CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Interest Rate, The Yield Curve and Bank Profitability: Evidence from Pakistan

by

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This work is dedicated to my beloved family who have encourage me to achieve this milestone and to my respected supervisor who has been a constant source of inspiration.

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

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Abstract

This study examines the interest rate yield curve and bank profitability in Pakistani banks. In this study, to check the effect of interest rate and slope of the yield curve on profitability of banks. For profitability measurement we use three Variables Return on Assets (ROA) Net Interest Margin (NIM) and Return on Equity (ROE) the sample of 20 banks is taken on quarterly basis data these banks are under regulation of State Bank of Pakistan. For empirical evidence, the Data collection is based on quarterly financial statements of banks in Pakistan. Data are collected from the Pakistan Banks Association and State Bank of Pakistan. Duration period of study is 2009 Q1 to 2017 Q4 and used fixed effect model. This study finds that interest rate and slope of the yield curve has positive and significant impact on banking sector profitability. Equity ratio is positive and significant impact on return on asset and return on equity. HHI is insignificant impact on profitability of banks. The result of GDP is insignificant and negative impact on profits of financial sector. Real assets growth is negative and insignificant impact on NIM and ROE and positive and insignificant impact on ROA.

Keywords: Bank Profitability; Kibor; The Slope of Yield Curve; GDP; Equity Ratio and Real Assets Growth.

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Chapter 1

Introduction

1.1 Introduction

The financial needs for business and industry the banking sector act as life blood
to fulfill their needs. This increased the phenomena of globalization and accelerate the concept of efficiency which is more important thing for both financial
and non-financial industries and banking industry is also part of these Bhatti and
Hussain (2010).

Banks primary function is borrow money from different surplus units (i.e.) business, household government etc. and lent it to borrowers. Banks plays important
role regarding country economic growth and also provide safe place to store extra
amount of its lenders. In economic growth of any country banks are key factors either these banks are domestic or foreign to encourage investment efficiency
Williams (2007). On the other hand it is very important that either financial
sector is performing properly or not. The efficiency of banks depends on many
key factors that may cause increase or decrease the profitability of financial sector
Guru et al. (2002).

Interest spread is very important factor of profitability of financial sector. The
net interest income is the result of both debt and assets of financial institutions
in this way banking sector cover inter mediation cost Angbazo (1997). In recent
past the diversity of banking sector is increased, the use of financial instruments
and technology, it become very important task for a countrys economic policy to

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ensure the stability of financial sector. Profitability is the important factor for determining of effectiveness and stability of banking operations. For profitability interest margin is the most valuable and important factor, banks earn most of the profit in terms of interest gain because banks core and basic function is deposits money on lower rate and lend at higher rate.

Banking sector perform intermediary function between surplus units and deficit units and invest these resources in business activities to generate profits Ogunbiyi and Ihejirika (2014). For using the funds of surplus units bank pays charges to depositors and they receive interest charges from their borrowers Khan and Sattar (2014). Usually interest paid or interest receives over a defined period interest-rate expressed in percentage. Within an economic interest-rate have great influence on financial assets and flow of product & services Saunders (1999). For stability purpose the government through the state bank manages monetary policy and interest-rate is tool of monetery policy. A stable banking sector is not only generate profits and attract capital from outside investors but banks also generate capital by retaining profit within banks. A profitable banking sector contributes to a strong banking industry and hence to economic stability Freixas and Rochet (2008). The result of banks earnings can be divided into two major streams in bank specfic and external factors. Internal factors focuses on bank specific instruments i.e., owner funds, deposits, physical assets, and men power, while external factor focuses on GDP, inflation and market capitalization etc.

interest-rate effect the country economic condition, through countinious flow in goods and services and financial assets within country Saunders (1999). The government to achieve stability manipulates the monetary policy. Expected inflation rates, level of government borrowing and stability of financial industry are major determinants of interest-rate Samuelson (1945) increasing of banking profits with rising trend of interest-rate under normal conditions.

