

The Impact of Monetary Policy on Banks' Profitability-A Case of Pakistan



By

ATIQ UR REHMAN

05/MBA (1.5)/PIDE/2015

Submitted To

Dr. Abdul Rashid

Department of Business Studies

Pakistan Institute of Development Economics

Islamabad Pakistan

2017

**The Impact of Monetary Policy on Banks' Profitability-A Case of
Pakistan**



A Thesis Presented to
Pakistan Institute of Development Economics, Islamabad
In Fulfillment of the Requirement for the Degree of

**Master
in
Business Administration**

By

Atiq Ur Rehman
PIDE/MBA(1.5)/2015/05

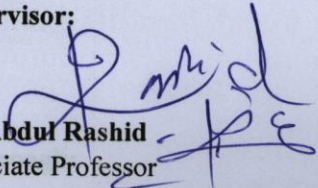
The Impact of Monetary Policy on Bank's Profitability-A Case of
Pakistan

A post graduate thesis submitted to the department of business studies as fulfillment of the
requirement for the award of degree of

Master in Business Administration

Name	Registration Number
Atiq Ur Rehman	PIDE/MBA(1.5)/2015/05

Supervisor:

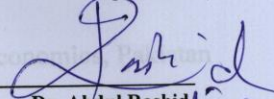

Dr. Abdul Rashid
Associate Professor
International Islamic University, Islamabad

Certificate

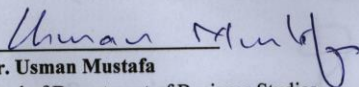
It is certified that **Atiq Ur Rehman** has carried out all the work related to this thesis under my supervision at the department of Business Studies,

Pakistan Institute of Development Economics, Islamabad.

Supervisor:


Dr. Abdul Rashid
Associate Professor
International Islamic University, Islamabad

Submitted Through:


Dr. Usman Mustafa
Head of Department of Business Studies
Pakistan Institute of Development Economics, Islamabad

Final Approval

This thesis Title

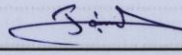
The Impact of Monetary Policy on Banks' Profitability-A Case of Pakistan

By

Atiq Ur Rehman

Has been approved

For the Pakistan Institute of Development Economics, Pakistan

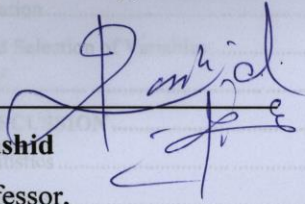
External Supervisor: 

Dr. Muhammad Jamil

Assistant professor

School of Economics,

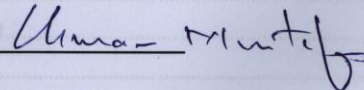
Quaid-i-Azam University, Islamabad

Supervisor 

Dr. Abdul Rashid

Associate professor,

International Islamic University, Islamabad

Head of Department 

Dr. Usman Mustafa

Head of Department of Business Studies

Pakistan Institute of Development Economics

Table of Contents

List of Table.....	i
List of Abbreviations.....	ii
Acknowledgement.....	iii
Abstract.....	iv
Chapter 1	1
INTRODUCTION.....	1
1.1 Research Question.....	4
1.2 Purpose of the study	4
1.3 Objective of the study	4
1.4 Plan of the study.....	5
Chapter 2	6
LITERATURE REVIEW	6
2.1 Theoretical Framework	13
2.2 Hypothesis.....	14
Chapter 3	15
DATA and METHODOLOGY.....	15
3.1 Model specification	15
3.2 Description and Selection of Variables.....	16
Chapter 4	19
RESULTS AND DISCUSSION	19
4.1 Descriptive Statistics	19
4.2 Correlation Analysis.....	21
4.3 Hausman Test	22
4.3.1 Regression Analysis	22
4.3.2 Fixed-effect Model	23
4.3.3 Random-effect Model.....	25
4.3.4 Fixed-effect Model	27
4.3.5 Random-effect Model.....	29
4.4 Classification of Banks	30
Chapter 5	33
CONCLUSION	33

5.1 Policy Implication	34
References.....	36
Appendix.....	42
Appendix 1.....	42
Appendix 2.....	43
Appendix 3.....	44
LIST OF FIGURES.....	1
Role of Bank as Intermediaries.....	1
Theoretical Framework.....	13

List of Tables

Table 1	Explanation of Variables	18
Table 2	Descriptive Statistics	19
Table 3	Correlation Analysis	21
Table 4	ROA(Fixed-effect Model)	23
Table 5	ROA(Random-effect Model)	25
Table 6	ROE(Fixed-effect Model)	27
Table 7	ROE(Random-effect Model)	29
Table 8	Classification of Banks	31

List of Abbreviations

Lr	Lending Interest Rate
Dr	Deposit Interest Rate
IRS	Interest Rate Spread
ROA	Return on Assets
ROE	Return on Equity
S.E	Standard Error
GDP	Gross Domestic Product
D/E ratio	Debt to Equity Ratio
NIM	Net Interest Margin
ROCE	Return on Capital Employed
SBP	State Bank of Pakistan

Acknowledgement

“The hardest steel goes through the hottest furnace.” The same was the case with me. I faced many problems when I started the work on thesis but I am thankful to Allah Almighty for enabling me to get successfully through my responsibilities. Very warm and special thanks to my respected teacher Dr. Abdul Rashid, whose real dedication and devotion kindled in me hope and light. Sir I thank your ability of extracting the very best out of me, for your patience and perseverance, and also for acknowledging the efforts made by me during the whole semester.

Abstract

This paper provides empirical evidence that how monetary policy affect banks' profitability in case of Pakistan. The paper used annual data of the 15 banks including both conventional and Islamic banks covering the period from 2005 to 2015. Fixed-effect and random-effect model are used to provide empirical evidence the impact of monetary policy indicators on banks' profitability. Lending, deposit and interest rate spread as a monetary policy indicators, ROA and ROE as a banks' profitability measures and inflation rates and GDP growth as a macroeconomic indicators were used. Banks specific variables are being used in the research. There is a significant and positive relationship between lending and deposit interest rates and ROA. While insignificant relation between interest rate spread and ROA. Similarly insignificant relation between monetary policy indicators and ROE. It has been observed that when monetary policy is tight, then it creates burden on small banks and aggregate lending has been reduced. The empirical results have found strong evidence that monetary policy has a strong influence on the profitability. The selected macroeconomic variables are found to have a negligible impact on banks' profitability. The study observe that during monetary tightening, aggregate lending of all the bank decreases, which directly decreases the level of investment that affects the growth and output level of the economy. This paper made an attempt to provide a real picture of the monetary policy and its effect on real economy. The investigations of the paper are important for the future researchers as well as for policy makers.

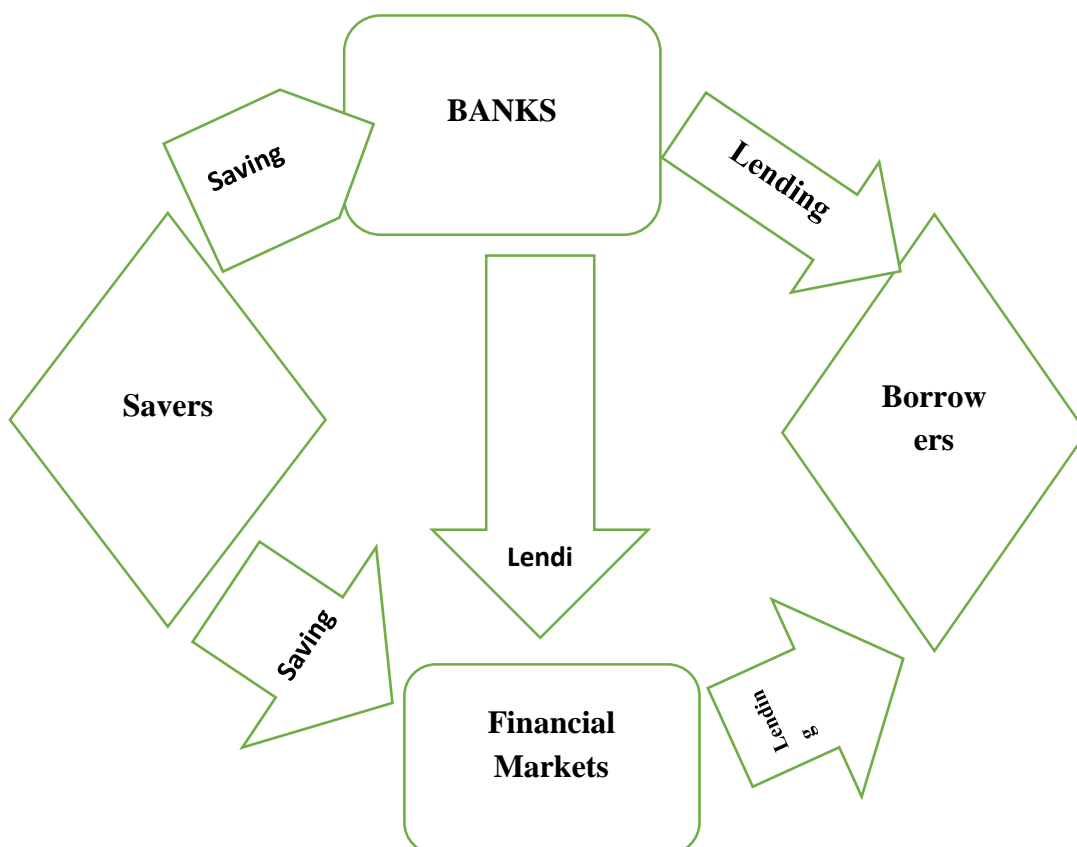
Key Words: monetary policy, banks' profitability, ROA, ROE, interest rate spread, lending rate, deposit rate, gross domestic product, inflation, fixed-effect and random-effect technique

Chapter No. 1

INTRODUCTION

Commercial banks are like a life blood for a country because they produce wealth with different sources. Commercial banks in any country assume a crucial role in the distribution of monetary resources (Ongore, 2013). Banks act as a role of intermediary between the depositors and borrowers in the flow of funds and its crucial role can't be understated. In this new era, banks depend on competitive marketing strategy because the strategy determine their growth and success. As in the era of globalization, the modalities of financial institutions have changed when it is compared to the previous era. These changes are due to the dynamic environment (Bhatti & Hussain, 2010). Beyond these changes in the financial markets developments and regulatory framework, monetary policy can be crucial factors affecting the banks' profitability.

Figure 1. Role of Banks as a Financial Intermediaries



Banks are one of the prime financial intermediaries in the economy that render different type of the services. In Pakistan there are 33 banks operating which include 5 public banks, 5 Islamic banks, 16 private banks, 3 foreign banks, 4 specialized banks (Appendix 1). Commercial banks

as a financial intermediary play a key role in the operation of the most economy. Economic growth of a country is affected by the efficiency of financial intermediation. Economies of the countries that have profitable banking system are able to contribute to the stability of the economy. In contrast commercial banks can result in the systematic crisis.

