any organization is called production. Production of organization measured in different two ways, profit which earn from the services is ROA return on assets in other hand profit which earn from values is ROE return on equity Kausar & Naeem (2013).

According to the research, in US banking industry, inflation's positive impact on profit margin founded. In a study of bank profit in eighteen European countries of the period 1986-1989, Molyneux and Thornton (1992) research on eighteen European countries for the 1986-1989 period of time. As the result founded interest rate positively impacted on bank performance, even though such relationships exist available only from state banks. Demirguc-Kunt and Huizinga (1999) do extensive research on operational characteristics of banks. They do research on 80 countries from period 1988-1995 and concluded foreign banks are more profitable in developing countries but domestic banks are more profitable than foreign in

developed countries. Results suggested that cash flows have positive impact on financial performance.

ROA and ROE values considered as the key factors to measure the profitability. This is used with the intention of ending limitations of institutional embezzlement (Ali et al (2011) Jafferi & Manarvy (2011) Usman & Khan (2012). Re allocation of the resources and compensation for both businesses widely used as profit mechanisms Bashir (2003). Through the use of financial and real assets, ROA discovers the expertise of banking management and, incorporating the benefits of individual resources Naceur (2003) Ben Naceur in addition, Goaied (2008) Chan Kim et al (1989) Anbar and Alpery (2011). ROE doubles banks and the organization is enough to convert the entire unit into a number of for-profit fundraisers (Sufiana & Chongi chinf (2008) Sarmad (1999) Saif Alzaidi et al (2017). The repetition rate estimates the amount of rope access equipment that the institution holds on to the single tax on the number of investors Shankar ji & Hseni (2015) Fatheh et al (2012) Fayed (2013).

Ishaq et al. (2016) examined the performance of commercial banks for the time period of 2007-2013 and found the CAMEL methodology in his research. In CAMEL methodology there is five indicators are used (Capital adequacy, Assets quality, Management, Earnings and Liquidity) to determine this reason. This is a free variant. While the minimum flexibility is EPS (earnings per share). Looking at the banking show, using a clear understanding, consolidation and retrospective methods of testing. The results show that the ROA and ROE markers were closely related to the acquisition of each allocation.

Almumani (2014) examined the introduction of Saudi Arabian banks registered to trade securities elsewhere in 2007 and 2011. For the estimation of financial performance of these banks two methods used to monitor the performance. attern testing and investigation between organizations, revenue generation is estimated. Resource size, operating costs and wage costs are reflected in view of Saudi Bank's low profits, while monetary policy has encouraged increased efficiency and productivity of Saudi Arabian banks. Tests show that all the elements of the test have a fairly good value, which banks are not trying to pay. As it happens, Saudi

Arabia's affiliated banks are ready to create profits, capture credit unions, and continue to recover in value while Saudi banks limit their collective misfortune and regulate profits on services.

Hira and Mehreen (2014) have collected cash withdrawals for free interest rates and, bank interest in Pakistan. The research process used was the "Rating Scale". Investigating the operation of selected banks, the size of 19 was used respectively. These measures are referred to as profit, fluid, risk and liquidity, financial adequacy, performance, development and income. T test was used to determine difference between two circles. Hira & Mehreen (2014) measure the bank performance by using return on assets, return on equity and earning per share in T test they conclude the banks have low interest rate earn more profits and the banks have higher interest rate earn low profit.

Shahdai and Jasmin (2014) examined on financial performance of Pakistani banks. They select 10 banks as sample size and use return on assets and interest rate as dependent variable. Return on assets has negative correlation with bank size and performance by using OLS (ordinary least square) method.

In resource management managers are firmly linked to this. Razia and Mahra (2013) investigated the impact of banking and sub consciousness on bank performance for the 2006-2010 periods of 32 commercial banks. Production was measured by bookkeeping for example ROA and ROE and it was founded risk of borrowing and credit risk were strong measure of production.

Lashari & Noor (2017) focus on highlighting internal and external factors that contribute to the launch of a business venture in Indonesia. A purposeful testing procedure is used in this investigation. They took twenty banks for testing. Use a variety of specific backlinks with the help of Eviews 9 as a true program. Return on Equity and Economic Value Added used as dependent variables. Capital Adequacy Ratio, Asset Quality, Deposits, Effectiveness, Operating productivity, Inflation and Gross Domestic product used as independent variables. They found constructive effect on economy with negative effect of capital adequacy ratio and return on equity. Saunders (2009) uses secondary data journals publications, letters from the library of Umea University and financial statement's information.

Keywords used in credit risk, credit risk management, NPLR, CAR, ROE, ROA. They downloaded all annual reports and risk reports from 2007 to 2012. We then calculated the ROE, ROA, CAR and NPLR and create own database data collected from financial statements. The data which is used to evaluate the idea of statistical component came from the financial statements of banks. As a secondary source data collected from financial statements, IFRS and Basel Accords found highly effected. Results demonstrate the effectiveness of the credit risk of European banking executives to its advantage. Bank executives can change their management system according to the relationships seen in our study.

Improvements change the productivity of internal management that can then go back to the bank. Higher profits of banking sectors create a mess for the society. Exploration of new tools and techniques in banking sector is the cause of prosperity in the sector and create a vital spark for the development of community.

In GCC Zeitun (2012) conduct research on interest rates in Islamic and non-Muslim banks. They think banking equality is important for ordinary banks and not Islamic banks. In view of Zeitun (2012) efficiency GDP and inflation are significant. Hassan and Bashir (2003) done research on Islamic and commercial banks of 1996 to 2008 period. In a regression analysis dependent variable return on assets and return on equity, independent GDP, size FIR cost and number of branches were used.

Baselga-Pascual et al. (2015) concluded that inflation positively affects the profitability of the banking crisis. Rising inflation reflects the general state of the economy, thus increasing unemployment rates where Musdholifah (2015), Davis and Karim (2008) expect inflation has negative effect on bank pressure. According to the research of Ohwofasa and Mayuku (2012), Betz et al. (2013), Caggiano et al. (2014) and Peltonen et al. (2015) there is negative impact of inflation on bank profitability. Boyacioglu et al. (2009), Sahut and Mili (2011), Musdholifah et al. (2013), Kowanda et al. (2014), and Mayes and Stremmel (2014) in their study concluded the shortage of cash has positive effect on bank stress.

But Poghosyan and Čihák (2009) has a constrast argument with stremmel (2014) concluded the shortage of cash has no effect on banking crisis. Felix and Claudine

(2008) conducted the study on credit risk management and performance of bank. The results revealed return for equity (ROE) and asset return (ROA) interest rates was negatively related. Interest rates did not apply to all financial institution loans thus leading to a decrease in profits.

Kargi (2011) conducted research on Nigerian banks; they examined the relation of credit risk and bank interest. From 2004-2008 data was collected from financial statement of banks. Data analyzed by using the measures of descriptive, corrective and retrospective. Results suggested that debt risk management was significantly impacted on performance of Nigerian banks. The conclusion was opposite influence by the opposite of interest rates and development rates, non-performing loans and deposits on profitability of banks thus putting them at greater risk of lawlessness and depression.

There is a significant impact of interest rate on mainstream banks, most Islamic banks use LIBOR as a benchmark and therefore the expectation is the same as for standard banks Nienhaus (1983). On the other hand, some Islamic banks are based on repair computers such as rubber contracts. Therefore, in countries with two banking systems, rising interest rates will adversely affect Islamic banks. High interest rates can increase the risk of bankruptcy. Greater the tax rate especially the risk of automation greater the bank risk. Davis & Karim (2008). Demirgüç-Kunt and Detragiache (2002; 2005), Sehzad and Haan (2009), Klomp (2010), and Sahut and Mili (2011) revealed their results. Baselga-Pascual et al. (2015) in his research coclude therer is negative effect of interest rates on bank stress.

In the research of Beck et al. (2006), Oktavilia (2008), Wong et al. (2010), Büyükkarabacak and Valev (2012), and Musdholifah (2015) concluded no relationship of interest rate and bank performance. Internal Indicators Profit (ROA, ROE) Profit represents the ability of banks to make money it may be through some investment activities, sales and payments. It shows the financial stability of banks and its ability to enhance the value of investors by extending their institutions by creating new products and by opposing significantly reduced peer support rates. Latvia & Lithuania (2008-2014) done the examination on the performance of bank, and the findings of the study was the positively impacted on bank size,

respectively Titko, Skvarciany, and Jurevičienė (2015). Performance expertise has not shown the beneficial effects of banking profits.

Sooraj and Palvasha (2012) evaluated and became experts in the introduction of sans interest and bank interest rates in 2005-2010. The related report is managed according to the murder indicators. To analyze the productivity of sans interest and bank interest ROA, ROE were used. Islamic banks in this period show positive results. Mamatzakis and Remoundos (2003) analyze the shortcomings of ROA and ROE for example the production of Greek commercial banks. The study found that the variables associated with for example debt management in terms of inventory; utility value and per capita cost essentially define the product.

Rahim et al. (2012) conducted the study on Pakistani commercial banks to examine the banking and macroeconomic factors. In this examination return on assets, returns on equity and net interest margin were used. Research has suggested that banks should improve the quality of their services, their efficiency and financial efficiency to build their product.

From the above information, it is clear that in previous tests the product was a two-dimensional law; return on assets (ROA) and return on equity (ROE) are used to measure the bank performance. But in this approach the issue faced by the banks. It is not possible to capture the loss of robberies. The objectives can be fulfilled by reducing operating cost equally and through increasing the payment of financial institutions. A clearly stated that this approach has a complete and incomplete approach to measuring bank performance. There is therefore a need to investigate a more complete and complete approach that can cover a wide range of activities.

This study analyzed (ROA) return on assets, (ROE) return on equity and (NIM)net interest margin. Previous investigation conducted by Andries, et al. (2016) and based on the CEE banking sector and with all three interest rates. Athanasoglou et al. (2006); Capraru and Ihnatov (2014), conducted research on the impact of inflation rate and GDP in between aspects of macroeconomics on banks profitability and specific financial features. They concluded the GDP insignificant on banks profitability. According to the group one decision about profit includes interest

rate, solvency rate, non-performing loans and bank credit in non-governmental sector as part of GDP.

In bank profitability decisions, Krakah and Ameyaw (2010) used ROA, ROE and NIM as dependent variables, banking system of CEE is most reliable on interest rate compared to the banking system of Western Europe. He argued on the influence of shareholders on performance and stated ROA has no influence but ROE has more influence. They concluded from their study that the level of unemployment, inflation, budget balance, non-governmental loans, non-performing loan rates, the level of poverty and the capitalization rate have a negative impact on banking interest rates in the CEE banking sector.