A flattening of yield curve or a decrease in short term interest-rate , is only associated with low banking industry profitability margin, if there is no control on monetary policy especially in crisis period that cause endogeneity of banks financial health. Secondly monetary policy easing tends to be more profitable for efficient

banks. Banks at the time pays more focus on maturity period tend to have more reaction to steeping of yield curve and suggest that keeping low interest-rate for long time might have negative impact onbank finincials Altavilla et al. (2018). According to English et al. (2002) to evaluate the effect of changes in banking sector profitability, it important to measure and asses the overall changeof interest-rate on the economy and to represent the indication of interest-rate on cash flow. Clandio et al. (2015), investigated the impact of monetary policy by using financial data of 109 international banks from 1995 to 2012. Monetary policy works primarily through its imminent impact on the shorter term interest-rate and term structure of interest-rate. Through policy rate central bank closely controls short term interest-rate. Expectation about future rate policy rate influences the yield curve more indirectly.

1.2   Theoretical Background

In banking sector profitability, expectation theory of interest-rate plays a vital role, the expectation theory clearly shows thats the relation ship between interest-rate and banking sector profitability. The theory documented that shortterm interest-rate are determined through the market expectations regarding future diffences in interest-rate. Country central bank is main market player and country state bank settle the interest-rate through policy rate. The interest-rate is the result of monetary policy of central banks. Monetary policy is tool to set the price of interest-rate. The behavior of term structure has great importance for economic and monetary-policy makers. Through monetary policy central bank of the country set interest-rate.Mohsin (2011) investigated the monetary policy the impact on lending depositing rates in Pakistan over the period (2001-2011). The unit root test and Panel co-integration used and examined the result analysis the pass through of the deposit rate is low at 16% and effective for monetary policy of Pakistan. In the economy the interest-rate is the one of the tools of monetary policy. In this study overall find that only the 20% percent banks pass on only change the

impact interest-rate for the lenders.English et al. (2002) Borio and Disyatat (2015). (2015) reports a significant and positive relation between interest-rate and banking sector profitability. Higher rates of interest lower the loan demand and loan growth in economy that lead to reduction in overall profit margin of banks. While in higher rates of interest lead higher defaulters and banks have to create more provisions for bad debts to account for these expected bad debts losses.English et al. (2002) finds a mixed impact of interest-rate on profitability of banks over the period of 1979 to 2001for 10 OECD countries. Hancock (1985) investigated the linkage between interest-rate and profitability of bank, concentrating US banks from 1973 to 1978. The results are show that interest-rate and monetary policy has positively related with profitability and performance of banking sector in US. Some other studies are also reports that interest-rate, central bank interest policy and other microeconomic variables impact on banking industry performance Busch and Memmel (2015). There is a common consent between economists that monetarypolicy tightening conventionally leeds to an economic contraction in short-term run, while an expansion in monetary policy leads to boost of real economy.Christiano et al. (1999).

Alessandri and Nelson (2015) investigated in their studies by using panel data analysis and apply Generalized Method of Moments (GMM), they argue that level and yield curve impact positively on banking sector profitability in long-run while in the short run an increase in market rate create pressure on net interest margin. Author incorporates variables in macro ecomic level such as the real-GDP and various interest-rate, used banking industry specific factors such as Asset growth, leverage in model. They also reported that UK banks earn revenue from non-banking services that reduces the risk of interest-rate fluctuation but does notcompletely compensate theinterest income which still matter for ttraditional banking industry.Estrella and Hardouvelis (1991) show that yield curve indicate about the economic progress and market expectations about interest-rate changes.Estrella and Mishkin (1997) also investigated the relation-between interest-rate term structure, inflation rate and real economic progress in future up to two years in UK. Linking the behavior of term structure of interest-rate

with borrowing and lending rates,Adrian and Shin (2010) provide evidence that net interest income of banking sector is decreased with flatter yield curve that restricts money supply in market and down fall in economic activities.Khan and Sattar (2014) studied the impact of interest on bank profits by using 4 major banks operating in Pak for period 2008 to 2012 Pearson correlation method is used in the study. He finds that interest-rate change strong and positive impact on bank profitability, he further argue that increase or decrease interest-rate value then the profitability of financial sector will also increase or decrease.

1.3 Pakistan Banking Sector Overview

In Pakistan the role of banking institutions cannotbe ignored, financial sector is as important as any other sector in Pakistan. They perform facilitator role between depositors and final users of deposits.