The banking sector of Pakistan has been continually under the auxiliary changes and advancement stage since autonomy. Commercial banks showed a remarkable growth and also the administration procedure of banking was in row with the international matchless practices. Noticeable changes in the concentration, ownership and structure in the banking sector were brought by the process of merger/consolidation and the privatization of the public banks (State Bank of Pakistan, 2009). The advent of Islamic banks and enlisting of banks with stock exchanges in the year 2002, banks continued to perform satisfactory even in the global financial crisis 2008 and started earning profits.

With the advent of the Islamic banks, the traditional banks are strong rivals of these banks in the well-developed economic markets and create a global competition. In near future the Islamic banks will face a tough competition in the financial markets. This will enable the decision-makers of the organisation to identify the factors that lead to profit. Pakistan banking system occupied main position of Pakistan financial system, and this financial system is based on universal banking framework that by law authorize different kind of activities in financial markets.

Form the past decade, Pakistan's economy is facing one of the serious problem of the inflation. State Bank of Pakistan (SBP) has been using tight monetary policy for the stabilization of the prices. Aggregate lending by the bank decreases when the central bank tighten the monetary policy. The economy is affected by the monetary policy through various angles like interest rate, credit rate and asset price etc. One side of this paper will focus on the inflation how it affects the bank's profitability of both Conventional and Islamic banks? As SBP plays crucial role in promoting the Islamic banking in Pakistan with the Shariah Complaint regulations, so this paper will also analyse the performance of Islamic banks on different indicators.

In a developing country like Pakistan, due to lack of well-developed and deep financial markets as well as weak channel of transmission monetary policy are more challenging and complicated. In developing countries evidence on the effectiveness of monetary policy would enhance general understanding of using monetary policy as key to the macroeconomic stabilization. In the year 2008 crisis and the resulting deep recession highlight the significance

of understanding the main drivers of bank profitability. The financial crisis and following recession increased the focus on using monetary policy to stabilize the economy.

Monetary policy does not set in a vacuum. It is the interest rate which reflects the underlying fundamentals of the economy. More widely, the level of equilibrium real interest rate is quite low during the severe recession. Comparing with the low inflation and low equilibrium; real interest translated into low nominal interest rate.

After the Great Financial Crisis, the link of monetary policy and banks' profitability had gained importance because the economy became sagged. In the developed economies, short-term interest rates had declined to almost zero, while long-term interest rates declined historically to low level. It doesn't mean that the only influence of the monetary policy is interest rate, but it has a major impact on it. It is the Central bank which set the short and long-term rates for achieving the desire objective. The view that prolonged and exceptionally accommodative monetary easing can be counterproductive, as it can set back the necessary restructuring of balance sheets in short run and in the long run, erode reliability of the central banks.

The main objective of the monetary policy is to limit the circulation of paper money to achieve the financial stability and growth in the economy, so it directly affects the profitability of the bank. Sims (1992) in this theory suggested that change in the interest rates and level of spending were caused by the circulation of money. Similarly most orthodox theories were focused on the supply of money (Plosser & king, 1984; Schwartz & Fiedman, 1963). However up to the minute speculation of the monetary policy underlines the role of commercial banks in the policy. In this paper we will also examine how the bank's profitability is affected by a change in the monetary stance.

World-wide, banking is a promptly growing industry. To occupy a better position in the financial system, banks try to increase the overall profitability plus profits. Commercial banks influence the financial system of Pakistan (SBP 2012), as a result their profitability can also be associated with the country progress. This paper will identify the impact of some macroeconomics variables on the commercial bank's profitability. In the US history the financial disturbance of the savings and loans (S&L) industry between 1980 & 1988, in which 1,000 saving and loans associations were failed. The crisis were provoked by the shift in the monetary policy. The adverse effect on banking system started from the asset-liability mismatch of S&Ls, and began fund their lending on competitive markets rates. In short S&L industry badly failed to address the danger of funding long-term with short-term deposits.

1.1 Research Question

For all the stakeholders such as the proprietor, the indebted individuals, the financial specialist, the regulatory authority, bank's administration and autonomous bodies have a prime concern about the profitability of banks. It is because it provides a clear direction to all stakeholders for decision making.

- Whether monetary policy affects banks' profitability?
- How monetary policy affects banks' profitability in different periods?
- Whether small or large banks are more affected by the monetary policy?

1.2 Purpose of the Study

The purpose of the study is to find the effect of monetary policy on banks' profitability in Pakistan with conventional and Islamic banks in focus. This can be justified on the basis that there are limited studies and works on the impact of monetary policy on banks' profitability in Pakistan. The available dissertation are based on different data set and give general insight. Additionally, various researches lacked the consensus on the impact of the monetary policy on banks' profitability and few of them described the effect of macroeconomic variables on bank profitability. There were mixed views on the bank profitability regard to the macroeconomic variables. Some researcher showed that there was insignificant effect on profitability. Due to the said causes, it was very difficult to deduce whether monetary policy affect banks' profitability in Pakistan or not. This research tries to build the indecisive gap on the impact of monetary policy on banks' profitability and the methodological gap of generalization by establishing the impact of monetary policy on banks' profitability in Pakistan with both conventional and Islamic bank in focus.

1.3 Objective of the Research

The main objective of the research is to analyse the impact of monetary policy on commercial banks' profitability in Pakistan: case of conventional and Islamic banks.

- To check the impact of lending interest rates on banks' profitability.
- To investigate the impact of deposit interest rates on banks' profitability.
- To study the impact of interest rate spread on banks' profitability.

1.4 Plan of Study

The remaining paper is organized as follow. Review of the related articles is provided in section 2. Data & Methodology is explained in chapter 3. Section 4 provides the explanation of the results and their interpretations. Section 5 provides the conclusion and policy implications.

Chapter No. 2

LITERATURE REVIEW

There are several studies on the commercial banks profitability of different countries with different types of banks and different sample size. Several studies conducted on effect of monetary policy on bank's profitability, but these studies were country specific. Several studies were carried out to find the effect on profitability of companies had been investigated but they often lack the results. In reality Commercial banks are exposed to both external and internal factors that's why determinants of bank profitability is divided into external and internal factors. Banks internal factors are those which are influenced by the policies and management decision, because it is the management which affects the results due to differences in the policies, objectives and decision of the bank operating results. Various studies specify the profitability measures (dependent variables) as return on assets (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM).

The impact of the monetary policy on bank profitability is an under-researched area. Bernanke and Blinder (1988) proved theoretically and empirically that aggregate lending of the bank had decreased when the authority announced a tight monetary policy. When tight monetary policy had announced then it created worse effects on the economy. Blinder and Bernanke (1992) had investigated that tight monetary policy affected the macroeconomic activities and also raised the external finance premium.

Bernanke and Blinder (1992) used Vector auto regression model. The study investigated that when monetary policy was in contractionary stage, then it tended to reduce the economic activities. Kashyab et al (1993) conducted a research to find the role of loan demand and loan supply by using macroeconomic variables and founded that when the authority tighten the monetary policy, so loan supply decreased while the issuance of commercial paper increased.

Kashyab and Stein (1994) additionally augmented this thought and forced two provisions for the presence of bank loaning channel. First that bank assets report, advances and securities were not impeccable substitute of each other and, on other side of obligations that advances and different source were not immaculate substitute of each other. Kashyab and Stein (1995) studied the impact of lending channel of banks which were small in size. The study analysed

that small banks had simple capital structure which were financed by almost deposits. In addition to that lending was one of the most important channel of small banks.

Peek and Rosengren (1995) investigated that banks which were poorly capitalised had less access to markets for funds, so their lending were more expose to monetary shocks. Gibson (1996) responded that lending interest rates were more responsive to monetary policy. Kashyab and Stein (1997) investigated that banks which had less liquid assets were almost directly affected by the monetary policy.

According to the mixed empirical findings, the relationship between banks' profitability and business cycle was not directly related. Hoggarth *et al* (1998) also studied that real GDP did not explain the variability of bank's profit in the UK, because GDP reflects the worth of all goods and services produced in a stated country. Laker (1999) conducted a survey and founded that bank with high income growth were positively associated with the GDP growth and changes.

Soundness of the banking sector was problematic when there was a negative effect of low interest rate on banks' profitability. Demirguc-kunt and Huizinga (1999) conducted a study and the results implied that bank's profitability is related to macroeconomic variables like interest rate, GDP etc

Kashyab and Stein (2000) suggested that the tightening of the monetary policy results; that banks holding less liquid assets could not protect their loan portfolio. Kishan and Opiela (2000) studied the US-banks from period 1980 -1995 and reported that banks small in size and with less capital were more affected by the monetary policy.

Bashir (2000) investigated the determinants of Islamic banks performance and reflected that taxation had negative and stock market capitalization had positive effect on banks' profitability. Kashyab and stein (2000) studied that when monetary policy was tight, so banks' lending channel had also affected. Those banks which were less liquid could not protect against the loan portfolio.

On overall level, when deposits were affected by the monetary shocks, It directly affected the funds which were not offset with other source of financing. It was the stage when shocks converted into real effects. Naceur & Goaid (2001) studied the Tunisian banks and observed the positive and significant relationship between capital and banks' profitability, but concluded

that the bank-size negatively affected the profitability which revealed that these banks were at a prime position.

Altunas (2002) proved that banks with less capital were more sensitive to policy changes. Kakes & Strum (2002) studied the effect of monetary shocks on lending in Germany and concluded that banks size had played an important role and their lending depended on the monetary policy. The study also investigated that when there were monetary shocks, then small banks' lending declined and large banks had managed their portfolio.

Monetary condition index of inflation for Pakistan had been developed by Qayyum (2002) for the period 1999-2001. Pilloff and Rhoades (2002) examined bank specific variables such as size and reported that size of the bank had positive effect on profitability, and also stated that the operating efficiency also affected the bank-size.

Similarly Staikouras and Wood (2003) checked the performance of the European Banking industry for the years 1994-1998. They concluded that growth of GDP had significant negative impact on ROA by using ordinary least square method. Bashir& Hassan (2003) examined the profitability of Islamic banks of 21 countries and reported that higher loan ratio had negatively impact profitability.

Remoundos and Mamatzakis (2003) indicated no significant link of real interest rate with ROA and ROE by studying 17 Greek commercial banks. Alfaro (2004) conducted a research for period 1990-2002 and concluded that monetary policy affected those banks which were small in size and had less capital.

Staikouras and Wood (2004) for the year 1994-1998 investigated the performance of the European Banking Industry. They used ordinary least square method and founded that interest rate had significant positive effect on ROA. Robert (2004) suggested that profit boosted when GDP had increased. Agha (2005) examined that tightening of monetary policy reduced the investment which decreased the domestic demand in the economy.