Mekasha (2001) conduct a study in Ethiopia. The examination was on the debt risk management on the operational area of commercial bank. The study used panel data of 10 years, data collected from the selected commercial banks. Object of the study was to explore the relationship of ROA and loan disbursements, non-performing loans and total assets. Researcher concluded the examination with the significantly impact of debt risk management on profitability of bank.

Dr. Omer Allagabo Omer Mustafa (2019) used return on assets (ROA) and Return on equity (ROE) as dependent variables and Capital Adequacy Ratio (CAR), NPL, (LPNPL), (LPTA) and Non-Profit Loans in Total Loans (NPLTL) have been used as independent variables. Researcher founded the significant relationship of CRM and performance of financial.

A research held by Suleiman, (2015), the impact of CRM on financial performance of Jordanian commercial banks for the time period of 2005-2013. In this study he used ROA and ROE as financial measures and concluded the bank performance significantly impacted on CRM.

Djan et.al, (2015) study examined the impact of CR on bank performance in Ghana for the time period 2005-2014. This study covered; fixed rate, cost of each borrowed asset and sufficient amount. Research has shown that there is insignificant impact on bank performance. Adesugba et.al, (2016) conducted research on Nigeria for the time period 2010-2015, examination was to explore the relationship of CRM and

banks investments and founded a significant impact of CRM on bank performance he calculated performance by using profitability measures ROA and ROE.

ROA is a ratio calculated by dividing the net income over total assets. The ROA measures the profit per dollar of assets and shows how they use the investment to generate profits. Naceur (2003) & Alkassim (2005). ROE measures the amount of return on interest (shareholder interest) of ordinary shareholders. It estimates a company's productivity at creating benefits from each unit of shareholder's equity.

The NIM is produced by banks or financial institutions; it is the difference of interest rate and interest rate paid by the lenders. To increase the bank profitability and stability increase in interest rate play a vital role (Mirzaei, Moore, and Liu, 2013). However, market efficiency reduces the bank profitability and the inefficiency of market increase the profitability of banks. (Kanas, Vasiliou, and Eriotis, 2012). Examination showed the business cycle, short-term tax rates, inflation expectations, credit risk, and loan portfolio framework influences US bank profitability in a non-regulatory manner. In the research Samy Ben Naceur and Mohamed Goaied on volatile inflation and GDP are not important for ROA deficits and inflation has a significant impact on interest rates.

Taylor (1993) and Woodford (2003) NIM higher lead to higher inflation. By Mishkin (1996) the decline of NIM in the case of high interest rates, which could lead to collapse. (Johnson C. Smith University, 100 Beatties Ford Dr., Charlotte, USA) They studied the relationship between total income and total interest from 1997 to 2003 and appeared to have a weak relationship between total income and and the full line of interest. Memmel (2011, 2014) has found in her research interest rate increase lead to decrease in bank interest rate, but Banca d'Italia (2013) does not support this view. The results of Bolt (2012) lead to a positive effect of market interest rates on bank rand interest rates.

A few studies have focused on NIM as dependent variable, some papers reviewed US and European banks (Saunders and Schumacher, 2000; Maudos and Fernandez de Guevara, 2004; Carbó and Rodriguez, 2007). In the economy of Eastern Europe (Drakos, 2003; Claeys and Vander Vennet, 2008; Horvath, 2009); Latin American countries (Catao, 1998; Barajas et al., 1999; Brock and Rojas, 2000; Afanasieff et

al., 2002; Maudos and Solís, 2009); developed economy compared to developing (Demirgüç-Kunt and Huizinga, 1999 and Hawtrey G. López-Espinosa et al. / International Monetary and Financial Journal 30 (2011) 1214–1233 1215 and Liang, 2008) and China (Zhou and Wong, 2008). Results often reflect what managers do efficiency and operating costs in revenue estimates has an insignificant impact on NIM, on the other hand market power, operating costs, risk rejection, interest rate fluctuations, credit risk and transparent interest payments have a significant impact on NIM.

James Nguyen (2012) focused on to elaborate the relationship of NIM and NII. From 1997-2002 researcher collected the data. However, results were good but for the time being it are not essential for the next research to have the same results, NIM and NII were related to each other.

Interest rate and bank interest rate has positive relation Alessandri and Nelson (2014). They think that bank marking of loans is a recurring factor in market interest rates. The NIM is calculated as net interest income divided by total assets. ROA measures the profit earned per dollar of assets while NIM is focused on the profit earned on interest activities.

2.1.2 Bank Size

For the industrialization and growth of economy in every country banking sector plays as the back bone of economy. through effective financial planning, efficient use of resources and significant return on investment funds Raza, Farhan, & Akram (2011). One study by Mishkin (1999) reports risk of management increases with the bank size, larger the bank size greater amount of risk managers have to face and their risky behavior is enhanced by trust, protected by state security (i.e., Central Bank intervenes to provide a bailout system for financially depressed banks). The size of the bank is used to determine how big banks are more favorable than smaller banks in managing the economy at a commercial level to the extent that they will clearly inform the general most important level of profits. Expectation for the results bank size was significantly impacted on profitability. Molyneux and Thornton (1992), Bikker and Hu (2002) and Goddard et al. (2004) bank size has

a significant impact on bank profitability. In most financial statements, Assets of the banks are the representatives of bank size.

Bank size is also included to limit size-related economies once economic downturn. Banking strategy is important for the bank size, bank size is depends on the strategy of the bank only flexibility does not guarantee to repayment of funds. In the book of bank performance study Boyd and Runkle (1993), examined bank size insignificantly impacted on profitability of banks. Miller and Noulas (1997) in the USA, Naceur (2003) in Tunisia and Jiang et al. (2003) in Hong Kong, concluded large bank earns lower interest rates and smaller banks earn higher interest rates. A mix mixed literature given by Sinkey (1992) and Staikouras and Wood (2003). Previous studies showed bank size negatively impacted on profitability of bank in large banks but has been good for smaller ones. In the latter researches they concluded that central bank earns higher profits small banks earns less profit than central bank. Suggestion is the market of inter-bank is competitive and efficient. Banks has a large network to withdraw the deposits and definitely get a cost advantage.

Basically bank size captures the economic levels and potential diseases in the banking sector. In first factor bank size and bank profitability has positive impact for an important level of economy Akhavein, Berger & Humphrey (1997) Bourke, (1989) Molyneux & Thornton, (1992) Bikker & Hu (2002) Goddard, Molyneux & Wilson (2004). The second factor is about disaster whenever an increase in variability. This approach tells about the relationship of credit risk and returns, if one take higher credit risk earn higher returns and if one take low credit risk earns lower risk. Research by Torre et al, (2010) shows large banks offer large sums of money and other services to small foreign firms.

In order to stabilize the financial institutions, financial institutions try to reduce bank size. After the There is a need to elaborate more on the financial crisis of 2007/2008 because in the recent days this issue captured more importance Adusei, (2015). Due to reason of financial crisis strong evidence is being blamed on large banks, and these banks are causing huge damage in several countries around the world. When the economy come out of financial crisis, the question take place

about the complexity of the organization, activities of banking sector brooded up and it makes bank size more profitable (Viñals, Pazarbasioglu, Surti, Narain, Erbenova, & Chow, 2013). In the previous two decades, this debate has escalated dramatically, this debate plays an important role in withdrawal of financial control and innovation (Laeven, Ratnovski, & Tong, 2014). As per the study of Liikanen (2012) policymakers in the United States (US) and the European Union (EU) formulate sound financial policies to limit bank size. These efforts require additional funding and significant investment compared to the requirements. Regulation in risky market are concerned about the involvement of banks.

Researchers have focused on banking business models, and this momentum has developed since the 2008's financial crisis (Adusei, 2015). Köhler's (2015) examination focused on the importance of model of banking business , study suggested banks earns more profits and worked on business models under the customer share. Examination suggested through business models, profitable financial services can be measured. Adusei (2015) enhance the profitability by enhancing the bank size in Ghana. Reports of past few years shows bank loan dispute and the extra loan agreement still require strong evidence. Adusei, (2015), Calomiris & Kahn, (1991) Huang & Ratnovski,(2011) Shleifer & Vishny (2010). Therefore, the current study is an attempt to support existing literature on how the risk of bank financing affects its stability.

Nigerian researcher Obamuyi (2013) study on the bank performance on 20 banks from period 2006-2017 seven year data. He use income and interest rate and economic variables and found significant impact on bank performance. In Pakistan a research was conducted from 2006-2010 period of time with the variables bank size, non-performing loans Riaz (2013) also conclude significant results.

Sohail, Iqbal, Tariq and Mumtaz (2013) used short term data and internal items to investigate bank performance. Internal items such as purchases, inventory and debt structure and founded significantly impacted on bank performance.

Varotto and Zhao (2014) argued that bank size is logarithm of total assets, the total measure of resource development, returns resources as part of profits. Alexandru and Romanescu (2008) point out that to measure the bank size, bank profitability

is the bench mark used as comprehensive resources. To know about the financial location of the financial institutions the bank size is used. With increasing, the size of banks and development can be compromised and the consolidation of an item has a positive impact. Bank size and productivity are positively related to each other. They conclude due to the small sized and medium sized banks with increasing size and product expansion Ahmad and Bashir (2013) Akhavein et al. (1997), Smirlock and Yawitz (1985). In the research Hassan and Bashir (2003) examine bank size significantly impacted on bank performance.

Financial institutions of Korea, Park and Chung (2000) exposure to Korean interest rates commercial banks also found that limited sensitivity varied in size, symbol and statistical significance throughout different measurement times.

Bank size is the measure of natural log of total assets.

H1: There is a significant impact of bank size on bank's profitability.

2.1.3 Non-performing Loan

A non-performing loan is the term used when credit has more than 90 days later interest and principal installments or value of interest has been refinanced. The resilience of banks on a large scale undermines the mistakes that have been made in the past Nkusu (2011).

Non-Performing Loans (NPLs) These types of loans are retreated on three factors, first one is credit, second is bank size induced risk preference and last one is macroeconomic shocks. In the regression analysis it is expected that credit variable will be significant. This expectation was approved by Ranjan &Dhal (2003) and estimated expectation of higher interest rate is positive.

According to the research conducted by the world bank in 2014, non-performing loans has different values in different countries, it is 24.6 percent for Ireland, Greece 31.3 percent, the value of Egypt is 9.5%, for Russia it is 6 %, the value of South Africa is 3.6%, USA has 3.2% value, 2.9% value for Brazil and the lowest one is of China which is % only. This loan is very important and alarming signal for all the

countries over the world. Central bank of Ghana which is biggest bank exposed the non-performing loans ratio which is calculated the ratio of losses seven years later, deteriorated from 14.7% in December 2015 to 17.3% as at December 2016. Within the industry Ghana Bank told the ratio of NPL is 17.3%. A loan is called non-performing loan when customer repayment is arrear. Kauko (2012).