After the partition of India Pakistan subcontinent in 1947 the financial sector in Pakistan goes under a serious change over the period of seventy five years. The reserve bank of India had four billion rupees at the time of division of sub-continent, Indian government delayed in payment of share amount to Pakistan, they thought that Pak would become insolvent and 50 million rupee are pending till today. In initial stage Pakistan faced the problems of non- professional human resource, technical and educated administrative and political instability with the problem of banking industry.

In June 30th 1948 the reservebank was asked to end the contract to act as central bank for the new both countries, as the wrong decisions were taken by central bank which was not in favor of Pakistan. On 1st July 1948 government take a decision to esteblish centralbank forthe country with the name of SBP in capital city. The main responsibility of the newly establish bank is to control the financial matters.

The policies of Pakistani bank ware designed to restructure the financial institutions. State bank of Pakistan pay special attention to weed out non-performing

banks and for growth purpose encourage establishment of new financial institutions in the country. During 1950 to 1960 this leads unhealthy completion and corrupt practices due to limited power of State Bank of Pakistan (SBP).

Earlier in 1970 the banking industry of Pakistan diversified remarkably. In 1971, introdvction of banking rules and regulation and bankers bank power was given to SBP to regulate the industry. In 1973 government of Pakistan decided to nationalize the all private banks of country by introducing Nationalized Act.

In these circumstances the economy of Pakistan discouraged the privately own and foreign banks. Before nationalization it was observed that the banks operated in the region were not productive for the economic prosperity through these unproductive banks. In 1980 the banking sector of Pakistan hardly fulfills the requirements of financial needs of the country. During period of nationolization banks were not manage and operate on commercial ideologies. In this situation political interfere lead to increase the cost of banks. Nationalization act cannot play a vital role in these unfavorable conditions, even government made an extensive usage policy of available funds and resources.in early 1990 government take decision to privatization of banks which were nationalized in 1974. A detail and comprehensive reform program was introduced by government to overcome the deteriorating performance during 1974 to 1990. The main points of this program is included liberalization of financial system, hard and comprehensive rules and regulation, give soft corner for foreign banks, improve mechanisms for competition and improved financial policies. Government domination significantly reduce as par report of SBP (2016) 20 local ,four foreign and five commercial banks working in Pakistan. Expect NBP the financial sector of Pak is completely private now. As per report of State bank 16 invsatment and 14 private commercialize banks have been establishes in private sector.

1.4   Problem Statement

There are minimal Literature in emerging economies to examine, the effect of the interestrate and term structure of interest-rate on profitability of financial sector.

interest-rate yield curve and monetary policy have impact on bank profitability in Pakistan and interest change can impact on the performance of the banks and profitability of the banks. The analysis of interest-rate, yield curve and bank profitability in Pakistani banks remains unexplored.

1.5   Research Question

1. How interest-rate impact on bank profitability?

2. How yield curve impact on banking sector profits?

1.6   Study Objective

This study aim with the following objective.

● To examine the impact of interest-rate and slope of the yield curve on bank profit.

1.7   Significance of the Study

Tahir et al. (2015) investgate impact of bank lending on real economic growth. They use dependent variable economic growth, credit for private industry, government expenses, inflation and investment were independent variables.Mohsin (2011) exmines the impact of bank lending impact and bank borrowing on monetary policy in Pakistan. Gul (2011) examined the factor affectng bank profitability in Pakistan. Through internal and external factors bank profitability was measured. Internal factors were deposits,equity, asserts, and external factors were market capitalization,economic growth, inflation. Waqas et al. (2017). studied the relationship of bank internal and external factors with profitability by using pooled series method over the period from 2005 to 2009. This study is contributes

important role in the different perspective. This study examine the impact of interest-rate and slope of yield curve on bank profitability in Pakistan. This area was unexplored in Pakistan because there is no works at this domain in Pakistan. As interest-rate have important and significant impact on profitability this study provides help to bankers and policy makers to focus on interest-rate income or not. In study the sample of 20 banks was taken and data duration is 2009 to 2017 on quarterly basis.