GMM estimator approach was used by Athanasoglou *et al* (2005) on Greek banks and indicated a significant positive effect of real interest rate on profitability. Bondt (2005) used the cost of funds approach and investigated the connection between market rates, deposit and lending rates. The study implied that market rate had no significant impact on deposits and lending interest rate. Athanasoglou *et al*, (2005) examined bank specific determinants of banks'

profitability by using the Structure-Conduct-Performance (SCP) hypothesis. The results implied that size had affected the bank's profitability negatively.

Athanasoglou *et al* (2006) used the unbalanced panel dataset of the South Eastern European (SEE) credit institutions and investigated the profitability of bank specific and macroeconomic indicators for the period of 1998-2002. The evaluation outcome indicated that inflation significantly and positively had affected the profitability.

Herwany and Anwar (2006) reviewed the Indonesian banking industry keeping the level of confidence at 1% and suggested significant relation of real interest rate with ROA. Tunay & Silpar (2006) for the period 1988-2004 studied the profitability of Turkish commercial banks and revealed that stock market capitalization had negative impact on profitability measures i.e. ROE and ROA. Micco *et al*, (2007) concluded that there was no correlation between the bank size and ROA, i.e. the coefficient was never statistically significant, but was also positive.

Different opinions existed about the monetary policy whether to announce tight or loose monetary policy to derive the true picture of the economy. Gufa (2008) conducted a research that when tight monetary policy was announced it had affected the credit variables of the banks, which directly affected the macroeconomics activities. Rajan & Diamond (2009) concluded that monetary policy should be kept tight in good times other than based on economic condition existing at that times. The reasons was to minimize the banks' incentives to take on liquidity risk. Hussain (2009) suggested that monetary policy channel had exchange rate which was used by the authority for controlling the up and downs in inflation and output variance in the economy.

Constantinos and Sofoklis (2009) used the panel data on six Greek banks and scrutinized the effects of macroeconomic determinants and bank specific on bank profitability. The significant level was 5% and revealed that Inflation rate had positive, but had small impact on banks' profitability.

Alexiou and Sofoklis (2009) had given the empirical evidence that consumer price inflation and economic growth were positively related to profitability. Flamini *et al* (2009) suggested that inflation rate had significant and positive impact on banks profit by studying the determinants of banks' profitability in Sub-Saharan Africa.

Ramlall (2009) studied 31 Taiwan commercial banks and the study reflected that there were negative impact of real interest rate on profitability. Rehman (2009) concluded that changes in the open market rates had also affect the deposit and lending interest rates. Sayilgan & Yildirim (2009) examined the Turkish banks for the year 2002-2007 by using the monthly data to find a relationship between ROA and ROE. The study revealed that profitability was positively affected by capital adequacy and negatively affected by growing off-balance sheet assets.

To examine the performance of Islamic banks a study had been conducted by Ansari and Rehman (2010). The study implied that on one side liquidity, economic growth and profitability of Islamic banks were far better than the conventional banks, while on the other hand the study showed that management efficiency and earning ability of conventional banks were better than the Islamic banks.

Davydenko (2010) studied the Ukraine banks and founded that log of real assets had a significant direct effect on profitability. Meh & Moran (2010) mentioned that the monetary shocks on banks' profitability was unequivocally positive. Olivera et al (2011) studied that when the level of competition had increased, then lending channel of the monetary policy was weaken.

Akhtar *et al* (2011) studied the practices of risk management of Islamic banks and had shown the significance of networking capital and size. Damena (2011) conducted an empirical study for determining the profitability of the Ethiopian commercial banks and studied 7 prime banks by using 10 years balance sheet data. The study revealed significant positive impact of interest rate, GDP and inflation rate. Jasmine (2011) implied that inflation rate had insignificant on the profitability of the Commercial banks in Malaysia in year 2008.

Ramadan *et al*, (2011) studied the profitability of conventional banks in Jordan by using the panel dataset. The study showed that inflation rate and economic growth had positive insignificant effect on ROA by taking 100 observation of 10 banks for years 2001-2010.

Scott and Arias (2011) analysed that profit was not directly affected by the Gross Domestic Product (GDP) growth in the US banking sectors and give the reason that GDP is an inflation-adjusted measure. Sufian (2011) concluded that there was a negative impact of GDP on Return on Assets (ROA), but on inflation it was positive. Internal and external determinants were used like inflation rate, the results showed that external factors had no influence on banks' profitability whereas the internal factors had influence on the profitability of commercial banks.

Korean commercial banks has been scrutinized by Sufian (2011) during year 1992-2003 and used the linear regression. The outcome showed negative impact of Gross Domestic Product (GDP) on ROA, but had positive impact on inflation.

Saksonova and Solovjova (2011) checked comparative analysis of five largest Latvian commercial banks during the period of economic crisis. The results showed that GDP had positive impact on profits but inflation had negative impact on ROA.

Imad *et al* (2011) examined the bank specific determinants of Islamic banks' profitability in Jordan and reported that bank size had no significant impact on ROA. Alper and Anbar (2011) investigated the Turkish banks returns and confirms that interest rate least effect the banks' assets and equity returns. Saona (2011) for the periods 1995-2007 studied the determinants of profitability of American banks by using GMM system estimator. The results implied that there was a negative relationship between the capital ratio and profitability.

Alper (2011) investigated that non-interest income and bank-size had a positive impact on the banks' profitability but size of the credits portfolio and loans had negative impact on banks' profitability. Macit (2011) examined the commercial banks of Turkey and used ROE & ROA as a measures of profitability with macroeconomic variables, and bank specific variables. The results concluded that bank specific indicators of profitability, the ratio of non-performing loans to total loans had significant, but negative impact on profitability.

Sufian and Kamarudin (2012) conducted a study of 31 commercial banks in Bangladesh for the year 2000-2010. Multiple regression analysis were used for identification of determinants. The outcome showed that there was significant and negative relationship between the economic growth and bank's performance, while there was positive and significant impact on the coefficient of inflation.

Rao and Lakew (2012) used Panel data to study the determinants of profitability for the year 1999-2008 on Ethiopia commercial banks. This study suggested that external factors had statistically insignificant impact on profitability and inflation as well. However it was positively related to the bank's profitability.

There were few studies which focused on the impact of interest rate on bank profitability. Dale (2012) implied that net benefit of prolonged monetary policy might be declining due to its negative side effect. Khan (2012) studied the effect of unexpected changes in monetary policy

on inflation by estimating structure of VAR. the study concluded that unexpected changes had impact on inflation rate.

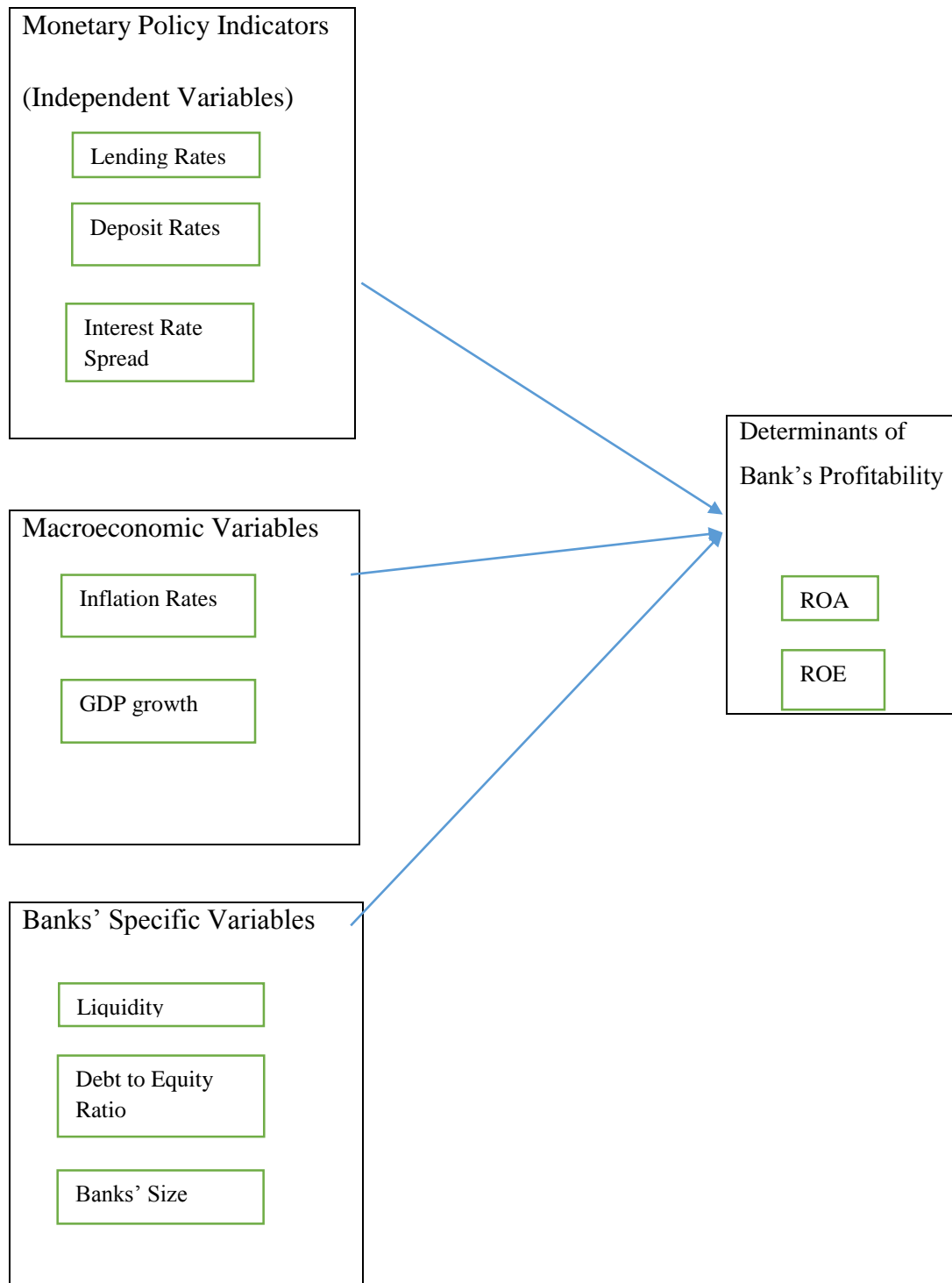
Otuori (2013) examined the impact of exchange rates on the performance of the conventional banks in Kenya to ascertain the link between bank profitability and inflation rate in Kenya. The results showed that inflation rate had significant but negative effect on banks' profitability and the level of confidence was 5%. Nadeem and Kanwal (2013) investigated that there was a strong positive impact of real interest rate on return on assets (ROA) while Athanasoglou *et al*, (2006) revealed that interest rate had a negative impact on banks' profitability.

Riaz (2013) studied the impact of bank specific determinants and macroeconomic variables on the banks profitability for the period of 2006-2010 in Pakistan. ROA is used as independent variable and derived the results that credit risk and interest rate had significant impact on bank's profitability.

Buch *et al* (2014) examined the impact of shock on the representative (median) banks and on individuals banks by using the cross sectional regression. The results implied that bank-level features explained differences in banks' response to macroeconomic shocks.