It can be defined in the following ways:

- Non-payment of interest 90 days after the interest due date

- Non-payment of a loan 90 days after the loan maturity date

- Restructuring of the borrower's loans

- Filing for bankruptcy, the appointment of administrators, liquidation

According to the two researchers Junkyu Lee and Peter Rosenkranz, the exchange rate and financial pressure have impact on non performing loans. These loans should be addressed efficiently and effectively due to the rapid criticism of economic and financial fluctuations.

NPLs reduce bank lending capacity and attract bank interest, that is, increase the cost of investment because everything you buy is final and require a supply of money, board and financial resources.

Literature shows the result that GDP insignificantly impacted on non-performing loans, and positive relationship with energy crisis, unemployment rate, inflation and exchange rate.Farhan et al (2015). Mihajlovic and Jovic (2017) pointed out in the region of CEE top NPL affected the profitability of banking system during the last and post financial crisis. Maximum rate of NPL is determined by a large portion of the bank loan included foreign exchange in the CEE region in bulk pre-disaster credit policy and rising interest rate in this region and disaster exploded. In the early 2000s, expectations for high levels of economic growth in the CEE region direct foreign exchange funding for low productivity, it causes significant damage regional inequality exacerbated during the 2007-2008 disaster. However, strong investment in the CEE international banking sector and adequate provisions

made the burden of the NPL can be greatly tolerated in the entire CEE region (Kolev and Zwart 2013).

Bishop Panta (2019) Study on 7 joint ventures from the period (2006-2017), including bank specific variables used capital adequacy ratio, net interest margin, total assets and non-performing loans, as macroeconomic variables GDP and inflation. This study used fixed effect model to investigate the bank's performance with the help of secondary data collection. Finally this research concluded the significant impact on bank performance.

Non-performing loans is calculated by dividing non-performing loans over total liabilities.

H2: There is a significant impact of non-performing loans on bank's profitability.

2.2   Macroeconomic Variable

Both small and medium-sized economies are measured by bank profits. The micro level, profit is essential prerequisite for these comparative banks are not the only result, but it is the need for bank growth in competition in the financial markets, therefore the main objective goal for a bank's management is to make a high level of profits. Profitability banks can be in better withstands against negative shocks and in the country financial system can be stabilized by the contribution.

Macroeconomic conditions can affect the performance of banks in many ways. First of all, at the time of inflation there is a greater need of loans, but at the time of economic growth less bank loans needed. Repayments of debt rates got higher by the combined growth at high level for domestic borrowers as the result credit risk contribute at lower level. Otherwise, worst economic conditions of the country effect on the performance of banks, banks are unable to earn more profits and the ratio of non-performing loans increased. It is expected that, with the development of economic system of the country, banks become more profitable and functions enhanced. Bourke (1989) it is evident economic growth, in particular, is accompanied by barriers to entry into the banking market, may increase bank profitability.

Some of the researchers Guru et al. (2002), Gerlach et al. (2004), Bashir (2000) and Nier (2000) recognized that in banking operations market growth plays a spark role.

Both micro-and macro-levels has compelled researchers, they have conducted determinants of bank profitability. Main focus of the study was banks should examine the factors surrounding the business environment especially foreign power which we now call major economic fluctuations such as inflation rates, exchange rates, government debt, interest rates and GDP growth rates. The study mainly highlighted the economic fluctuations impact associated with the exchange rate, inflation rate, interest rate, government debt, and GDP growth rate. They found gross domestic product insignificant impact on the performance of banks, while interest rates have negatively impact on bank performance. In some researches inflation impact significantly on bank performance, in some studies it impact negatively on bank performance.

2.2.1   Liquidity

The current rate, accrual rate, monetary rate, maximum profit margin, rebate and partial refunds has insignificant impact on the growth of the corporate profits (sector food and beverage) calculated on the Indonesian Stock Exchange (IDX) period 2010-2012. The current simultaneous rate, accrual rate, monetary rate, total profit margin, asset recovery and restitution equity impacted significantly on growth of corporate profits (sector food and beverage) calculated in the 2010X12 IDX period. Khalidazia Ibn Khaldun & Iskandar Muda (2012).

Many studies work on banks assets and bank profitability Bourke (1989). Banks follow divercification policy to achieve maximum profits, sales are higher profit will automatically higher and banks make more profit. As the results Eichengreen and Gibson (2001) conclude positive impact on bank profitability. A study on bank specific factors and macroeconomic variable held in yemen for the period of (2010-2014). This study uses ROA, ROE as dependent and CAR, inflation rate as independent variables. As the result they found insignificant impact on ROA and ROE. Ali T. Yahya, Asif Akhtar, Mosab I. Tabash (2016).

Juliane Begenau (2019) when households become aware of bank deposits, the reduction in deposit earnings resulting from a strong demand for money can make the most important deposits in households, if interest rate is lower, it means they are willing to keep deposits. If the effect is too large banks' financial costs, the average amount of debt and stock financing, can actually fall and make lending more attractive to banks. Overall, results underscore the importance of analyzing and balancing financial policy proposals on a regular basis. Dr. Munther Al Nimer, Drs. Lina Warrad, Drs. Rania Al Omari (2011) conclude the significant impact of return on assets (ROA) on independent rate. That means that profits in Jordanian banks are heavily influenced by monetary policy.

There are two major causes of bank risk Low levels of income and poor quality of goods, and the cause can ultimately be divided. Credit and liquidity risk. Many authors refer to the impact of liquidity ratio on profitability, at other hand the impact of credit risk on profits has a negative impact.

Liquidity ratio is measured by the difference of current asset and inventory divided by current liabilities.

H3: There is a significant impact of liquidity on bank's profitability.

2.2.2 Inflation

In the operations of banks value of inflation is briefly discussed in previous studies. The main reason is the impact of inflation on resources and users of banking assets. Specifically, inflation has had an impact on organizational evaluation behavior. Organizations expect the general inflation rate to be higher later; they can agree that they can increase their prices without reducing their need for harvest. Driver (2007) and Windram (2009).

A negative impact of inflation noticed on the bank performance and effect of its spillover is noticeable for the national and international economy. Inflation worked as a down turn in operations and banks are mostly unable to use their resources properly banks are unable to be the part of more productive activities

and highlighted on the profits and losses in the rising inflation. Mohammed Umar, Danjuma Maijama, Mohammad Adam, (2015) Our results show that the decision to invest (at lending rates) in commercial banks in Nigeria has been positively influenced by inflation. However, this effect is not significant; therefore, it does not affect the decision of bank lending. Therefore, our paper concluded that inflation, while permissible, investment decision insignificantly impacted on the commercial banks of Nigerian D. Oleka Chioma, Eyisi Adanma and Onyeze Clementina (2014).

In a study Bernanke and Mishkin (1997) showed that low inflation rates often lower NIM. These findings have significant implications in financial policy management, for the development of economy it is essential to have a strong and functional banking system and a positive product of effective monetary policy, which often focuses on inflation as a priority target.

Trujillo-Ponce (2013) examined the influence of bank performance and market and founded a significant negative correlations were found between profits and market focus, most recently presented by Herfindahl – Hirschman indicator (Korytowski 2018). Mirzaei et al. (2013) conduct the research on 40 developing countries banks for the 1998-2008 time frame and developing good relations with the developed world economic and destroying the emergence. Slightly competitive market conditions are associated the banking system with a high level of profitability.

Waseem Ahmad Khan and Maria Shahid (2014) as inflation reduced their return on assets, cash returns and overall interest rates have increased. The main reason is that government banks receive deposits at the expense of the government. In addition, public sector salaries are dispersed by these banks. That is why inflation does not affect their performance significantly.

A balanced panel data study from 2006-2013 organized for macroeconomic and bank specific variables. In this research GDP found significant with return on assets and return on equity and have significant impact on profitability. Anupam Mehta1 & Ganga Bhavani(2017).

There is an important relationship between inflation and bank profit Dr Samy Ben Naceur and Dr Mohamed Goaied. High inflation is directly related to loans and

debt. Loans are higher than high inflation if the loans are low inflation will be reduced.

Inflation is measured by subtracting the past data CPI (consumer price index) from current data CPI and dividing the answer by past data CPI, multiply the result by 100 to get inflation rate percentage.

H4: There is a significant impact of inflation on bank's profitability.

2.2.3   Gross Domestic Product

According to Daisuke Murakami and Yoshiki Yamagata, GDP growth in large urban areas is changing dramatically. These results are well matched. Consideration of such variability is important in estimating the emissions of the CO_2 grid, disaster risk, energy demand, and other variables that determine future sustainability and resilience. Our results show for the first time that while GDP per capita rises faster than the average family income in most of these countries over a period of time (which varies from country to country), the magnitude of that variation is very different. In many cases, it was not as large as in the USA, which also differed in combining such large differences with very small growth in the real media Brian Nolan, Max Roser and Stefan Thewissen (2018).

Artor R. Nuhiu, Arbër H. Hoti, Mejdi Bektashi, they work on ROAA, ROAE, NIM as dependent variables. In this research they focus on bank profitability by using mentioned variables they found insignificant impact of these variables on performance.

According to Khemra, Saba, & Pasha (1987) Gross domestic product growth significantly impacted on non-performing loans. According to well-documented there is a link between financial development and the performance. GDP growth positively impacted on the performance of banks of the financial sector Dr Samy Ben Naceur and Dr Mohamed Goaied (2016).

Gross domestic product is the difference between the current year price and the base year price.

H5: There is a significant impact of gross domestic product (GDP) on bank's profitability.

2.2.4 Exchange Rate

US-based external research exchange traders are not designed to get information about a few aspects of trading dynamics measurement is not reflected in standard data sets. Contrary to the norm economically accepted research method model theory, measurement, examined a study to determine the behavior of market participants. Examination started with their knowledge and ideas about foreign operations money market. The result shows the emerging consensus that it is a normal macroeconomic basic has little effect on short horizons, but has long lasting effect horizons (Flood and Taylor, 1996 of PPP relative; Meredith and Chinn, 1998, interest rate equity). For example, Mark (1995) writes about the extraterrestrial performance of a currency exchange rate model. Chinn and Meese (1995) revealed the results, include cash flow, income, interest rates and inflation rates and in some cases - trade balances collected and the related amount of items that can be traded for sale (the latter is a representative of the product brand diversity).

Literature often gets important the relationship between the designations of the interest rate. About sources of interest for different interest rates, for example, Flannery and James (1984) pointed out interest rate is a sensitive issue, and highly related to the assets and liabilities of every institution.