1.8   Plan of Study

The study is organized in five Chapters. Chapter 1 is introduction, theoretical background, Pakistan banking overview, problem statement, research question, research objective and significance of the study. Chapter 2 focuses on brief literature review. Chapter 3 explains data description and methodology use in the study. Chapter 4 presents the results and discussion of findings. Chapter 5 is conclusion and recommendation.

Chapter 2

Literature Review

Aydemir and Ovenc (2016), study the effect of the term structure of interest rate on bank profitability in the emerging economic Turkey over the period of 2002-2014. In this study theyused fixed effect model to analyze the effect of interest rate on profitability on Turkish banks. The results shows that yield curve and interest rate have positive and significant impact bank profits in the short run on and turn out to be positive in the long term period.

Estrella and Mishkin (1997) investigated the denoting power of interest rates in U.S (United States) and European countries. They find that the interest rate has a significant effect on monetary policy and on the inflation rate. Also finds that the term structure of interest rates have a positive role as a measure for monetary policy in European National Bank.

Alessandri and Nelson (2015), examined the effect of interest rate on bank profit in the United Kingdom (UK) over the period of 1992 to 2009. The study used fixed effect to examine the effect of interest rate on profitability of UK based banks. The result suggests that interest rate and yield curve have positve impact on bank profits. Furthermore, they find that when interest rates fall downward banks cut off their lending rates and also offer more credit thats putt downward pressure to net interest margin and expands their financial position by offering more loan on low-interest rates.

Anbar and Alper (2011), study the effect of bank-specific indicators and microeconomic variables on commercial bank profitability in turkey during the time period

of 2002 to 2010 used balanced panel data set and fixed effect model. The results of bank-specific determinants have positive and significant impact while microeconomic determinants have negative and significant impact on bank profits.

Goddard et al. (2011), study the profitability of banks in six European countries(Denmark, France, Germany, Italy, Spain and united kingdom) over the period of 1992 to 1998. They used the generalized method of moments and Least Squares (OLS) method. The result shows that bank profit and bank size relationship are less strong as compare to bank capital and bank profits. The results also suggest that if there are some abnormal profits in the present year that may continue to next year abnormal profits.

Altavilla et al. (2018) investigated the monetary policy on bank profitability in low-interest rate market by using Quarterly data for the period of 2000 to 2016. The study investigates whether the interest rate or flatter yield curve easing the monetary policy. They also analyze that monetary-policy positive impact on profit of banks and also positive and significant impact on credit money by off cutting of interest cost.

? examined the relationship of single markets , bank profits in multi banking market sample over the period 1993-2003. They explain that larger banks which operate in different markets offer low-interest rate. The small banks which operate in a single market perform better because the single market banks compete better than the medium and multi market banks.

Aurangzeb (2012) studied the impact of bank contribution to the economy of Pakistan for the period of (198-2010). He used the ordinary least square (OLS), unit root test, Granger causality test. He finds that interest rate spread, profitability, investment and advances have significant and positive impact on economic of Pakistan. This study recommends that the banking sector done an important role that helps policymaker to make policy for the growth of Pakistan.

The banking sector reforms impact on the economic growth in Pakistan examine by Rehman (2011) over the period (1973-2008) by using the ordinary least square (OLS). He argue that the financial reforms in the banking sector have positive impact on the growth of Pakistan economic. The result finds that there is co-relation

between saving, lending, real interest rate and economic growth. This also recommends that the government of Pakistan overcome the problem of interest rate ceiling and inflation.

Demirgüç-Kunt (1989) examine the factors of interest margins and commercial banks profits over the period of (1988-1995) for 80 countries. By using bank-specific variables and microeconomic variables they suggest that the interest rate margin and GDP have positive effect on bank profit and also find that the tax burden is fully transferred to their customers. They also suggest that foreign and local ownership have a different impact on bank profit margins. The result shows that foreign ownership has positive and significant effect on bank performance.

Bourke (1989) , study the relationship among bank profit rate and banks concentration over the period of (1966-1977). Fixed effect model technique is used for market concentration and bank profit rates. The result shows that the concentration in the domestic market has positive and significant impact on bank performance also on bank profits. Domestic concentration when increase also positively increases the bank profit.