2.1 Theoretical Framework

Figure 1. Determinants of banks' profitability



(Source: Self Extract)

2.2 Hypothesis

To predict the behaviour of independent variables (IV) on dependent variables (DV), the hypothesis are following.

H₀: There is no significant impact of lending interest rate on banks' profitability

H₁: There is significant impact of lending interest rate and banks' profitability

H₀₂: Deposit Interest rate has no significant impact on banks' profitability

H₂: Deposit interest rate has significant impact on banks' profitability

H₀₃: Interest rate spread has no significant impact on banks' profitability

H₃: Interest rate spread has significant impact on banks' profitability

Chapter No. 3

DATA AND METHODOLOGY

Monetary policy fundamentally operates through its direct effect on the short term interest rate. State Bank of Pakistan controls the short term interest rates very closely through its policy rate. Short term interest rate on large-scale operations in government securities specifically had an impact on their prices. Balance Sheet is a common example.

This section will describe the data and methodology covering the 11 years period from 2005 to 2015, with the sample of 15 banks in Pakistan including both conventional and Islamic banks (Appendix 2). Conventional banks include both public and private banks. Data of the two Islamic banks was not available for the year 2005. They may be non-operational or data may be not retrievable. Banks included in this study have been listed in the appendix 1. Data used in this research was taken from the State Bank of Pakistan (SBP), annual reports of commercial banks and Pakistan Stock Exchange. Lending rates, deposit rates, interest rate spread, GDP growth and inflation rates data was obtained from the Economic Survey of Pakistan (2014-2015) World Bank (WDI, 2015). Fixed and random effects technique was applied for the empirical analysis.

3.1 Model Specification

Empirical analysis has been started by using the following model in accordance with the literature.

$$Y_{it} = a_i + \beta_1 M_t + X_{it}\lambda + Z_{ty} + \mu_t + \varepsilon_{it} \quad (1)$$

Where

Y_{it} = Return on Assets (ROA) and Return on Equity (ROE) for the bank i at time t ;

μ_t = year specific effect;

a_i = Individual distinct effect;

X_{it} = Size, Liquidity and debt to equity ratio are the bank specific variables;

ε_{it} = Error term

M_t = A monetary policy measure proxied by the lending rate, interest rate spread and deposit rate;

Z_t = GDP growth and Inflation are the macroeconomic factors;

i = 1 to 15 banks

t = 2005 to 2015

In this study small and large banks have been included so to show that whether monetary policy effect small banks or large banks. For this reason all bank have been categorized on the basis of total assets. So this model has been extended and introduce a dummy variable so the extension of the model is

$$Y_{it} = a_i + \beta_1 M_t + X_{it} \lambda + Z_t \gamma + \mu_t + D_{it} + \varepsilon_{it} \quad (2)$$

For the bank size a dummy variable is inserted as D_{it}^{banksize} . The data is spilt in two set assigning the 0 for small banks and 1 for large banks. D_{it}^{banksize} take value 1 for i^{th} bank in year t , if assets are greater than the average of the assets of all the banks in year t , and zero otherwise.

3.2 Description and Selection of Variables

In this study Return on Asset (ROA) and Return on Equity (ROE) is used as a dependent variables and monetary policy indicators are used as independent variables. To check the impact of monetary policy as independent variable on the bank profitability as a dependent variables. For measuring the profitability of the banks ROA is used in most of the researches. Financial ratio ROA represent that how gainful a bank in connection to its aggregate resources. It is a best marker to quantify how effectively a bank completely used its resources to produce benefits.

Return on equity (ROE) is the measure of the rate of return on the shareholder's equity of the common shareholders. It indicates an organization's productivity at creating benefits at each unit of shareholders' equity. ROE indicates that how well a firm utilizes its venture assets to create income development. Fraker (2006) reported that ROE in the vicinity of 15% and 20% are viewed as desirable.

Kashyab and Stein, 1994 used the lending rates, interest rate spread and deposit rates as a measure of monetary policy. Deposit rate is a part of interest rate spread (Lending rates – Deposit rates) so it is monetary policy indicators along with lending rates. For checking that the monetary policy measure proxies give the consistent results three indicators has been used in this investigation. Three monetary policy indicators regressed separately.

Alexious and Sofoklis (2009) studied that according to economic conditions prevailing in a country GDP growth rate affect the bank's profitability. The impact may be positive in case of well-developed countries where economies are in boom and on other hand impact is negative in case of developing countries. Demirguc-kunt and Huizinga (1999) demonstrate that fast financial development increment gainfulness for an expensive number of nations. Actually GDP catches up and downswings showing in the business cycles. GDP is used as proxy for the macroeconomic conditions.

According to the literature, inflation rate is used as proxy for the macroeconomic conditions. The impact of inflation on the banks' profitability was discussed in the literature section. By referring to the paper of Perry (1992) suggests that whether the inflation rate is fully anticipated or not but it affect the bank profitability. The impact may be either positive or negative. The impact is positive on the profitability if inflation rate is fully anticipated and the banks generate high profits. In case of unanticipated, the banks result in poor profitability and the impact is negative on the profitability.

Debt to Equity (D/E) ratio is used as bank specific variable in this study. Financial leverage of a bank is measured by the debt to equity (D/E) ratio. The measure of leverage ratio is obtained when total liabilities is divided by shareholders' equity. If the bank take the debt heavily it means that banks is exposed to high level of risks. Financial leverage act as a double edge sword either it may bring high potential returns to bank in investment or high level of potential loss to the bank.

In addition to debt to equity ratio, size and liquidity is also used as bank specific variable in this study. It is seen that bigger banks tackle the economies of scale and have tendency to appreciate a more elevated amounts of benefits. It is seen that there is a positive relationship between bank-size and profits.

Table 1. Explanation of variables

1. Bank size	Log of total bank assets
2. Bank liquidity	Current assets divided by total assets
3. Return on Equity	(Net Income Divided by Total Shareholder Equity)*100
4. Return on Assets	(Net income divided by total assets)*100
5. Debt to Equity ratio	Total debts divided by total equity

Chapter No. 4

RESULTS AND DISCUSSION

This section provides empirical results and their interpretations.

4.1 Descriptive Statistics

Table 4.1: Descriptive Statistics

Variables	Mean	Std. Dev	Min	Max
-----------	------	----------	-----	-----

Lr	12.12	1.96	8.37	14.5
Dr	6.59	1.83	2.5	8.7
Irs	5.54	1.21	2.37	6.8
Roa	1.03	1.45	-4.88	10.09
Roe	44.49	209.73	-32.95	2269.64
Inflation	10.13	4.47	2.5	20.3
GDP Growth	4.15	1.82	1.6	7.7
Liquidity	9.89	99.54	0.02	1272.83
D/E Ratio	33.99	131.47	0.01	1236.51
Size	19.01	1.72	12.16	21.48

Table 4.1 give the results of summary statistics of the dependent and independent variables. It is computed by statistical software and the components are mean, standard deviation, minimum and maximum.

The results show that Debt to Equity ratio has highest Mean (33.99) with deviation from the mean at 131.47. It means that there is variation in the debt to equity (D/E) ratio showing that the banks are using more debts to finance their assets with high dispersion from the average of the sector. Mean value of the liquidity is 9.89 and standard deviation is 99.54. This study also observe an increase of 9.89 in liquidity of banking sector as a high variation of 99.54 in Pakistan. The results show that banks maintain more liquid assets according to their operational nature.

Return on Asset (ROA) has a mean value of 1.03 and standard deviation is 1.45 so there is less diversification in the values of return on asset. Annual increase of 1.03 in return on assets with low variation of 1.45 is showing low returns with less variation. The results show consistency with the finding of Macit (2011). Mean value of the return on equity is 44.09 and its standard deviation is 209.73. Thus shows that there is diversification in the values of return on equity. The results are not consistent with past studies it may be of focusing on both conventional and Islamic banks.

Mean value of the lending rate is 12.12 and its standard deviation is 1.96. It means that there is variation in the monetary policy indicators. It shows annual increase with low variation of 1.96. Similarly mean value of deposit rates and interest rate spread are 6.59 and 5.54 respectively and their standard deviation are 1.83 and 1.21 respectively. It mean that there is variation in the indicators of the monetary policy and affect the profitability of banks.

Mean value of the inflation rates and gross domestic product are 10.13 and 4.15 and their standard deviation are 4.47 and 1.82 respectively. This give an insight that there is diversification in the values of macroeconomic indicators.

Bank-size has a mean value of 19.01 and its standard deviation is 1.72. This indicate that there is diversification in the values of bank size. The results shows consistency with the literature.

4.2 Correlation Analysis

Table 4.2: Correlation of Variables

	Lr	Dr	Irs	roa	roe	infla rates	Gdp	Liquidity	D/E ratio	Size
Lr	1.000									
Dr	0.796	1.000								
Irs	0.000	0.000	1.000							
Roa	0.419	-0.217**	0.067*	1.000						
Roe	0.000	0.005	0.000	0.000	1.000					
Inflation	-0.168**	-0.232**	0.067*	0.033	0.003	0.396				
GDP	-0.001*	0.013	-0.015	0.088**	0.994	0.872	0.855	0.264		
Liquidity	0.658**	0.358	0.521	-0.074*	-0.048*	1.000				
D/E Ratio	0.000	0.000	0.000	0.352	0.545					
Size	-0.843	-0.856	-0.071*	0.214**	0.039	-0.718	1.000			
	0.000	0.000	0.362	0.006	0.618	0.000				
	-0.128**	-0.185**	0.066*	0.122**	-0.068*	-0.017*	0.159	1.000		
	0.103	0.018	0.406	0.122	0.390	0.826	0.042			
	0.037*	0.050	-0.011	0.038	0.974**	-0.025*	0.001	-0.021*	1.000	
	0.642	0.525	0.880	0.632	0.000	0.753	0.991	0.791		
	-0.065*	0.103**	-0.253**	0.437	0.136**	-0.198**	0.023*	0.098**	0.122	1.000
	0.409	0.190	0.001	0.000	0.084	0.011	0.768	0.211	0.121	

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

*Correlation is significant at the level of 0.05 level (2-tailed)

Table 4.2 shows the correlation between the variables. There is a strong positive correlation between the lending and deposit rates. There is a negative correlation between deposit and interest rate spread. Similarly there is a negative correlation between the deposit rates and ROA, GDP and Liquidity and have positive correlation with ROE. There is correlation between the interest rate spread and return on assets, liquidity and inflation rates. There is a negative correlation between interest rate spread and size of the bank, GDP, ROE and debt to equity ratio.

The correlation between ROA and ROE is strong positive correlation and positive correlation between ROA and GDP, liquidity, debt to equity ratio and size. There is a negative correlation between ROA and inflation rates. There is a negative correlation between ROE and inflation rates and liquidity. There is a strong positive correlation between ROE and debt to equity. Similarly negative correlation exist between inflation rates and GDP, liquidity, debt to equity ratio and size.