The author draws conclusions that can be drawn from the study of the impact of the pear exchange rate and the depreciation of Mudharabah deposits as follows:

Firstly, exchange rate of rupiah has a positively significant impact on Mudharabah. It means that increase in rupiah exchange rate against the US dollar has significant impact on public works in Madharabah's investment also increasing. Exchange rate is high in the environment it attract investor for more investments in Mudharabah deposits. It is expected that increase in the rupiah against the US dollar tends to create a repetitive effect that leads to an increase in commodity prices. The high prices of commodities are causing macro usage to decline, and because

people are prone to efficient use. Shahafir Zaman & Md. Mohiuddin Chowdhury (2019) The foundations of the macroeconomic Country and their impact on the disclosure of the company's exchange rate were examined by Patro et al. (2002) imports, exports, debt estimates and tax revenues have a significant impact on financial risk. UDe Jong et al. (2006) or Hutson and Stevenson (2010) found that there is a significant significant relationship between domestic openness and company exposure to the exchange rate.

One of the key objectives of the Bank of Bangladesh's Monetary Policy is to have greater control over the financial system. To that end, the banking industry has been cleansed of non-compliance with the governing body of the Bank of Bangladesh. The financial system is centralized and modernized to create a more accurate picture of the economic situation in Bangladesh.

The study selected 30 banks of Dhaka stock exchange for 2008-2013 period. This requires further analysis of the performance of banks in which these listed banks meet the performance of the stock market.

Khemra, Saba, & Pasha, (1987) concluded gross domestic product significantly impacted on non-performing loans. Result suggested that development in the real economy considered into low interest rates. It has also been found that banks that charge higher interest rates and over-lending are more likely to have higher interest rates on non-performing loans.

Nawal Hussein Abbas Elhussein & Osama Eltayeb Elfaki Osman (2019) conducted research on bank performance. As the independent variables they used exchange rate and bank performance and as the dependent variable ROA, ROE and NIM were used. Ngerebo (2011), Babazadeh and Farrokhnejad (2012), Acaravci and Ç alim (2013), Chisepeya (2014), Osuagwu (2014), He, Fayman, and Casey (2014), Issac (2015), Lagat and Nyandema (2016) and Saona (2016) reported in his study there is significant impsct of exchange rate on bank performance Taiwo and Ades-ola (2013), Getachew (2014), Osuagwu (2014), Offiong, Riman, and Akpan (2016), Kemisola, Ademola, Olamide, and Moses (2016), Combey and Togbenou (2017), Almaqtari, Al-Homaidi, Tabash and Farhan (2018) and -Hasanov, Bayramli and Al-Musehel (2018).exchange rate insignificantly impacted on bank performance.

Kemisola et al. (2016), stated the effect of the volatility of the exchange rate in the operations of banks is greatly affected by the measure used by the judiciary banking operations. According to Almaqtari et al. (2018), reason of depreciation rate in local currency could be the appreciation of foreign currency. Razi et al. (2012) noted the size of the foreign direct investment may affect the rate and direction of the relationship between a rare exchange transaction and a bank. And bank size quoted by Wong et al. (2009) as a guideline for the complaint of interpersonal relationships foreign exchange and bank interest.

Molyneux et al. (2017) stated the NPIR has insignificant impact on bank lending, as well reported result of weak borrowing in countries receiving NPIR policy compared to others, probably because it undermines the bank profit. Hameed and Rose (2016) used a magnetic field model to assess the impact of NPIR exchange rate fluctuations, exchange rate changes, uncollected interest rates, and profits from trading; according to their research exchange rate behavior has a tiny effect on policy. Thus, in order to adopt NPIR, volatility of exchange rate and levels of exchange rate has significant and statistically associated effected.

Exchange rate is measured by dividing by money in foreign currency over money in domestic currency. Currencies are often traded in pairs because the value of each currency is measured against the other currency, which gives the exchange rate of the currency pair. Exchange rate used in this study is us dollar which is international currency.

H6: There is a significant impact of exchange rate on bank's profitability.

2.3 Theoretical Framework

A clear policy for banks is profit. They are therefore slow to achieve this ideal goal. Banks purpose is to provide facilities to business for investments, banks provide cash to households, and banks provide loans to financial sectors, banks work as mediator between two countries. Banks also have additional financial and social objectives. Bank specifics are internal components that can be used by bank

directors. Certain aspects of the bank are determined by using a certain portion of the critical causes of profit, expertise, risk in addition, influence. Productivity means more than the ability to make money while reduce operating costs. Beside this, banks are more profitable due to bank diversity, risk and influence Alexandru and Romanescu (2008) Sufian (2011) Grigorian and Manole (2002) Ahmad and Bashir (2013).

The in-house banking and individual attributes are considered as the bank size, the efficiency of the board, the production capacity and the cost of financing

They affect the formation of banks. "These areas are most affected by the decisions of senior management and the executive." "Respected internal factors examined in this study are described below" Mbella also, Magloire (2017).

FIGURE 2.1: Theoretical Framework

Chapter 3

Research Methodology

The chapter of methodology will explain the different research techniques whose are used in this study and determine the selected methods. Data collection methods and analysis methods will continue. In addition, this chapter describes the selected sampling process, how the research data was collected and the techniques used to analyze the data. In addition, the issue of credibility and actual performance of the presented study is discussed.

3.1 Data Description and Methodology

Data description and methodology which were used in this investigations and examine the different methods and tests used in this study and also population, sample size and source of data are taken for the study valid analysis. To examine the impact of study we have been chosen the banks of Pakistan for the time period over 2006 to 2018. This study considers secondary data. Data collected from the state bank of Pakistan, (FSA) Financial statement analysis and (BSA) balance sheet analysis.

3.1.1 Population

"The population in a demographic research is the whole group of individuals about which we want details" (Moore et al., 2009,).

Banks listed on PSX of Pakistan is used as population of this study.

3.1.2 Sample

"A sample is the part of the population from which we actually collect information used to draw conclusions about the whole" (Moore et al., 2009,).

This investigation encompasses top bank listed on PSX. 15 commercial Banks on basis of capitalization from period 2006 –2018.

TABLE 3.1: Sample Size

Sr. No	Banks Name	Total Asset	Weights
1)	Allied Bank Limited	10,678,365,690	10%
2)	Askari Bank Limited	6,021,608,915	6%
3)	Bank Al-Falah Limited	7,942,600,904	8%
4)	Bank Al-Habib Limited	6,248,321,842	7%
5)	Faysal Bank Limited	3,814,718,910	4%
6)	Habib Bank Limited	20,234,643,415	21%
7)	Habib Metropolitan Bank Limited	4,649,222,060	5%
8)	MCB Bank Limited	10,408,688,526	11%
9)	NIB Bank Limited	1,981,072,844	2%
10)	United Bank Limited	14,048,349,009	15%
11)	Soneri Bank Ltd	2,342,351,287	2%
12)	Standard chartered bank Pakistan LTD	5,011,021,974	5%
13)	Silk Bank Ltd	1,190,059,249	1%
14)	KASB Bank Limited	486,006,566	1%
15)	JS Bank Limited	1,897,296,450	2%

Pie chart is constructed on the basis of bank assets and provided in appendix 1. Habib bank is the highest ranked bank as per their assets of 21%, United bank limited is second highest bank with the assets of 15%, Muslim commercial bank MCB limited is third highest bank with the assets of 11%, Allied bank limited is fourth highest bank with the assets of 10%, Bank Alfalah limited is fifth bank with the assets of 8%, Bank Alhabib limited is sixth largest bank according to its assets of 7%, Askari bank limited is seventh largest bank according to its assets of 6%,Standard chartered bank Pakistan is eighth bank by its assets 5%, Habib metropolitan bank is ninth bank by its assets 5%, Faysal bank limited is tenth bank by its assets 4%. Soneri bank limited, JS bank limited and NIB bank limited has 2% assets. KASB bank limited and Silk bank limited has 1% assets.

3.1.3   Data Source

Secondary data is used in this study. Data was conveniently available; include government and private publications, financial reports, website of the State bank of Pakistan (SBP). This study has collected data from the published reports of the state bank of Pakistan (FSA) Financial statement analysis and (BSA) balance sheet analysis.

3.1.4   Descriptive Statistics

Descriptive statistics is use to describe the basic features of the data and provide summary about sample and population of a given data set. Descriptive statistics has two types of measures one is central tendency measure and other is measure of variability. In the measure of Central tendency mean, median and mode included and in the variability measure standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are included. By using descriptive statistic statistical behavior of data can be calculated.

Dependent variables used in this study are (return on assets, return on equity and net interest margin) and independent variables are (bank size, non-performing loans, inflation, liquidity ratio, exchange rate and gross domestic product). The

descriptive statistics test shows summary of data that include mean, minimum, maximum and standard deviation. The mean value tells about average of data, standard deviation tells about spread and measure of dispersion in the data value as of the mean. Minimum and maximum tells about current series of data.

3.1.5 Correlation Matrix Analysis

Direction and strength of the relationship among variables calculated from correlation test. Value of correlation coefficient should be in between positive 1 to negative 1. If the correlation coefficient value is equal to 1 then its mean that there is perfect relationship among the variables. Coefficient value nearest to 1 shows no relationship among variables Coefficient value nearest to negative 1 shows no relationship among variables at the other hand coefficient value near positive 1 shows high relationship among variables. The direction and relationship of the variable can be identified from the sign of the coefficient. Positive sign of coefficient is the indicator of direct relationship of variables and negative sign of coefficient is the indicator of inverse relationship. In direct relationship variables move in the similar way, in inverse relationship both move in different ways. The problem of multicollinearity exists if independent variable to independent variable relationship is strong.

3.2 Econometric Model

3.2.1 Panel Data Analysis

Panel data consist of two types first is balance panel and second is unbalanced panel data. Data is called balanced panel when the data has series of time observation for each cross-section is same and data is unbalanced panel data is when series of time observation has different cross-section.

There are three models to analyze data.

In this study, model for profitability (ROA) is written as;

$$ROA_{i,t} = \beta_o + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+\beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t}$$

(3.1)

In equation 3.1 (ROA) stand for Return on assets, (Size) stand for Bank Size, (NPL) stand for non-performing loans, (INF) stand for Inflation, (LQR) stand for Liquidity ratio, (LEXR) stand for Exchange rate and (GDP) stand for Gross Domestic Product.