Wambari and Mwangi (2017), investigate the linkage of commercial banks performance and interest rate lending rate by using Statistical Package for the Social Sciences (SPSS) over the period for (2002-2014) in Kenya. The study indicates that there was a positive and significant relation between lending rate ratio and return on asset. And negative relation finds among return on asset and deposit interest rate. The performance of commercial banks by 0.537 when there is an increase in one unit of lending rate ratio.

?, examine commercialbank profitability and the market interest rate the sample period is over 1959-1978. He finds that the interest rate variations have positive impact on bank performance. He also finds that larger banks reduce their interest rate risk by hedge by using liability and asset portfolios.

Basheer et al. (2015), investigate the relationship between market structure and bank performance in Pakistan over the period of 1996-2004 using panel data. The main findings of this study are there is market share is used for the efficient structure have positive impact on bank profitability and negative relationship between

competition and bank performance in Pakistan and also find that bank size has positive relationship with the profitability of bans. He argues that when banks size is larger and their ability to reducing the risk by making a portfolio and generate more profits.

Borio and Disyatat (2015), study the impact of monetary policy on bank performance and bank profitability over the time period of 1995-2012. They use Generalized Method of Moments (GMM) and find that the short term interest rate and yield curve have positive impact on bank profitability in 14 major economies of the world. Their finding also suggests that when the interest rate is lower in the market have strong impact on bank profits. Their result shows that the steeper yield curve has more impact on the profitability of banks.

Pasiouras and Kosmidou (2007) investigated the impact of bank-specific determents, country economic conditions and money market structure profits over the period (1995-2002). They used the Least Squares Dummy Variables (LSDV). They find that banks which have strong capital strength have a dominant and positive impact on their profits. Bank liquidity ratio shows positive impact on return on asset and loan loss reserves (LOSRES) effect on return on asset is insignificant.

Yuksel and Zengin (2017), examine the determinants of bank interest margin in turkey over the of 2003 to 2014 using quarterly data. They used bank-specific and microeconomic variables. The results reflect that the internal or bank specific variables non-performing loan have negative effect on bank net interest margin. When non-performing ratio increase interest margin of banks goes down and non-interest income have positive impact on bank interest margins. This study also find that the asset growth has positive impact on banks net interest margins.

I.Khawaja (2007), examine the interest margin of Pakistani banks over the period 1998 to 2005. He finds that the deposits of peoples have positive and significant effect on bank interest margins but the concentration has insignificant impact on interest spread. And also finds that positive and significant relationship between interest spread and market share. When market shares of banks increases increase the deposits of the bank and lend more money and this will impact on overall interest margins of banks.

Kanwal and Nadeem (2013), investigate the effect of macroeconomic determinates on the profitability of Pakistani listed banks over the period 2002 to 2011 using Pooled Least Square (POLS) method. They argue that the relationship between return on asset, return on equity and equity multiplier with the nominal interest rate is positive while real GDP has insignificant positive effect on ROA but negative relation with return on equity (ROE) and equity multiplier (EM).

Chaudhry et al. (1995) study the factors of bank probability in the United State of America (USA) from 1970 to 1980s. They study that bank profitability depends on their internal and external variables which impact on bank performance in significant way. Furthermore, they find that bank size has a negative relationship between bank profits. They argue that bank size increases the non-performing load and bad debt losses.

In South Asian countries Capital of banks plays a vital role in the determination of bank profits by 1% increase in owner equity profit increase by 0.016%. Inflation positively affect bank profitability in South Asian countries by using GMM over the period of 1997 to 2012 Islam and Hamid (2012) .

Işik and Belke (2017) examine the interest margin of Turkish banks for the sample of 12 listed banks over the post-crisis period 2010 to 2015 by using pooled OLS. He finds that bank size have a significant and negative impact on bank margins and also bank risk aversion has a negative and significant impact on bank net interest margins. GDP also have negative impact on bank interest margins. He argues that when bank size increases the interest margins of Turkish banks goes down. Moreover, his findings suggest that the inflation rate and gross domestic product has no significant impact on NIM in the Turkish banking industry.

Study the profitability of banks when interest rate changes in Pakistan. The interest rate is considered an important factor for bank profitability in Pakistan. During interest rate goes up and down its profit fluctuate. The interest rate is a major factor that impacts on bank profitability. When there is an increase or decrease in the interest rate the profit of banks also increases or decreases Khan and Sattar (2014). They argue that in recent past interest spread increase and due to this the saving rate goes down and increase the lending efficiency in Pakistan.