Results further show that a positive correlation between GDP and liquidity, debt to equity ratio and size. There is a negative correlation exist between liquidity and debt to equity ratio and positive with the bank size. Similarly a positive correlation exist between debt to equity ratio and size.

4.3 Hausman Test

Hausman Specification test is used for the fitness of Fixed-effect or random-effect technique. The results of the Hausman test is like $\text{prob} > \chi^2 = 0.000$. If this type of result is given then we have to use the fixed-effect model otherwise random-effect model will be used. Basically it is the test of the hypothesis for checking the inconsistency of the estimators.

4.3.1 Regression Analysis

To check the impact of monetary policy on banks' profitability with both commercial and Islamic banks in focus. The study run three regression separately. After the controlling of macroeconomic indicators i.e. GDP growth & inflation rates, check the influence of monetary

policy on banks' profitability of conventional and Islamic banks. Estimation has been begun according to the benchmark model. Explanation are given as;

4.3.2 Fixed-effect Model

Table 4. Impact of monetary policy on banks' profitability (ROA) after controlling macroeconomic indicators.

Roa	Model 4a	Model 4b	Model 4c
Lr	0.032 (0.023)**	- -	- -
Dr	- -	-0.134 (0.002)**	- -
Irs	- -	- -	0.117 (0.388)
Inflation	0.128 (0.000)***	0.106 (0.017)**	0.104 (0.014)**
GDP growth	0.442 (0.000)***	0.261 (0.162)	0.380 (0.000)***
Liquidity	-0.152 (0.277)	-0.190 (0.192)	-0.190 (0.187)
D/E ratio	-0.000 (0.845)	-0.000 (0.922)	-0.000 (0.821)
Size	0.394 (0.000)***	0.407 (0.000)***	0.413 (0.000)***
Constant	-9.613 (0.000)***	-7.554 (0.003)***	-9.667 (0.000)***

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In the model 4a of Table 4, the study regress the lending rates on bank specific characteristics with lending rates as monetary policy indicators as well as GDP and inflation rates as macroeconomic indicators. The co-efficient of lending rate of banks is positive and statistically significant. So it means there is major impact of monetary policy on banks' profitability. Similarly inflation rates is positive and is significant statistically. It means that if inflation increases by 1% then the banks' profitability will increase by 0.128%.

GDP growth is also significant and is statistically significant. The estimation suggest that if GDP growth is increased by 1% then the banks' profitability will be increased by 0.442%. Liquidity and Debt to equity ratio appears negative and is statistically insignificant.

Size of the banks appears positive and is statistically significant. Bank size estimated coefficient shows that if the banks' size increases by 1% then gradually the profitability will increase by .394%.

In the model 4b of table 4, the study regress return on equity on bank specific characteristics with deposit rates as a monetary policy indicator and macroeconomic factors as a GDP and Inflation rates. Deposit interest rates appears negatively but statistically significant. Deposit rates estimation suggests that if there is 1% increase in the deposit rates, then definitely banks profitability will decrease by .134%. The negativity shows that monetary policy has an influence on the banks' profitability. Similarly inflation rates appears positively and is significant statistically. It shows that when inflation rates increases by 1% then the profitability will increase by .106% on average.

GDP growth appears positive but statistically insignificant and also liquidity appears negatively but it also statistically insignificant. Debt to equity ratio appears negatively but statistically insignificant. Similarly size of the bank appears positively but statistically significant. The estimated coefficient suggest that if there is 1% increase in bank size then banks' profitability will increase by 40.7% on average.

In the last model 4c of table 4, interest rate spread as a monetary policy indicators regress it on ROA on bank specific characteristics with GDP and inflation rates as a macroeconomic indicators. Interest rate spread coefficient appears positively but statistically insignificant. Inflation rate coefficient appears positively and is statistically significant. The point of

estimation shows that if there is 1% increase in inflation rates then the banks' profitability will increase by 10.4%.

GDP growth appears positively and is statistically significant. It can be deduce that if the GDP growth increases, then the banks' profitability will also increases. Liquidity and debt to equity ratio appears negatively but both statistically insignificant. Similarly coefficient of size appears positive and statistically significant. The resulted estimation suggests that if the size of the bank increases then the profitability will increases.

4.3.3 Random-effect Model

Table 5. Impact of monetary policy indicators on banks' profitability (ROA) after controlling of macroeconomic factors.

Roa	Model 5a	Model 5b	Model 5c
Lr	0.013 (0.026)**	- -	- -
Dr	- -	-0.040 (0.002)***	- -
Irs	- -	- -	0.042 (0.403)
Inflation	0.060 (0.180)	0.055 (0.252)	0.054 (0.246)
GDP growth	0.273 (0.038)**	0.219 (0.235)	0.256 (0.017)**
Liquidity	0.051 (0.752)	0.034 (0.846)	0.028 (0.869)
D/E ratio	0.000 (0.944)	0.000 (0.919)	0.000 (0.954)
Size	0.113 (0.412)	0.124 (0.393)	0.131 (0.371)
Constant	-3.089 (0.370)	-2.578 (0.421)	-3.350 (0.312)

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.
**Represent significant level at 5%.
*** Represent significant level at 1%.

In Model 5a of Table 5, the study regress the return on assets on bank specific characteristics with lending interest rates as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. The coefficient of the lending interest rates is positive and statistically significant. It shows that there is influence of the monetary policy on banks' profitability. If banks' profitability increases by 1% then profitability will increase by .013%. Inflation rates is positive but statistically insignificant.

The coefficient of GDP growth is positive and statistically significant. It shows that if GDP growth increases then the banks' profitability will also increase. Similarly coefficients of liquidity and debt to equity ratio are positive but statistically insignificant. Size of bank is also positive but statistically insignificant.

In Model 5b of Table 5, the study regress the return on assets on bank specific characteristics with deposit interest rates as a monetary policy indicators along with GDP growth and inflation as macroeconomic indicators. The coefficient of the deposit interest rates as monetary policy indicators appears negative and is statistically significant. It means that if the deposit rates increased by 1% then the profitability will decrease by average of .04%.

Inflation and GDP growth appears positive but statistically insignificant. Similarly liquidity and debt to equity ratio also have positive coefficients but both are statistically insignificant. Size of bank also appears positive but statistically insignificant.

In Model 5c of Table 5, the study regress the return on assets on banks' specific characteristics with interest rate spread as a monetary policy indicators along with GDP growth and inflation as macroeconomic indicators. The coefficient of the interest rate spread as monetary policy indicators appears positive but statistically insignificant.

Inflation rates appears positive but statistically insignificant. However the coefficient of GDP growth appears positive and statistically significant. If the GDP growth increases then the profitability will increase. Liquidity appears positive but insignificant statistically. Debt to equity ratio and size also appears positive but both are insignificant.

4.3.4 Fixed-effect Model

Table 6. Impact of monetary policy indicators on banks' profitability (ROE) after controlling of macroeconomic factors.

Roe	Model 6a	Model 6b	Model 6c
Lr	-1.663 (0.994)	- -	- -
Dr	- -	-3.561 (0.872)	- -
Irs	- -	- -	-0.225 (0.854)
Inflation	0.995 (0.489)	0.303 (0.862)	0.983 (0.559)
GDP growth	4.741 (0.295)	2.039 (0.783)	6.219 (0.095)*
Liquidity	-5.501 (0.315)	-6.592 (0.248)	-5.494 (0.329)
D/E ratio	1.547 (0.000)***	1.547 (0.000)***	1.546 (0.000)***
Size	1.613 (0.614)	2.119 (0.515)	1.687 (0.607)
Constant	-36.770 (0.689)	-22.559 (0.818)	-63.067 (-0.404)

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In Model 6a of Table 6, the study regresses the return on equity on bank specific characteristics with lending interest rates as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. The coefficient of lending interest rates appears negative but statistically insignificant at all levels. Inflation and GDP growth appear positive but statistically insignificant.

Liquidity appears negative but statistically insignificant. Debt to equity ratio appears positive but statistically significant. It implies that if Debt to equity ratio increases by 1% then bank profitability will increase by .154% on average. Size of the banks' appears positive but statistically insignificant.

In Model 6b of Table 6, the study regresses the return on equity on bank specific characteristics with deposit interest rates as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. Coefficient of deposit rates appears negative but statistically insignificant. Similarly inflation and GDP growth also appear positive but statistically insignificant.

Liquidity appears negative but statistically insignificant. Coefficient of debt to equity ratio appears positive and is statistically significant. If the debt to equity ratio increases by 1% then the profitability will increase by .154%. Size of the bank also appears positive but statistically insignificant.

In Model 6c of Table 6, the study regresses the return on equity on bank specific characteristics with interest rate spread as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. Interest rate spread as a monetary policy indicator appears negative and statistically insignificant. Inflation appears positive but statistically insignificant.

GDP growth appears positive but significant statistically. It implies that when GDP growth increases, then Banks' profitability will increase. Liquidity appears negative and is statistically insignificant.

Debt to equity (D/E) appears positive and is statistically significant. It shows that if debt to equity ratio increases, then profitability will increase. Size appears positive but statistically insignificant.

4.3.5 Random-effect Model

Table 7. Impact of monetary policy indicators on banks' profitability (ROE) after controlling of macroeconomic factors.

Roe	Model 7a	Model 7b	Model 7c
Lr	-2.011 (0.994)	- -	- -
Dr	- -	-2.484 (0.784)	- -
Irs	- -	- -	-1.535 (0.825)
Inflation	-0.079 (0.965)	-0.403 (0.836)	0.106 (0.955)
GDP growth	2.087 (0.692)	1.335 (0.858)	4.112 (0.339)
Liquidity	-3.127 (0.633)	-4.520 (0.524)	-2.488 (0.722)
D/E ratio	1.550 (0.000)***	1.550 (0.000)***	1.550 (0.000)***
Size	-3.313 (0.551)	-2.133 (0.716)	-3.723 (0.531)
Constant	77.717 (0.577)	56.669 (0.662)	58.024 (0.665)

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In Model 7a of Table 7, the study regresses the return on equity on bank specific characteristics with lending interest rates as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. Lending rates as a monetary policy indicator appears negative but statistically insignificant. Similarly, inflation also appears negative and is statistically insignificant.

GDP growth appears positive and is statistically insignificant. Liquidity appears negative but statistically insignificant. Debt to equity ratio appears positive and is statistically significant. The estimation suggests that if the debt to equity ratio increases by 1% then the profitability will increase by .155% on average. Size appears negative and is statistically insignificant.

In Model 7b of Table 7, the study regresses the return on equity on bank specific characteristics with deposit interest rates as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. The coefficient of the deposit interest rate appears negative and is statistically insignificant. Inflation also appears negative and is statistically insignificant. GDP growth appears positive but statistically insignificant.

Liquidity appears negative and statistically insignificant. Debt to equity ratio appears positive and is statistically significant. It implies that the debt to equity ratio has an influence on monetary policy. Size of the bank appears negative and is statistically insignificant.