In this study, model for profitability (ROE) is written as;

ROA = Return on assets

ROE = Return on Equity

Size = Bank Size

NPL = non-performing loans

INF = Inflation

LQR = Liquidity ratio

LEXR = Exchange rate

GDP = Gross Domestic Product

In this study, model for profitability (ROE) is written as;

$$ROE_{i,t} = \beta_o + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+\beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t}$$

(3.2)

In equation 3.2 Return on Equity is calculated by dividing by net income over total equity capital, Non-performing Loans is adopting by non-performing loans over total liabilities. Bank Size is the measure of natural logarithm of total assets; Inflation measured by subtracting the current CPI (consumer price index) from past CPI and dividing the answer by past data CPI, multiplies the result by 100 to get inflation rate percentage. Liquidity ratio is measured by the difference current

asset and inventory divided by current liabilities. Exchange rate is measured by dividing by money in domestic currency over money in foreign currency. Gross Domestic Product natural logarithm of GDP.

In this study, model for profitability (NIM) is written as;

$$NIM_{i,t} = \beta_o + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+ \beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t}$$

$$(3.3)$$

Equation 3.1 is about return on assets, equation 3.2 is about return on equity, equation 3.3 is about net interest margin. NIM is part of distinction between the interest rate produced by banks or other financial institutions and the interest rate paid by their lender comparative the value of their assets.

NIM = Net interest Margin

NPL = Non-performing Loans

SIZE = Bank Size

INF = Inflation

LQR = Liquidity ratio

LEXR = Exchange rate

GDP = Gross Domestic Product

3.2.2 Fixed Effect Model

This is second model for the analysis of data. In this model intercept of cross section is different.

General equation for fixed effect model is as follows,

$$\gamma_{i,t} = \alpha_i + \beta(X)_{i,t} + ...\beta_k(X)_{kit} + \mu_{i,t} \qquad (3.4)$$

In this study

Equation for Profitability ROA

$$ROA_{i,t} = \beta_i + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+\beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t} \tag{3.5}$$

Where;

ROA = Return on Assets

NPL = Non-performing loans

SIZE = Bank Size

INF = Inflation

LQR = Liquidity ratio

LEXR = Exchange rate

GDP = Gross Domestic Product

Equation for Profitability ROE

$$ROE_{i,t} = \beta_i + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+\beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t} \tag{3.6}$$

Where;

ROE = Return on Equity

NPL = Non-performing loans

SIZE = Bank Size

INF = Inflation

LQR = Liquidity ratio

LEXR = Exchange rate

GDP = Gross Domestic Product

Equation for Profitability NIM

$$NIM_{i,t} = \beta_i + \beta_1(NPL)_{i,t} + \beta_2(SIZE)_{i,t} + \beta_3(INF)_{i,t} + \beta_4(LQR)_{i,t}$$
$$+\beta_5(LEXR)_{i,t} + \beta_6(GDP)_{i,t} + \mu_{i,t} \tag{3.7}$$

Where;

NIM = Net interest margin

NPL = Non-performing loans

SIZE = Bank Size

INF = Inflation

LQR = Liquidity ratio

LEXR = Exchange rate

GDP = Gross Domestic Product

3.2.3   Redundant Fixed Effect Test

This test helps the researcher to make the decision between common effect model and fixed effect model. Decision of applying the fixed effect model take when the value of F-statistic and chi-square cross section is less than 0.005, and common coefficient model is applicable when the value of prob is insignificant. In this study we are going to use fixed effect model to investigate regression because its p-value is significant.

3.2.4   Random Effect Model

Intercept considered as error term in random effect model which has no link with cross section. This model explains the variation between different cross sections. Fixed effect model has more parameters to estimate with comparison to random effect model. General equation for random effect model is as follows;

$$\gamma_{i,t} = \alpha + \beta_1(X)_{k,i,t} + \ldots\ldots\beta_k(X)_{k,i,t} + (v_i + \mu_{i,t}) \tag{3.8}$$

In above equation 3.8:

Y is used as dependent variable return on asset, return on equity and net interest margin. X is used as independent variable non-performing loans, bank size, liquidity ratio, exchange rate, inflation and gross domestic product. i represent different banks and t represent time period. μ Is use as error term.

3.2.4.1 Hausman Test

This test helps the researcher to make the decision between random effect model and fixed effect model. Decision of applying the fixed effect model take when the value of F-statistic and chi-square cross section is less than 0.005, and random effect model is applicable when the value of prob is insignificant. In this study hausman test is insignificant so we use fixed effect model.

3.2.5 Multicollinarity

The exist relationship between two independent variables. To detect the multicollinarity problem we use correlation matrix variance inflation factor (VIF). Minimum value of VIF ¡ 10, if the value VIF is less than 10 it means there is no multicollinarity, if value is greater than 10 it means independent variables correlating each other and we can say the problem of multicollinarity exists.

TABLE 3.2: ROA Multicollinarity

Variable	Coefficient Variance	Centered VIF
C	0.000555	NA
NPL	8.23E-05	1.259914
SIZE	3.69E-07	1.472290
LQR	0.000182	1.292141
LEXR	1.67E-05	2.225490
INF	1.21E-07	7.967186
GDP	1.01E-06	6.351876

The table 3.2 ROA is used as dependent variable and independent variables are NPL, SIZE, LQR, LEXR, INF, and GDP). The value of NPL is (1.2599), value of bank size is (1.4722), value of liquidity ratio is (1.2921), and value of exchange rate (2.2254), value of inflation (7.6971).The value of GDP is (6.3518). All values of VIF < 10 which indicates there is no multicollinarity. ROE is used as dependent variable and independent variables are NPL, SIZE, LQR, LEXR, INF, and GDP). NPL's value is (1.2519), banks size value is (1.4559), LQR's value is (1.2932), LEXR's value is (2.2306), INF's value is (8.0973) and GDP's value is (6.4820). All values of VIF < 10 which indicates there is no multicollinarity. NIM is used as dependent variable and independent variables are NPL, SIZE, LQR, LEXR, INF, and GDP). The value of NPL is (1.3426), the value of bank size is (2.1133), the value of LQR is (1.5668), the value of LEXR is (2.6556), the value of INF is (8.0399) and the value of GDP is (6.5532). All values of VIF < 10 which indicates there is no multicollinarity.

3.2.6 Autocorrelation Test

To detect auto correlation in a regression we observe the value of Durbin Watson which should be in between positive 2 to negative 2. A regression is said to be not correlated among its variables if its Durbin Watson's value is equal to 2.

In the regression equation of ROA, value of Durbin Watson (1.876546) shows the existence of correlation.

In the regression of ROE, value of Durbin Watson value (1.861342) shows the existence of correlation.

In the regression of NIM, we have Durbin Watson value (1.926362) which is close to 2 and it indicates that there is no correlation.

3.2.7 Description of Variable

Return on assets is calculated by dividing net income over total assets. Return on equity can be calculated by dividing net income over total equity capital. Net

interest margin can be calculated by net interest income over total assets. Bank size is measured by taking natural logarithm of total assets. Non-performing loans is measured by dividing by non-performing loans over total loans. Inflation is measured by subtracting the current data CPI (consumer price index) from past data CPI and dividing the answer by past data CPI, multiply the result by 100 to get inflation rate percentage. Liquidity ratio is measured by dividing liquid assets over total assets. Exchange rate is measured by dividing by money in domestic currency over money in foreign currency. Gross domestic product is the natural logarithm of GDP.

TABLE 3.3: Description of Variables

	Variable Name	Calculation Method	References
Dependent variable	ROA	Net income /Total Assets	Fan Li, yijun Zou (2014)
	ROE	Net income / Total Equity	Fan Li, yijun Zou (2014)
	NIM	Net interest income / Total Assets	James Nguyen (2012)
	Bank size	Ln total assets	Yuga Raj Bhattarai (2016)
Independent variable	NPL	NPLs / Total loans	Fan Li, yijun Zou (2014)
	INF	(Current CPI- Past CPI) / (past CPI) *100	
	LQR	Liquid assets / total assets	Jaleel Ahmed, Hui Xiaofeng, Jaweria Khalid (2014)
	EXR	Domestic currency / Foreign currency	Simakova Jana (2017)
	GDP	Ln GDP	Ashok Babubudjnauth (2020)

Chapter 4

Data Analysis and Discussion

In this chapter we present the results which we calculate from different methods. First, descriptive statistics describes basic summary about the sample and population. Secondly, correlation matrix measures the direction and strength of the relationship among variables and thirdly regression analysis, impact of ROA, ROE and NIM.

4.1 Descriptive Statistics

Descriptive statistics is use to describe the basic features of the data and provide summary about sample and population of a given data set. Descriptive statistics has two types of measures one is central tendency measure and other is variability measure. Central tendency measure includes mean, median and mode and in variability measure standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are included.

Statistical behavior of data is capture by using the descriptive statistics. Dependent variables are (return on assets, return on equity and net interest margin) and independent variables are (bank size, non-performing loans, inflation, liquidity ratio, exchange rate and gross domestic product). The descriptive statistics test shows summary of data that include mean, minimum, maximum and standard deviation.

TABLE 4.1: Descriptive Statistics

	ROA	ROE	NIM	NPL	SIZE	LQR	LEXR	INF	GDP
Mean	0.010473	0.139338	0.349802	0.095097	19.68268	0.070972	0.087072	8.981287	4.242105
Median	0.01120	0.16190	0.892000	0.08400	19.76223	0.06970	0.036840	7.90000	4.80000
Maximum	0.03720	0.36550	0.91130	0.20470	21.78088	0.11560	0.002578	20.00000	6.10000
Minimum	-0.03450	-0.31920	-0.21780	0.00000	16.8275	0.02910	0.098857	2.80000	1.600000
Std.Dev	0.010266	0.114345	0.888737	0.069503	0.963138	0.016764	0.008026	4.566309	1.425352S

The mean value tells about average of data, standard deviation tells about spread and measure of dispersion in the data value as of the mean, standard deviation and mean are low due to the used separately. Minimum and maximum tells about current series of data.

Table 4.1 is to give a precise perspective of our data which contains the descriptive statistics of variables (NPL, SIZE, LEXR, INF, GDP, ROA, ROE and NIM) of 15 commercial banks in Pakistan the year 2006 to 2018.

Table: 4.1 descriptive statistics shows the mean, median, maximum, minimum and standard deviation value among the variables. Mean value of ROA is 0.0104 and its standard deviation is 0.0102. The maximum and minimum values are 0.037 and -0.0345. The average value is 0.0111. Mean value of ROE is 0.1391 and its standard deviation is 0.1140.

The maximum and minimum values are 0.3655 and -0.3192. The average value is 0.1612. ROE is used as profitability's proxy. Mean value of NIM is 0.3450 and its standard deviation is 0.8868. The maximum and minimum values are 0.9113 and -0.2178. The average value is 0.9134. ROA, ROE and NIM are used as the proxy of profitability.