In Model 7c of Table 7, the study regresses the return on equity on bank specific characteristics with interest rate spread as a monetary policy indicator along with GDP and inflation as macroeconomic indicators. Interest rate spread appears negative and is statistically insignificant. Similarly, inflation and GDP growth appear positive but statistically insignificant. Liquidity also appears negative and is statistically insignificant.

Debt to equity ratio appears positive and statistically significant. It suggests that monetary policy has a significant impact on the debt to equity ratio. Size appears negative and is statistically insignificant.

4.4 Classification of banks

Now model has been extended and banks have been classified as small and large banks. Banks were classified on the basis of their assets. In this study 15 banks were taken and have 165 observations. In which a dummy variable (D_{it}^{banksize}) has been included. D_1 is use for the large banks and D_0 for small banks.

Table 8. Impact of monetary policy on banks' profitability after categorizibg banks as small and large banks.

Roa	Model 8a	Model 8b	Model 8c
Lr	-1.897 (0.004)***	- -	- -
Lr * D_{it}^{banksize}	0.098 (0.003)***	- -	- -
Dr	- -	-2.067 (0.002)***	- -
Dr* D_{it}^{banksize}	- -	0.101 (0.003)***	- -
Irs	- -	- -	-0.030 (0.977)
Ira* D_{it}^{banksize}	- -	- -	0.008 (0.873)
Inflation	0.139 (0.000)***	0.120 (0.009)**	0.118 (0.008)***
GDP growth	0.412	0.259	0.417

	(0.001)***	(0.184)	(0.000)***
Liquidity	-0.296	-0.305	-0.238
	(0.032)**	(0.030)**	(0.089)*
D/E ratio	-0.000	-0.000	-0.000
	(0.620)	(0.615)	(0.631)
Size	-0.725	-0.182	0.434
	(0.071)*	(0.431)	(0.159)
Constant	-12.738	-3.779	-10.306
	(0.123)	(0.439)	(0.089)*

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In Model 8a of Table 8, Result after the categorization of banks as small and large. The connection of the dummy and lending interest rate appears positive and significant statistically. This indicate that impact of monetary policy is weaker on large banks. The coefficient of lending interest rates is negative and is statistically significant. As it is negative so it shows that when the monetary policy announce tight, then the small banks are more affected and reduce their lending. So it directly affect the profitability of banks and small banks profitability will be decreases.

In model 8b of Table 8, deposit interest rate as a monetary policy indicator interact with dummy. The result shows that coefficient is negative and is statistically significant. The coefficient shows that monetary policy tightening will create burden on small banks as compared to large banks. In case of small banks, profitability will go to minimum level. In tightening large banks can finance from external finances to control the impact of monetary policy.

In Model 8c of Table 8, interest rate spread as a monetary policy indicator interact with the dummy. The coefficient shows that when monetary policy is tight, then the large are in efficient position to neutralize the impact of monetary policy and the profitability of banks decreases.

Chapter No. 5

CONCLUSION

There are various factors which affect the profitability of banks. Monetary policy is one of the tool which regulate the banking sectors. The review is contributing to the past studies. When the monetary policy is tight then the small banks exert more pressure than large banks because small banks have to survive. Actually lending of the small banks will be reduced to maximum level. The research covers the period from 2005-2015. For statistical analysis, fixed-effect and random-effect technique has been used. The research use lending interest rate, deposit interest rate and interest rate spread as independent variables as well as monetary policy indicators. GDP growth and inflation are used as macroeconomic indicators and profitability as a dependent variables. The results show that there is significant influence of monetary policy on profitability of banks. There is an inverse relation between them. It also provides evidence that large banks are not affected too much on change of monetary policy. However small banks are affected too much and ultimate the lending of the banks reduces.

From the results, it is derived that lending interest rate has significant impact on the banks' profitability in case of ROA. On the other hand, lending interest rate has no significant impact on the profitability in case of ROE. Similarly deposit interest rate has significant impact on the profitability in case of ROA while in case of ROE, the impact is almost insignificant. The hypothesis H_1 cannot be rejected because lending rates has a significant impact on banks' profitability. So the fixed-effect model is appropriate. If lending of the bank is increasing, then the profitability will be increasing. Interest rate spread has no significant impact on profitability both in case of ROA and ROE.

Hypothesis H_2 cannot be rejected so fixed-effect model is appropriate. The monetary policy indicator has significant impact on the profitability. Similarly interest rate spread has no significant impact on profitability. Hypothesis H_{03} has no significant impact on profitability. So the null hypothesis is accepted.

Macroeconomic variables have been considered in the study. In this study, the impact have been positive. GDP growth has positive impact on the profitability of banks in both cases ROA and ROE. When the GDP growth is increasing, it means that the economy of the country is improving.

Size of the bank also plays a crucial role in the profitability. Bank size has positive impact on the banks' profitability in case of ROA. Banks large in size has greater profitability. While in

case of ROE as a profitability indicators size has a negative impact on the profitability. It also provides a space for the researchers.

Liquidity of banks also has important role in profitability. If banks have more cash in hand, they have the opportunity to invest it. The study also investigates that when liquidity of banks' increases, then profitability of banks are parallel to increase.

After the classification of banks, small bank has been more affected by the monetary policy whereas large bank almost neutralize the impact of monetary policy. When monetary policy is tight, then small banks decrease their lending in order to fulfil the requirements of the central bank. Similarly in tightening deposit interest rate also impact the profitability. In the study, lending interest rate has a significant impact on profitability. However, interest rate spread has no significant impact on profitability as observed. It create a space for the future.

Debt to equity ratio has been estimated in the study. The impact of debt to equity on profitability is almost negative. When the debt to equity ratio increases, then the profitability decreases. When monetary policy is tight, banks have to maintain ratio according to the guideline of the central bank. So banks have to follow the guideline, then their banks have to borrow so their obligation increases which directly affect the profitability.

5.1 Policy Implication

For the implementation of the monetary policy, this study will play a productive role. Monetary policy plays a key role in the economic activities because most of the economic activities are depend on it. Firstly and foremost, when the monetary policy is stable then banks are not affected. Small banks are more affected by the monetary policy because they have to compete with others. It has been seen that when banks do not survive then often merger and acquisition take place. So any change in monetary policy indicators can affect the banks' profitability and may directly affect the economic activity.

Interest rate should be stable and this will directly stabilize the profitability of banks. As banks are the direct target of the monetary policy. The monetary policy variables are very sensitive to the banks' profitability. The policy should be announced in such a way that it create a soft and flexible interest rate environment. When banks are profitable, then economic activities will take place like investment opportunities. So it is a circle which are affected by monetary policy.

Macroeconomic variables are also play a vital role. The authority has to achieve the target. When the monetary policy is in the formulation stage, the authority also has to focus the effect of macroeconomic variables. When GDP growth is increasing, it means the economy is on the

right path. So the economic activities are taking place and this will reduce the level of unemployment.

References

- Agha, A. I., Ahmed, N., Mubarik, Y. A., & Shah, H. (2005). Transmission mechanism of Monetary Policy in Pakistan. *SBP-Research Bulletin*, 1(1), 1-23.
- Alfaro, L. (2004). Capital controls: a political economy approach. *Review of International Economics*, 12(4), 571-590.
- Athanasoglou, P. P., Brissimis, S. N., and Delis, M. D. (2005). Bank-Specific, Industry-Specific, and Macroeconomic Determinants of Bank Profitability. *Bank of Greece working paper* (25). Retrieved from <http://www.mpra.ub.uni-muenchen.de/32026/>
- Athanasoglou, P. P., Delis, M. D., & Staikouras, C. K. (2006). Determinants of Bank Profitability in the South Eastern European Region. *Journal of Financial Decision Making*, 2(3), 1-17.
- Alexiou, C., & Sofoklis, V. (2009). Determinants of bank profitability: Evidence from the Greek banking sector. *Economics Annals*, LI V No. 182, 93-118
- Alper, D., & Anbar, A. (2011). Bank specific and macroeconomic determinants of commercial bank profitability: Empirical evidence from Turkey, *Business and Economics Research Journal*, 2(2), 139-152.
- Akhtar, M. F., Ali, K., & Sadaqat, S. (2011). Liquidity risk management: A comparative study between of conventional and Islamic banks of Pakistan. *Interdisciplinary Journal of Research in Business*, 1(1), 35-44.
- Alper, K., (2011). An empirical study on liquidity and bank lending. *Central bank of the Republic of Turkey, Working Paper*, 4.
- Ansari, S., & Rehman, A. (2011). Financial performance of Islamic and Conventional banks in Pakistan: A comparative study. Paper presented in *8th International Conference on Islamic Economics and Finance, Doha-Qatar*, Dec 18-20.
- Atlunbas, Y., Gambacorta, L., and Ibanez, M. (2014). Does Monetary policy affect bank risk?, *Bank for International Settlements, International Journal of Central Banking*, 10(1), 95-135.
- Bernanke, B. S., & Blinder, A. S. (1988). Is it Money or Credit, or both or neither? Credit, Money and Aggregate Demand. *American Economic Review*, 78(2), 435-449.

Bernanke, B. S., & Blinder, A. S. (1992). The federal funds rate and the channel of monetary transmission. *The American Economic Review*, 82(4), 901-921.

Bashir, A. (2000). Assessing the Performance of Islamic Banks: Some Evidence from the Middle East, Paper Presented at the ERF 8th meeting in Jordan.

Bashir, A. & Hassan, M. (2003). Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East. *Islamic Economic Studies*, 11(1), 32-57.

Bondt, D. G., (2008). Banks and monetary transmission in Europe: Empirical evidence. *BNL Quarterly Review*, 52(209), 149-168.

Borio, C. (2014). Monetary policy and financial stability: What role in prevention and Recovery?, *Monetary and Economic Department, Bank for International Settlements*, Working Paper, No 440.

Demirguc-Kunt, A., and Huizinga, H. (1999): "Determinants of commercial bank interest margins and profitability: some international evidence", *The World Bank Economic Review*, 13(2), 379-408.

Dale, S., (2011). Productivity and monetary policy, Speech at the South Tyneside manufacturing forum. Available at <http://www.bankofengland.co.uk/publications/documents/speeches/2011/speech519.pdf>

Damena, B. H. (2011). Determinants of Commercial banks profitability: An empirical study on Ethiopian Commercial banks. *Addis Ababa University, Department of Accounting and Finance*.

Davydenko, A. (2011). Determinants of Bank Profitability in Ukraine. *Undergraduate Economic Review*, 7(1).

Fraker, G. T. (2006). Using economic value added to measure and improve bank performance. *RMA-Arizona Chapter*, 1-10. Retrieved from <http://www.rmaaz.org/pictures/measuringbankperformance.pdf>

Flamini, C., Valentina, C., McDonald, G., & Liliana, S., (2009). The determinants of commercial bank profitability in Sub-Saharan Africa. *IMF Working Papers*.