Mean value of NPL is 0.0950 and its standard deviation is0.0693. The maximum and minimum values are 0.4047 and 0.0000. The average value is 0.0840 NPL is used as the proxy of credit risk. Mean value of bank size is 19.6924 and its standard deviation is 0.9687. The maximum and minimum values are 21.7808 and 16.8275.

The average value is 19.7648. We use bank size as the proxy of. Mean value of liquidity ratio (LQR) and its standard deviation is 0.0167. The maximum and minimum values are 0.1156 and 0.0291. The average value is 0.0697.Mean value of exchange rate (LEXR) is 0.0889 and its standard deviation is 0.0088. The maximum and minimum values are 0.0025 and 0.0988. The average value is 0.0368. Mean value of INF is 8.95% and its standard deviation is 4.56%. The maximum and minimum values are 20.00% and 2.80%. The average value is 7.90%. Mean value of GDP is 4.2488 and standard deviation is 1.4239. The maximum and minimum value is 6.1000 and 1.6000. The average value is 4.8000.

4.2 Correlation Matrix

Direction and strength of the relationship among variables calculated from correlation test. Value of correlation coefficient should be in between positive 1 to negative 1. If the correlation coefficient value is equal to 1 then its mean that there is perfect relationship among the variables.

Coefficient value nearest to 1 shows no relationship among variables Coefficient value nearest to negative 1 shows no relationship among variables at the other hand coefficient value near positive 1 shows high relationship among variables. The direction and relationship of the variable can be identified from the sign of the coefficient. Positive sign of coefficient is the indicator of direct relationship of variables and negative sign of coefficient is the indicator of inverse relationship. In direct relationship variables move in the similar way, in inverse relationship both move in different ways. The problem of multicollinearity exists if independent variable to independent variable relationship is strong. If the relationship of independent variable and dependent variable is weak there is no multicollinearity problem.

Table: 4.2 shows correlation among return on assets is 1 and positive. Correlation between return on equity to return on equity is 0.8733. Correlation between return on asset to net interest margin is negative 0.04323 which shows that there is a weak linkage among return on asset to net interest margin. Correlation between return on asset to non-performing loans is negative 0.4817 which shows a weak relationship. Correlation between return on asset to size is 0.4841 which shows a good relationship. Correlation between return on asset to INF is negative and 0.0845. Correlation between return on asset to liquidity ratio is 0.3541. Correlation between return on asset to exchange rate is negative and 0.1161. Correlation between return on asset to gross domestic product is 0.1319.

Correlation between ROA to net interest margin is negative and 0.0450. Correlation between return on equity to non-performing loan is 0.5848. Correlation between return on equity to bank size is positive 0.5225.

TABLE 4.2: Correlation Matrix

	ROA	ROE	NIM	NPL	SIZE	INF	LQR	LEXR	GDP
ROA	1.0000								
ROE	0.8733	1.0000							
NIM	-0.0432	-0.0450	1.0000						
NPL	-0.4817	-0.5848	-0.0472	1.0000					
SIZE	0.4841	0.5225	-0.0895	-0.2237	1.0000				
INF	-0.0845	-0.1318	0.1559	0.1294	-0.3324	1.0000			
LQR	0.3541	0.3903	-0.0108	-0.2312	0.3523	0.0273	1.0000		
LEXR	-0.1161	-0.1166	0.0034	0.1464	0.4634	-0.5051	-0.2495	1.0000	
GDP	0.1319	0.1780	-0.1336	-0.2555	0.2122	-0.8754	0.0723	0.2115	1.0000

Correlation between return on equity on inflation rate is negative 0.1318. Correlation between return on equity to liquidity ratio is 0.3903. Correlation between return on equity to exchange rate is negative and 0.1166. Correlation between return on equity to gross domestic product is 0.1780.

Correlation among net interest margin is 1. Correlation between net interest margins to non-performing loans is negative and 0.0472. Correlation between net interest margins to bank size is negative and 0.0895. Correlation between net interest margins to inflation rate is positive and 0.1559. Correlation between net interest margins to liquidity ratio is negative and 0.0108. Correlation between net interest margins to log of exchange rate is positive and 0.0034. Correlation between net interest margins to gross domestic is negative 0.1336.

Correlation among non-performing loans is 1. Correlation between non-performing loans to bank size is negative and 0.2294. Correlation between non-performing loans to inflation is positive and 0.1294. Correlation between non-performing loans to liquidity ratio is negative and 0.2312. Correlation between non-performing loans to exchange rate is positive and 0.1464. Correlation between non-performing loans to gross domestic product is negative and 0.2555.

There is positive 1 correlation among bank size. There is negative 0.3324 correlation between bank size to inflation. There is positive 0.3523 correlation between bank size to ratio. There is positive o.4634 correlation between bank size to exchange rate. There is positive 0.2122 correlation between bank size to gross domestic product.

There is 1 correlation among inflation. There is positive 0.0273 correlation between inflation to liquidity ratio. There is negative 0.5051 correlation between inflation to exchange rate. There is negative 0.8754 correlation between inflation

Correlation among liquidity ratio is positive 1. Correlation between liquidity ratio to exchange rate is negative 0.2495. Correlation between liquidity ratio to gross domestic product is positive 0.0723. Correlation among exchange rate is 1. Correlation between exchange rate to gross domestic product is positive 0.2115. There is positive 0.1319 correlation between gross domestic product to return on asset. There is positive 1 correlation among gross domestic product.

4.3 Impact ROE on Bank Performance

Table: 4.3 explains the impact of return on equity on bank performance. In this model NPL, SIZE, LEXR, INF, LQR and GDP used as independent variables. Inflation rate, exchange rate and gross domestic product are external variables, and bank size used as control variable. Non-performing loan has negative coefficient value (0.6960) with significant p-value (0.0000) which means if non-performing loans increase it would affect ROE in opposite direction. Bank size has positive coefficient value (0.0653) and significant p-value (0.0000) which means bank size has a direct linkage with ROE, if bank size is small ROE would less, if bank size is large ROE would more. Exchange rate has negative coefficient value (0.2174) and significant p-value is (0.0000) which means if exchange rate increase, ROE will decrease, if exchange rate decreases ROE will increase accordingly. Inflation has negative coefficient value (0.0093) with significant p-value (0.0087). Which indicates there is inverse relationship, inflation will affect ROE in opposite direction. Liquidity ratio has positive coefficient value (0.2406) and significant p-value (0.0773).

TABLE 4.3: ROE Regression Analysis

Variable	Coefficient	T-Statistic	Prob
C	0.045031	0.189777	0.8497
NPL	-0.0696066	-7.444933	0.0000***
SIZE	0.065307	10.71854	0.0000***
LEXR	-0.217485	-5.297735	0.0000***
INF	-0.009364	-2.65426	0.0087***
LQR	0.240626	1.776927	0.0773*
GDP	0.020305	-1.996163	0.0475**
F-statistic	40.60292	R-Squared	0.581057
Prob (F-statistic)	0	Adjusted R-Squared	0.567624

This means liquidity ratio and ROE move in same direction. Gross domestic product has positive coefficient value (0.020305) with the significant p-value (0.0475). It indicates GDP and ROE has direct relationship, if GDP increase profitability increase, if GDP decrease profitability decrease accordingly. F-statistic tells us about the significance of model. Its p-value is (0.0000) which shows the model is significant. R-squared value is 58.19% which shows the variation occurred in ROA explained by independent variables.

*used for < 0.15

**used for <0.05

***used for <0.01

4.4 Impact of ROA on Bank Performance

Table: 4.4 explains the impact of return on asset on bank performance. In this model NPL, SIZE, LEXR, INF, LQR and GDP used as independent variables. Inflation rate, exchange rate and gross domestic product are external variables, and bank size used as control variable. Non-performance loan has negative coefficient value (0.0539) where negative sign shows the NPL's impact on ROA, which indicates 1% increase in NPL will cause 5% change in ROA decrease and significant p-value is (0.0000).

Size has positive coefficient value (0.0053), it indicates there is direct connection between bank size and ROA, if bank size is small ROA would less, if bank size is large ROA would more and significant p-value is (0.0000). Exchange rate has negative coefficient value (0.0177), it indicates 1% change in exchange rate will cause 1.7% decrease in ROA, with the significant p-value (0.0000).Inflation has negative coefficient value (0.0006) which indicates 1% increase in inflation will cause 0.6% inverse change in ROA. And has significant p-value (0.0781).

Liquidity ratio has positive coefficient value (0.0259), it indicates 1% change in liquidity ratio will cause 5.59% change in ROA and has significant p-value (0.0559). Gross domestic product has positive coefficient value (0.0014). It indicates 1%

change in gross domestic product will cause 15.05% direct change in ROA. And it has insignificant p-value is (0.1505). P-value of F-statistic is (0.0000) which tells about significance of model. R-squared value is 49.38% which shows the variation occurred in ROA clarified by independent variables.

TABLE 4.4: ROA Regression Analysis

Variable	Coefficient	T-Statistic	Prob
C	-0.005966	-0.253019	0.8005
NPL	-0.053669	-5.913777	0.0000***
SIZE	0.005631	9.266792	0.0000***
LEXR	-0.01777	-4.349378	0.0000***
INF	-0.000616	-1.772325	0.0781*
LQR	0.025982	1.924315	0.0559*
GDP	0.00145	1.444083	0.1505
F-statistic	28.62353	R-Squared	0.493876
Prob(F-Statistic)	0	Adjusted R-Squared	0.476622

*used for < 0.15

**used for <0.05

***used for <0.01

4.5   Impact of NIM on Bank Performance

Table: 4.5 explains the impact of return on asset on bank performance. In this model NPL, SIZE, LEXR, INF, LQR AND GDP used as independent variables. Exchange rate, Inflation rate, and gross domestic product are external variables,

and bank size used as control variable. Non-performing loans has negative coefficient value (19.5054) which indicates the relationship between non-performing loan and net interest margin is inverse. This means non-performing loan cause increase in net interest margin decreases and non-performing loan cause decrease in net interest margin increases, and it has significant p-value is (0.0135) Bank size has negative coefficient value is (1.3567) which indicates there is inverse association among bank size and net interest margin, with insignificant p-value (0.0749).

Exchange rate has positive coefficient value (9.7243) which means net interest margin increases according to exchange rate, with significant p-value (0.0175). Inflation has positive coefficient value (0.3715) which indicates there is direct linkage between inflation and net interest margin, with insignificant p-value (0.2347). Liquidity ratio has positive coefficient value (46.5274) which indicates there is direct relationship between liquidity ratio and net interest margin, with insignificant p-value (0.2267). Gross domestic product has positive coefficient value (0.2730) which indicates there is direct relationship between GDP and net interest margin, with insignificant p-value (0.7643). F-statistic value shows significance of model, its p-value is (0.0762). R-squared value is (0.0635) shows about variation occurred in net interest margin explained by independent variables.

TABLE 4.5: NIM Regression Analysis

Variable	Coefficient	T-Statistic	Prob
C	-17.76716	-0.836697	0.4039
NPL	-19.50545	-2.496439	0.0135**
SIZE	-1.356754	-1.791812	0.0749
LEXR	9.724357	2.398892	0.0175**
INF	0.371511	1.192462	0.2347
LQR	46.52744	1.213329	0.2267
GDP	0.273051	0.300357	0.7643
F-statistic	1.944879	R-Squared	0.063534
Prob(F-Statistic)	0.076217	Adjusted R-Squared	0.030867

*used for < 0.15

**used for <0.05

***used for <0.01

In this study a research question was made. Is there impact of bank size on bank's profitability? And objective is to determine the relationship of bank size and bank's profitability. In this study there is a significant impact of bank size on bank profitability in the ROE and ROA but insignificant in the NIM regression analysis. This study revealed the results of Mishkin (1999) , molyneux & thornton (1992), bikker & Hu (2002), Goddard et al (2004), akhavein , berger & Humphrey (1997) and bourke (1989). Ahmad & bashir (2013), smirlock & yawitz (1985) Hassan & bashir (2003). According to all above researchers there is a significant impact of bank size on bank's profitability. In this study research question on non-performing loan was made. Does there is impact of non-performing loans on bank's profitability? Objective is to determine the relationship between non-performing loan and bank's profitability. According to nkusu (2011), ranjan and dhal (2003), kauko (2012), junkyu lee and peter rosenkranz (2014) and farhan et al (2015) there is significant impact of non-performing loan on bank's performance. In this study H2 is accepted. Non-performing loans has significant impact on bank's profitability in ROE, ROA and NIM regression.

This study focus to answer the question, Do there is impact of liquidity ratio on bank's profitability? Objective of the study is to determine the relationship between liquidity ratio and bank's profitability. As the research of khalidazia ibn khaldun & iskandar muda (2012), juliane begenau (2019), munther al nimer, lina warred, rania al omari (2011) their study found significant impact on profitability. In this study there is a significant impact of liquidity ratio on bank's profitability in the reression analysis of ROE, ROA and insignificant impact in the regression analysis of NIM. This study gives the answer of the question. Does there is impact of inflation on bank's profitability? Objective of the study is to determine the relationship between inflation and bank's profitability. According to the results of this study inflation has significant impact on bank's profitability in ROE and ROA regression analysis but insignificant impact in NIM. Driver (2007), windram

(2009), mohammed umar, danjuma maijama, mohammad adam (2015), waseem ahmad khan & maria shahid (2014)

olekachioma and onyeze clementine (2014) insignificant impact in their research.

Research question for this study, is there impact of gross domestic product on bank's profitability? Objective is to determine the relationship of gross domestic product and bank's profitability. Brain Nolan, max roser and Stefan thewissen (2018), khemra, saba & Pasha (1987), samy ben naceur, Mohamed goaied (2016) found significant impact of GDP on bank's profitability. In this research there is significant impact of gross domestic product on bank's profitability in ROE regression analysis but ROA and NIM has insignificant in regression analysis.

Research question for this study, what is the impact of exchange rate on bank's profitability? Objective is to determine the relationship between exchange rate and bank's profitability. In this study there is significant impact of exchange rate on bank's profitability in ROE ROA and NIM regression. Shahfir zaman & Md.mohiuddin chowdhury (2019), patro et al (2002), UDe jong et al (2006), Huston , steveson (2010) and khemra, saba & pasha (1987) found significant impact in their research.

Chapter 5

Discussion and Conclusion

In previous chapter data was analyzed and discussion on the basis of result conclusion is made on the basis of previous chapter result and discussion. Limitation of the study is applicable for the upcoming researchers. Policy implication given to the managers and some recommendation are also given at the end of the chapter.

5.1   Conclusion

This part is talked about the conclusion on the basis of results and discussion. The information is broke down in the view of explicit study question and speculation that are created to accomplish definite goal of this examination. Fundamental focal point of this investigation is on aftereffects of the relapse examination. In this respect, chosen factors which affect banking execution are Bank Size, Non-performing loans, inflation, exchange rate, liquidity ratio and gross domestic product. Bank performances measures are return on assets, net interest margin and return on equity.

In this research study, bank size in light of ROA and ROE is significant but in light of NIM bank size is insignificant. Goddard, Molyneux & Wilson (2004), Goddard et al. (2004), Bikker and Hu (2002), Bikker & Hu (2002), Akhavein, Berger & Humphrey, (1997) Molyneux and Thornton (1992), Molyneux & Thornton (1992), and Bourke (1989) found size has a positive link with profitability. Non-performing

loan is accepted there is a significant impact of non-performing loan as claimed by this research study.

Non-performing loan is significant in ROA, ROE and NIM. (Junkyu Lee and Peter Rosenkranz, (2014) found significant impact on NPL. Farhan et al 2015 explored that exchange rate has a remarkable constructive relationship but GDP growth had insignificant negative relationship with non-performing loans. Exchange rate is insignificant in ROE and significant in ROA and NIM. De Jong et al. (2006) or Hutson and Stevenson (2010) revealed with our results. According to this study liquidity ratio is insignificant in ROE, NIM regression but significant in ROA regression. Munther Al Nimer, Lina Warrad, Rania Al Omari (2011) revealed with our results they found ROA insignificant in their research. Inflation has positively impacted on bank performance according to Mohammad Adamu, Danjuma Maijama, Mohammed Umar (2015). D.Oleka Chioma, Eyisi Adanma & Onyeze Clementina(2014) found inflation has insignificant impact.

In this study inflation has significant impact on bank performance considering return equity and return on assets, but insignificant impact on performance of bank in light of net interest margin. In the research of Diasuke Murakami & Yoshiki Yamagata revealed that gross domestic product has significant impact on bank performance Samy Ben Naceur and Mohamed Goaied (2016) also reveal their results. This study concludes that Bank specific & Macroeconomic variables significantly determine the profitability of banks in Pakistan. Size of the nonperforming loans always cut of the profitability of banks. Increase in liquidity ratio enhances the profitability of banks. Increase in level of macroeconomic variables mostly leads to decrease in profitability in banks. United bank is second highest assets bank. Allied bank is third highest ranked bank in all the selected banks.

5.2 Limitation of the Study

The limitation of this study is applicable because there are number of variables and number of element which affect the bank's performance. But this study focuses on only six factors (bank size, non-performing loans, inflation, liquidity ratio, gross

domestic product and exchange rate) as required. Most Muslim banks are similarly barred from this test.Future studies can use more than these six variables.

Most Muslim banks are similarly barred from this test. This study uses thirteen year data time period from 2006-2018. It can be used more years for further researches. This study focuses on 15 top banks listed on PSX based on capitalization. In later studies Muslim and non-Muslim banks can used.

5.3   Policy Implication

Policy implies on managers of banks, managers should increase the bank size to enhance the productivity of banks. More the bank size is stable banks performance will increase chances of default will automatically decrease. In a bank there should be least non-performing loans, lower the non-performing loans higher the profits. Managers should have control on non-performing loans. Liquidity ratio should increase, as liquidity ratio increase credit worthiness also increase and it enhances the ability to owner check. At the same time access of liquidity is not good for the banks in case of robbery. So there should be a limit of liquidity.

5.4   Future Recommendations

This study provides possible guidelines for future research. First, the research can be added by looking at the bank profitability along with the macroeconomic variables, banks profitability will enhance. For further research the impact of the business cycle on the world can be tested and using the same model.

The time frame for research work, include the thirteen years from 2006 to 2018, this time period can be increased by thirteen years for more accurate results, this study uses annual data of banks it can be use quarterly or semi-annually data for more accurate results. The sample size can also increase this study focus only 15 Banks because of limited time period.

Banks should categorize as Islamic and conventional separately to have more accurate results. During the time period of this research 2006-2018 there was some financial crisis in the country. This study ignores that financial crisis it is recommended for the future researcher to research on bank performance in observation of financial crisis.

Strong research support in the Pakistani context has encouraged new research in this area and could be used in other countries as well.

Bibliography

Abdullah, (2014) M.N., Parvez, K., Ayreen, S.: Bank specific, industry specific and macroeconomic determinants of commercial bank profitability: a case of Bangladesh. World 4(3), 82–96.

Abdul-Razak, A. (2011). Economic and religious significance of the Islamic and conventional pawnbroking in Malaysia: behavioural and perception analysis (Doctoral dissertation, *Durham University*).

Ahmad, A., & Safwan, N. (2011). Testing a model of Islamic banking based on service quality, customer satisfaction and bank performance. *African Journal of Business Management*, 5(5), 1880-1885.

Ahmad, F., & Bashir, T. (2013). Explanatory power of macroeconomic variables as determinants of non-performing loans: Evidence form Pakistan. *World Applied Sciences Journal*, 22(2), 243-255.

Ahmad, A., & Zakariyah, H. (2020, November). A Comparative Performance Analysis of Islamic and Conventional Banking: A Case Study of Pakistan. *In International Conference on Business and Technology*, 18(2), 121-136.

Ali, K., Akhtar, M. F., & Ahmed, H. Z. (2011). Bank-specific and macroeconomic indicators of profitability-empirical evidence from the commercial banks of Pakistan. *International Journal of Business and Social Science*, 2(6), 235-242.

Akbaş, H. E., Aysan, A. F., & Ceyhan, S. P. (2012). Determinants of bank profitability: An investigation on Turkish banking sector. *Öneri Dergisi*, 10(37), 103-110.

Alkassim, F. A. (2005). The profitability of Islamic and conventional banking in the GCC countries: A comparative study. *Journal of Review of Islamic Economics*, 13(1), 5-30.

Akter, R., & Roy, J. K. (2017). The impacts of non-performing loan on profitability: An empirical study on banking sector of Dhaka stock exchange. *International Journal of Economics and Finance*, 9(3), 126-132.

Al Nimer, M., Warrad, L., & Al Omari, R. (2015). The impact of liquidity on Jordanian banks profitability through return on assets. *European Journal of Business and Management*, 7(7), 229-232.