Gibson, M., (1996). The bank lending channel of monetary policy transmission: Evidence from a model of bank behaviour that incorporates long-term customer relationship. *Federal Reserve Board, Working Paper*.

- Gufa, A., (2008). Comparing bank lending channel in Pakistan and India. *University of British Columbia working paper*, 9281.
- Hoggarth, G., Milne, A., & Wood, G. (1998). Financial innovation and financial stability: Evidence from Germany and UK. *Financial Stability Review, Bank of England*.
- Herwany, A., & Anwar, M., (2006). The Determinants of successful bank Profitability in Indonesia: Empirical study for provincial government's banks and private non-foreign banks. Retrieved from <http://ssrn.com/abstract=1670707>
- Hussain, K. (2009). Monetary Policy Channels of Pakistan and their Impact on real GDP and Inflation. *Cent Int Dev Grad Stud Working paper*, 41.
- Hussain, H and Bhatti, G.A, (2010). Evidence on Structure Conduct Performance Hypothesis in Pakistani Commercial Banks, *International Journal of Business and Management*, 5(9), 174-187
- Imad, R. Z., Qais, K. A., & Thair, K. A. (2011). Determinants of bank Profitability: Evidence from Jordan. *International Journal of Academic Research*, 3(4), 180-191.
- Jasmine, E., (2008). An empirical analysis of commercial banks' profitability determinants in Malaysia after the 2008 financial crisis. *Journal of Banking & Finance*.
- Kashyab, A. K., Wilcox, W., & Stein, J. C. (1993). Monetary policy and credit condition: Evidence from the composition if external finance. *American Economic Review*, 83(4), 78-98.
- Kashyab, k., and Stein, C., (1994). "Monetary policy and bank lending", *National bureau of Economic Research*, (221-261).
- Kashyab, A. K., & Stein, J. C. (1995). The impact of monetary policy on bank balance sheets. Paper presented at *The Carnegie-Rochester Conference Series on Public Policy*.
- Kashyab, A. K., & Stein, J. C. (1997). The role of banks in monetary policy: A survey with implications for the European monetary union. *Economic Perspective-Federal Reserve Bank of Chicago*, 21, 2-18.
- Kashyab, A. K., & Stein, J. C. (2000). What do a million observations on banks say about the transmission of monetary policy? *American Economic Review*, 93(3), 407-428. <http://dx.doi.org/10.1257/aer.90.3.407>

- Kishan, R. P., & Opiela, T. P. (2000). Bank size, Bank Capital and the Bank Lending Channel, *Journal of Money, Credit and Banking*, 32(1), 121-141.
- Kakes, J., & Strum, J-E. (2002). Monetary policy and bank lending: evidence from German banking group. *Journal of Banking and Finance*, 26(11), 2077-2099.
- Khan, A. (2012). Economic and educational issue of Pakistan. Retrieved from blogspot: <http://ahsankhaneco.blogspot.com/2012/04/role-of-commercial-banks-in-economic.html>
- Kanwal, S., & Nadeem, M. (2013). The impact of macroeconomic variables on the profitability of listed commercial banks in Pakistan. *European journal of business and social sciences*, 2(9), 186-201.
- Laker, J. (1999). Monitoring financial system stability. *Reserve Bank of Australian Bulletin*, October, 1-13.
- Micco, A., Panizza, U., Yanez, M., (2007). Bank ownership and performance? Does politics matter? *Journal of Banking and Finance*, 31(1), 219-241.
- Meh, C., & Moran, K. (2010). The role of bank capital in the propagation of shocks. *Journal of Economics Dynamics and Control*, 34, 555-76.
- Macit, F., (2011). "Who responds more to monetary policy, conventional banks or Participation banks?", *Journal of economics, finance and administrative science*, 17(33).
- Naceur, S. B., & Goaid, M. (2001). The determinants of Tunisian deposit. *Applied Financial Economics*, 11(3), 317-319.
- Olivero, M. P., Li, Y. & Jeon, B. N. (2011). Competition in the Banking and the lending channel; Evidence from bank level data in Asia and Latin America. *Journal of Banking and Finance*, 35, 560-571.
- Ongore, v., (2013). "Determinants of financial performance of commercial banks in Kenya", *International journal of economics and financial issues*, 3(1).
- Plosser, I., & King, R. C. (1984). The behaviour of money, credit and prices in a real business cycle. *National Bureau of Economic Research Cambridge*, 74(3), 363-380.
- Perry, P. (1992). Do banks gain or loss from inflation? *Journal of Retail Banking*, 14(2), 30.
- Peek, J., & Rosengren, E. S. (1995). Bank lending and transmission of monetary policy. *Federal Reserve Bank of Boston Conference*, 39, 47-68.

- Pilloff, S. J., & Rhoades, S. A. (2002). Structure and Profitability in the banking markets. *Review of Industrial Organisation*, 20, 81-98.
- Remoundos, P. C., & Mamatzakis, E.C. (2003). Determinants of Greek Commercial Banks Profitability, 1989-2000. 53(1), 85-94.
- Robert, A. (2004). Pricing the commonality across alternative measure of liquidity. *Journal of Financial Economics*, 87, 45-72.
- Rajan, R., & Diamond, D. (2009). Illiquid banks' financial stability and interest rate policy. *Journal of Political Economy*, 120(6), 552-591.
- Ramlall, I. (2009). Bank-Specific, industry-specific and macroeconomic determinants of profitability in Taiwanese banking system: under panel data estimation. *International Research Journal of Finance and Economics*. 4(34), 160-167.
- Rehman, Ur. H. (2009). Interest rate pass-through and banking market integration in ASEAN: A cross country comparison. *Journal of Performance Management*, 23(1), 23-49.
- Ramadan, I. Z., Kilani, Q. A., & Kaddumi, T. A. (2011). Determinants of bank profitability; Evidence from Jordan. *International journal of Academic Research*, 3(4), 76-89.
- Roa, K. R. M., & Lakew, T. B. (2012). Determinants of Profitability of commercial banks in a developing country; Evidence from Ethiopia. *International Journal of Accounting and Financial Management Research*, 2(3), 1-20.
- Riaz, M. W. (2013). Affect of financial leverage on firm performance: Empirical evidence from Karachi Stock Exchange. *Shaheed Benazir Bhutto University Sheringal*.
- Sims, C. A., (1992). Macroeconomic and reality. *Econometrica*, 48(1), 1-48.
- Staikouras, C., & Wood, G. (2003). The determinants of bank profitability in Europe. *Paper presented at the European Applied Business Research Conference*.
- Staikouras, C., & Wood, G. (2004). The determinants of bank profitability in Europe. *Paper presented at the European Applied Business Research Conference, Venice, Italy, 9-13 June*.
- Sayilgan, G., & Yildirim, O. (2009). Determinants of profitability in Turkish banking sector: 2002-2007. *International Research Journal of Finance and Economics*, 28, 207-213.
- SBP (2009). State Bank of Pakistan, Banking Sectors Supervision in Pakistan. Available online at: <http://www.sbp.org.pk/about/ordinance/supervision.html>

- Saona, P. H., (2011). Determinants of the profitability of the US banking industry. *International Journal of Business and Social Sciences*, 2(22), 255-269.
- Scott, J. W., & Arias, J.C. (2011). Banking profitability determinants. *Business Intelligence Journal*, 4(2), 209-230.
- Saksonova, S., & Solovjova, I., (2011). Analysis of the Quality and Profitability of Asset in the Banking System and the Impact of Macroeconomic Factors on its Stability-Case of Latvia. *International Conference on Applied economics*, (pp. 537-548).
- Sufian, F. (2011). Profitability of the Korean banking sector: Panel evidence on bank-specific and macroeconomic determinants. *Journal of Economics and Management*, 7(1), 43-72.
- Sufian, F., & Kamarudin, F. (2012). Bank-specific and macroeconomic determinants of profitability of Bangladesh's commercial banks. *Bangladesh Development Studies*, 35(4), 196-215.
- SBP (2012). Retrieved from State Bank of Pakistan: <http://www.sbp.org.pk/about/ordinance/supervision/htm>.
- Tunay, k. B., & Silpar, M. A., (2006). Performance analysis based on profitability I Turkish banking sector-1. *Bank association of Turkey, Research paper No: 2006-1*.
- Qayyam, A. (2002). Monetary condition index: A composite measure of monetary policy in Pakistan. *Pakistan development Review*, 4(41), 551-556.

APPENDIX 1

Schedule Banks in Pakistan

Sr. No	Banks	Sr. No	Banks
A)	Public Sector Banks	D)	Specialized Banks
1.	National Bank of Pakistan	1.	SME Bank Ltd.
2.	The Bank Of Khyber	2.	Industrial Development Bank Ltd
3.	The Bank of Punjab	3.	The Punjab Provincial Cooperative Bank Ltd
4.	Sindh Bank Ltd.	4.	Zarai Taraqiati Bank Ltd.
5.	First Women Bank Ltd.	E)	Foreign Banks
B)	Domestic Private Banks	1.	Deutsche Bank AG
1.	Allied Bank Ltd.	2.	Industrial & Commercial Bank of China
2.	Askari Bank Ltd.	3.	The Bank of Tokyo-Mitsubishi UFJ Ltd.
3.	Bank Al Falah Ltd.		
4.	Bank Al Habib Ltd.		
5.	Fasyal Bank Ltd.		
6.	Habib Bank Ltd.		
7.	Habib Metropolitan Bank Ltd.		
8.	JS Bank Ltd.		
9.	MCB Bank Ltd.		
10.	NIB Bank Ltd.		
11.	Samba Bank Ltd.		
12.	Silk Bank Ltd.		

13.	Soneri Bank Ltd.		
14.	Standard Chartered Bank (Pak) Ltd.		
15.	Summit Bank Ltd.		
16.	United Bank Ltd.		
C)	Islamic Banks		
1.	Al Baraka Bank (Pak) Ltd.		
2.	Bank Islami Pak Ltd.		
3.	Burj Bank Ltd.		
4.	Dubai Islami Bank Pak Ltd		
5.	Meezan Bank Ltd.		

Appendix 2

Banks Included in Research

Sr. No	Banks
1	Allied Bank Ltd.
2	Askari Bank Ltd
3	Bank Al Habib Ltd
4	Bank Al Falah Ltd
5	Habib Metropolitan Bank Ltd
6	Habib Bank Ltd
7	MCB Bank Ltd
8	NBP (National Bank of Pakistan)
9	UBL (United Bank Limited)
10	Standard Chartered
11	Meezan Bank Ltd
12	Bank Islami Pak Ltd
13	Al Baraqa Bank
14	Burj Bank
15	Dubai Islamic Bank

Appendix 3

Ordinary Least Square Method (OLS)

Table 1. Impact of monetary policy indicators on banks' profitability (ROA) after controlling of macroeconomic factors.