Alfaro, L., Cuñat, A., Fadinger, H., & Liu, Y. (2018). The Real Exchange Rate, Innovation and Productivity: Heterogeneity, Asymmetries and Hysteresis (No. w24633). *National Bureau of Economic Research.*

Alharbi, A. T. (2017). Determinants of Islamic banks' profitability: international evidence. *International Journal of Islamic and Middle Eastern Finance and Management.*

Ali, K., Akhtar, M. F., & Ahmed, H. Z. (2011). Bank-specific and macroeconomic indicators of profitability-empirical evidence from the commercial banks of Pakistan. *International Journal of Business and Social Science*, 2(6), 235-242.

Alkassim, F. A. (2005). The profitability of Islamic and conventional banking in the GCC countries: A comparative study. *Journal of Review of Islamic Economics*, 13(1), 5-30.

Allison, P. D. (2009). Fixed effects regression models. *SAGE publications.*

Alalaya, O. M., & Ahmad, A. (2020). Performance of commercial banks profitability in Jordan (2005–2019). South Asian Research Journal of Business and Management, 2(3), 70-82.

Andrzejuk, K. (2017). Non-Interest Income and Profitability in Private Banking. Evidence from Liechtenstein. *International Journal of Synergy and Research, 6.*

Begenau, J. (2020). Capital requirements, risk choice, and liquidity provision in a business-cycle model. *Journal of Financial Economics*, 136(2), 355-378.

Ben Naceur, S., & Goaied, M. (2008). The determinants of commercial bank interest margin and profitability: evidence from Tunisia. *Frontiers in Finance and Economics*, 5(1), 106-130.

Borio, C., Gambacorta, L., & Hofmann, B. (2017). The influence of monetary policy on bank profitability. *International Finance*, 20(1), 48-63.

Chioma, D. O., Adanma, S. E., & Clementina, N. O. (2014). Empirical Study of the impact of inflation on bank performance: implication for investment decision making in banking industry in Nigeria. *Humanity & Social Sciences Journal*, 9(2), 61-71.

Elgedawy, I. Bahaaeddin Alareeni Allam Hamdan.

Gul, S., Irshad, F., & Zaman, K. (2011). Factors Affecting Bank Profitability in Pakistan. *Romanian Economic Journal*, 14(39). Hamed, W. (2014). Evaluating profitability and efficiency of bank performance in Palestine (Doctoral dissertation, Eastern Mediterranean University (EMU)-Doğu Akdeniz Üniversitesi (DAÜ)).

Hanif, M., Tariq, M., & Tahir, A. (2012). Comparative performance study of conventional and Islamic banking in Pakistan. *International Research Journal of Finance & Economics*, (83).

Ijaz, F., Akmal, A., & Gillani, S. (2015). The determinants of the Pakistan islamic banking industry profitability: Panel evidence. *Islamic Banking and Finance Review*, 1(02).

Jafar, H., Muda, I., Zainal, A., & Yasin, W. (2010). Profit Maximization Theory, Survival-based theory and contingency theory: A review on several underlying research theories of corporate turnaround. Jurnal Ekonom, 13(4).

Kargbo, A. A., Ding, Y., & Kargbo, M. (2016). Financial development, human capital and economic growth: New evidence from Sierra Leone. *Journal of Finance and Bank Management*, 4(1), 49-67.

Khaldun, K. I., & Muda, I. (2014). The influence of profitability and liquidity ratios on the growth of profit of manufacturing companies a study of food and beverages sector companies listed on indonesia stock exchange (period 2010-2012).

Khan, W. A., Shahid, M., Bari, R., Anam, W., Shehzad, N., & Siddique, S. (2014). Impacts of inflationary trends on banks' performance (large banks segment) in Pakistan. *International Journal of Accounting and Financial Reporting*, 4(1), 296.

López-Espinosa, G., Moreno, A., & de Gracia, F. P. (2011). Banks' net interest margin in the 2000s: A macro-accounting international perspective. *Journal of International Money and Finance*, 30(6), 1214-1233.

Mehta, A., & Bhavani, G. (2017). What Determines Banks' Profitability? Evidence from Emerging Markets-the Case of the UAE Banking Sector. *Accounting and Finance Research*, 6(1), 77-88.

Mehta, A., & Bhavani, G. (2017). What Determines Banks' Profitability? Evidence from Emerging Markets-the Case of the UAE Banking Sector. *Accounting and Finance Research*, 6(1), 77-88.

Murakami, D., & Yamagata, Y. (2019). Estimation of gridded population and GDP scenarios with spatially explicit statistical downscaling. *Sustainability*, 11(7), 2106.

Mwenda, B., Ndiege, B. O., & Pastory, D. (2020, August). External Factors Influencing Performance of Listed Firms on Dar es Salaam Stock Exchange. *In Applied Research Conference in Africa* (pp. 284-296). Springer, Cham.

Nolan, B., Roser, M., & Thewissen, S. (2019). GDP per capita versus median household income: What gives rise to the divergence over time and how does this vary across OECD countries?. *Review of Income and Wealth*, 65(3), 465-494.

Nuhiu, A., Hoti, A., & Bektashi, M. (2017). Determinants of commercial banks profitability through analysis of financial performance indicators: evidence from Kosovo. Business: Theory and Practice, 18, 160-170.

Onang'o, o. n. (2017). effect of credit risk management on financial performance of commercial banks listed at the nairobi securities exchange, kenya (doctoral dissertation, kenyatta university).

Panta, B. (2018). Non-performing loans and bank profitability: Study of joint venture banks in Nepal. International Journal of Sciences: Basic and Applied Research (IJSBAR),(2018) Volume, 42, 151-16.

Raharjo, P. G., Hakim, D. B., Manurung, A. H., & Maulana, T. N. (2014). The determinant of commercial banks' interest margin in Indonesia: An analysis of fixed effect panel regression. *International Journal of Economics and Financial Issues*, 4(2), 295-308.

Rashid, A., & Jabeen, S. (2016). Analyzing performance determinants: Conventional versus Islamic banks in Pakistan. *Borsa Istanbul Review*, 16(2), 92-107.

Rosenkranz, P., & Lee, J. (2019). Nonperforming Loans in Asia: Determinants and Macrofinancial Linkages. *Asian Development Bank Economics Working Paper Series*, (574).

Saeed, M. M., Gull, A. A., & Rasheed, M. Y. (2013). Impact of capital structure on banking performance (A case study of Pakistan). *Interdisciplinary Journal of Contemporary Research in Business*, 4(10), 393-403.

Sastrosuwito, S., & Suzuki, Y. (2012). The determinants of post-crisis Indonesian banking system profitability. *Economics and Finance Review*, 1(11), 48-57.

Shah, M. H., & Khan, S. (2017). Factors effecting commercial banks profitability in Pakistan.

Shaha, S., & Chowdhury, L. A. M. (1817). Performance Measurement in Bangladeshi Banks (2016).

Shen, C. H., Chen, Y. K., Kao, L. F., & Yeh, C. Y. (2009). Bank liquidity risk and performance.(pp. 1_37). Working Paper. Department of Finance, *National University of Kaohsiung*.

Shin, H. S. (2018). Bank capital and monetary policy transmission. *The Changing Fortunes of Central Banking*, 80.
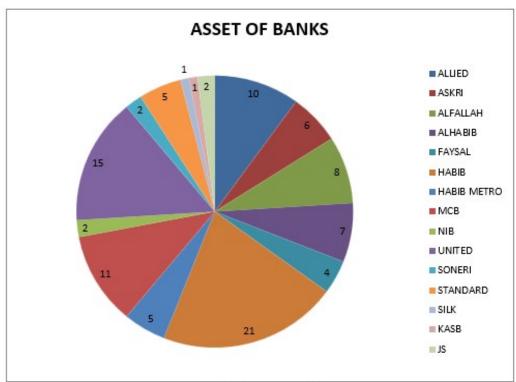
Siddique, M. A., Khaleequzzaman, M., & Ur Rehman, A. (2016). Determinants of Islamic Banking Industry's Profitability in Pakistan for the Period 2004-2012. *Journal of Islamic Business and Management (JIBM)*, Riphah International University Islamabad, Pakistan, 6(1), 41-61.

Šimáková, J. (2017). The impact of exchange rate movements on firm value in visegrad countries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 65(6), 2105-2111.

Sufian, F., & Chong, R. R. (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines. *Asian Academy of Management Journal of Accounting & Finance*, 4(2).

Sun, L., Wu, S., Zhu, Z., & Stephenson, A. (2017). Noninterest income and performance of commercial banking in China. *Scientific Programming*, 2017.

Tabak, B. M., Fazio, D. M., & Cajueiro, D. O. (2011). Profit, cost and scale efficiency for Latin American banks: concentration-performance relationship (No. 244).

Tarawneh, M. (2006). A comparison of financial performance in the banking sector: Some evidence from Omani commercial banks. *International Research Journal of Finance and Economics*, 3(3), 101-112.

Tho'in, M., & Prastiwi, I. E. (2019). An Analysis the Rupiah Exchange Rates Effect Against the American Dollar and Inflation Against the Growth of Islamic Banking Mudharabah Deposits in Indonesia. *International Journal of Islamic Business and Economics (IJIBEC)*, 82-91.

Titko, J., Skvarciany, V., & Jurevičienė, D. (2015). Drivers of bank profitability: Case of Latvia and Lithuania. *Intellectual Economics*, 9(2), 120–129.

Trad, N., Trabelsi, M. A., & Goux, J. F. (2017). Risk and profitability of Islamic banks: A religious deception or an alternative solution?. *European Research on Management and Business Economics*, 23(1), 40-45.

Umar, M., & Sun, G. (2018). Determinants of non-performing loans in Chinese banks. *Journal of Asia Business Studies*.

Umar, M., Maijama'a, D., & Adamu, M. (2014). Conceptual exposition of the effect of inflation on bank performance. *Journal of World Economic Research*, 3(5), 55-59.

Varotto, S., & Zhao, L. (2018). Systemic risk and bank size. *Journal of International Money and Finance*, 82, 45-70.

Verbeek, M. (2008). A guide to modern econometrics. John Wiley & Sons.

Wozniewska, G. (2008). Methods of measuring the efficiency of commercial banks: an example of Polish banks. *Ekonomika*, 84, 81-91.

Wulandari, Y., Musdholifah, M., & Kusairi, S. (2017). The impact of macroeconomic and internal factors on banking distress. *International Journal of Economics and Financial Issues*, 7(3), 429.

Yahya, A. T., Akhtar, A., & Tabash, M. I. (2017). The impact of political instability, macroeconomic and bank-specific factors on the profitability of Islamic banks: an empirical evidence. Investment Management and Financial Innovations, 14(4), 30-39.

Zaman, S. J. J. A. K. (2011). Determinants of bank profitability in Pakistan: Internal factor analysis. *Journal of Yaşar University*, 6(23), 3794.

Appendix-A

Appendix 1. 1 Asset of Banks