Roa	Model 1a	Model 1b	Model 1c
Lr	0.038 (0.032)**	- -	- -
Dr	- -	-0.151 (0.003)***	- -
Irs	- -	- -	0.134 (0.396)
Infla rates	0.148 (0.000)***	0.120 (0.010)**	0.118 (0.008)***
GDP	0.494 (0.000)***	0.283 (0.158)	0.415 (0.000)***
Liquidity	-0.205 (0.136)	-0.239 (0.091)*	-0.237 (0.089)*
D/E ratio	-0.000 (0.649)	-0.000 (0.724)	-0.000 (0.627)
Size	0.470 (0.000)***	0.477 (0.000)***	0.481 (0.000)***
Constant	-11.430	-8.891	-11.236

	(0.000)***	(0.000)***	(0.000)***
--	------------	------------	------------

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.
 **Represent significant level at 5%.
 *** Represent significant level at 1%.

In Model 1a of Table 1, I regress the return on assets on bank specific characteristics with lending interest rates as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of lending interest rates as monetary policy indicators appears positive and is statistically significant. The estimation suggests that lending interest rates has significant influence on the profitability.

Inflation appears positive and is statistically significant. It implies that by increasing 1% inflation, then the banks' profitability will increase by 14.8% on average. Similarly GDP growth also appears positive and is statistically significant. It can be derive that when GDP growth is increases then the banks' profitability will also be increasing.

Liquidity and debt to equity ratio appears negative but statistically insignificant. Size appears positive and is statistically significant. The estimation suggests that if the bank size increases then the banks' profitability will also be increases.

In Model 1b of Table 1, I regress the return on equity on bank specific characteristics with deposit interest rates as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of the deposit rates appears negative but statistically significant. It suggest that if deposit rates as a monetary policy indicators increases by 1%, then profitability of banks will increase by 15.1% on average. Similarly inflation appears positive and is statistically significant. It implies that if inflation increases then the profitability of banks also increases.

GDP growth appears positive but insignificant statistically. Coefficient of liquidity appears negative but statistically significant. The estimation suggest that if liquidity increases by 1% then profitability of banks by 0.12.

Debt to equity ratio appears negative but statistically insignificant. Similarly size appears positive and is statistically significant. It implies that if the size increases then profitability increases.

In Model 1c of Table 1, I regress the return on assets on bank specific characteristics with interest rate spread as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Interest rate spread as a monetary policy indicators appears positive but statistically insignificant. Inflation appears positive and statistically significant. The point estimation implies that if inflation increases by 1%, then profitability increase by 0.118

GDP growth appears positive and is statistically significant. The estimation implies that if GDP growth increases then profitability of banks will also be increases. Liquidity appears negative but statistically significant. It means that if liquidity is increase by 1%, then the profitability will increase by 0.23.

Debt to equity ratio appears negative but insignificant statistically. Size appears positive but statistically significant. It suggest that if size is increased by 1% then profitability will be increased by 0.481.

Table 2. Impact of monetary policy indicators on banks' profitability (ROA) after controlling of macroeconomic factors.

Roa	Model 2a	Model 2b	Model 2c
-----	----------	----------	----------

Lr	0.037 (0.059)*	- -	- -
Dr	- -	-0.151 (0.034)**	- -
Irs	- -	- -	0.134 (0.322)
Infla rates	0.147 (0.000)***	0.120 (0.010)***	0.118 (0.010)***
GDP	0.493 (0.000)***	0.283 (0.224)	0.415 (0.004)***
Liquidity	-0.205 (0.199)	-0.239 (0.162)	-0.237 (0.168)
D/E ratio	-0.000 (0.192)	-0.000 (0.284)	-0.000 (0.142)
Size	0.471 (0.000)***	-8.891 (0.000)***	0.481 (0.000)***
Constant	-11.430 (0.000)***	-8.891 (0.000)***	-11.236 (0.000)***

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In Model 8a of Table 8, I regress the return on assets on bank specific characteristics with lending interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Lending rates as a monetary policy indicators appears positive and is statistically significant. The estimation implies that if there is 1% increase in lending rates then profitability will increase by 0.037.

Coefficient of inflation appears positive and is statistically significant. It suggests that if inflation increases, then the profitability of banks will increase by 0.147. GDP growth appears positive and is statistically significant. GDP growth has a positive effect on the profitability of banks. Liquidity appears negative and insignificant statistically.

Coefficient of debt to equity ratio appears negative and is statistically insignificant. Size coefficient appears positive and statistically significant. It implies that if size increase by 1%, then the profitability will increase by 0.471.

In Model 2b of Table 2, I regress the return on assets on bank specific characteristics with deposit interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of deposit interest rates appears negative and is statistically significant. The estimation implies that deposit rates as monetary policy indicator has a significant impact on profitability. Similarly inflation appears positive and is statistically significant. It suggest that when the inflation increase by 1%, then the profitability of banks will increase by 0.120.

Coefficient of GDP growth appears positive and is statistically insignificant. Coefficients of liquidity and debt to equity ratio appears negative and are statistically insignificant. Size of the banks appears negative but statistically significant. The estimation implies that if size of the banks increases, then the profitability will also be increases

In Model 2c of Table 2, I regress the return on assets on bank specific characteristics with interest rate spread as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Interest rate spread appears positive and is statistically insignificant. Coefficient of inflation appears positive and is statistically significant. It implies that when there is 1% increase in inflation, the profitability will increase by 11.8%.

GDP growth appears positive and is statistically significant. The estimation shows that if the GDP growth is increasing, then the profitability of banks will also be increasing. Liquidity appears negative and insignificant statistically.

Coefficient of debt to equity ratio appears negative and is statistically insignificant. Size of the banks appears positive and significant statistically. It suggest that if size of banks increases, then profitability will also increases by 0.481.

Table 3. Impact of monetary policy indicators on banks' profitability (ROE) after controlling of macroeconomic factors.

Roe	Model 3a	Model 3b	Model 3c
Lr	-1.544 (0.994)	- -	- -
Dr	- -	-3.433 (0.872)	- -
Irs	- -	- -	-0.077 (0.854)
Infla rates	1.163 (0.408)	0.441 (0.806)	1.115 (0.517)
GDP	5.180 (0.258)	2.396 (0.758)	6.493 (0.087)*
Liquidity	-4.952 (0.352)	-5.780 (0.293)	-4.965 (0.361)
D/E ratio	1.543 (0.000)***	1.544 (0.000)***	1.542 (0.000)***
Size	2.834 (0.250)	3.091 (0.213)	2.889 (0.247)
Constant	-65.901 (0.416)	-46.280 (0.626)	-90.111 (0.129)

* Represent significant level at 10%.

**Represent significant level at 5%.

*** Represent significant level at 1%.

Numbers in Parenthesis represent p-values.

In Model 3a of Table 3, I regress the return on equity on bank specific characteristics with lending interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of lending interest rates appears negative and is statistically insignificant. Inflation also appears positive but insignificant statistically.

GDP growth appears positive and is statistically insignificant. Liquidity appears negative and insignificant statistically. Size appears positive and significant statistically.

Coefficient of debt to equity appears positive and is statistically significant. the estimation implies that if debt to equity ratio increases, then the profitability of banks decreases.

In Model 3b of Table 3, I regress the return on equity on bank specific characteristics with deposit interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Deposit rate as a monetary policy indicators appears negative and is statistically significant.

Inflation and GDP growth appears positive and insignificant statistically. Similarly coefficient of liquidity appears negative and is statistically insignificant.

Debt to equity ratio appears positive and significant statistically. It implies that if debt to equity increases, then profitability of banks will be decreases.

In Model 3c of Table 3, I regress the return on equity on bank specific characteristics with interest rate spread as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Interest rate spread as a monetary policy indicators appears negative and insignificant statistically.

Inflation appears positive and insignificant statistically. GDP growth appears positive and is statistically significant. It implies that if GDP growth increases, then profitability of banks will also increases.

Liquidity appears negative and insignificant statistically. Coefficient of debt to equity ratio appears positive and statistically significant. It suggest that when Debt to equity ratio increases, then the profitability will decreases. Size of the banks appears positive but insignificant statistically.

Table 4. Impact of monetary policy indicators on banks' profitability (ROE) after controlling of macroeconomic factors.

Roe	Model 4a	Model 4b	Model 4c
Lr	-1.544 (0.991)	- -	- -
Dr	- -	-3.433 (0.795)	- -
Irs	- -	- -	-0.077 (0.816)
Infla rates	1.163 (0.071)*	0.441 (0.725)	1.115 (0.259)
GDP	5.180 (0.022)**	2.396 (0.698)	6.493 (0.018)**
Liquidity	-4.952 (0.042)**	-5.780 (0.028)**	-4.965 (0.029)**
D/E ratio	1.543 (0.000)***	1.543 (0.000)***	1.543 (0.000)***

Size	2.834 (0.064)*	3.091 (0.034)**	2.889 (0.042)**
Constant	-65.901 (0.144)	-46.280 (0.569)	-90.111 (0.004)***

* Represent significant level at 10%. Numbers in Parenthesis represent p-values.

**Represent significant level at 5%.

*** Represent significant level at 1%.

In Model 4a of Table 4, I regress the return on equity on bank specific characteristics with lending interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of lending rates appears negative and insignificant statistically. Inflation appears positive and significant statistically. The estimation implies that if inflation increases, then profitability of banks will also increases.

GDP growth appears positive and significant statistically. It suggest that if GDP growth increases, then profitability of banks will increase by 5.180. Coefficient of liquidity appears negative but significant statistically. The estimation implies that if the banks have good liquidity position, then profitability of the banks will increases.

Debt to equity ratio appears positive and significant statistically. It suggest that when debt to equity ratio is increases, then it will affect the profitability of the banks. Size appears positive and is statistically significant. It shows that if size of the banks increases, then the profitability will also increases.

In Model 4b of Table 4, I regress the return on equity on bank specific characteristics with deposit interest rate as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Coefficient of the deposit rate appears negative and is insignificant statistically. Similarly inflation appears positive but insignificant statistically.

GDP growth appears positive and is insignificant statistically. Coefficient of liquidity appears negative but significant statistically. It suggest that if liquidity of banks increases then the profitability will also be increases.

Debt to equity ratio appears positive and significant statistically. Here the relation is inverse if debt to equity ratio increases, then profitability will decreases. Size appears positive and is statistically significant. If size of the banks increases then the profitability will also increases.

In Model 4c of Table 4, I regress the return on equity on bank specific characteristics with interest rate spread as a monetary policy indicators along with GDP and inflation as macroeconomic indicators. Interest rate spread as a monetary policy indicators appears negative and insignificant statistically. Inflation also appears positive and insignificant statistically.

GDP growth appears positive and statistically significant. It implies that if GDP growth increases, then profitability will also increases. Coefficient of liquidity appears negative but statistically significant. It shows that if liquidity increases, then the profitability will also be increases.

Debt to equity ratio appears positive and significant statistically. It shows that if debt to equity ratio increases, then profitability will be decreases. Size appears positive and significant statistically. If size increases then the profitability of banks will be increases.