Wambari and Mwangi (2017) investigated the connection among market structure and bankperformance in Pakistan over the period of 1996-2004 using panel data. The main findings of this study are there is market share is used for the efficient structure have positive impact on bank profitability and negative relationship between competition and bank performance in Pakistan and also find that bank size has positive relationship with the profitability of bans.

? study the impact of fiscal policy of the government on economic growth over the period 1980 to 2009 by using the Two-Stage Least Square method (2-SLS). Their finding suggests that the INV and Export have a positive impact on GDP and exports increase the market size which leads to an increase in labor division and that reduce the production cost. They also find that by an increase in GDP will lead to positive fiscal policy in a country when gross domestic production increases the government of the country has more recourse to meet their expenses.

Javaid et al. (2011) explore the bank profit determinants inPakistan overthe period 2004to 2008 by using Pooled ordinary least square (POLS) method. They investigate that Pakistan economic have been facing major financial problems in the past. They explore that bank profitability is the results of internal-external variables. Their study suggests that the impact of bank size, bank deposits, and owner equity have positive and significant impact on profits of financial institutions of Pakistan. When the size of the bank in terms of total asset, deposits of customers and equity of owners increases the profitability of banks in Pakistan also increases.

? examine theeffect of bank size onprofitability in Pakistan over the period 2005 to 2009 by using quarterly dataof Pakistani banks using SPSS analysis. They find that the size of the bank has a positiveimpact on large bank profit in Pakistan. Theyargue that medium-size banks the impact of size in the ratio of total assets have positive impact on bank profits but insignificant and on small-sized banks, the impact of total assets on bank profit is negative and significant. They also suggest that the bank size in terms of deposits have significant and positive impact on all banks either the banks are small, medium or large in scale. They argue that when deposits increase the bank offer more loans and by this, they earn more net

interest margin and NIM is the main component of bank profit.

Bank profitability is the results of two major factors which are divided into two categories internal and external determinants or bank-specific and macroeconomic variables. The bank asset size and non-interest income have a positive impact on bank profits and the size of credit and loan of the banks have a negative and significant impact on the profitability of banks in Turkey. By increasing the bank total assets and non-interest income the profits of the bank can be increase. Anbar and Alper (2011).

Tan (2016) , explore the relationship between bank profits and their capital in Asian countries over the period of 1994 to 2008 by using dynamic two steps GMM. They explore that relationship between loans and total assets have significant and negative impact on bank net spread while the impact of the Gross domestic product on bank profit is significant in Asia. Their study also suggests that control variables are consistently positive with the risk of financial institutions. While the relationship between banks capital and risk positive thats mean the whole Asian banks facing the capital risk. When banks increase loan deposits and loan the risk for equity holders increases because in most banks in Asia banks need to keep a reserve for safety measures thats increase the cost of loan capital and decrease the return of owner equity. They also investigate that the investment banks have the income of these banks is more in term of net spread but lowest in terms of return on assets because investment generally deposits long term and also lend out in long term duration. Moreover, they argue that the banks of high-income countries have higher net interest spread while in low-income countries the interest spread income is lower.

Y.Tan (2015), studied the impact of riskand competitionon bank income in China during 2003 to 2011 by using one-step Generalized Methodofmoments (GMM) and finds that the chines banks are more affected by tax policies, overhead cost, labor, and inflation. These macroeconomic factors affect banking profits. They explain that the size of the bank is negatively related to bank profit while small size banks in China easy to manage and the management easy to run small size business efficiently to earn higher profits. His studies explore that tax has a negative impact

on the business return because when the bank pays out tax the income of banks goes down. He further argues that the profitability of banks increases by the use of efficient labor. The labor productivity positively impacts on bank profits as they work effectively and generate more revenue as a result the returnon asset returnon equity and net spread of interestmargin increase. Inefficiency is an indicator of risk has negative impact on banks NIM, ROA and ROE because when labor does not work properly the profit of the banks decreases. The risk of insolvency positively impact on state owns banks as they can meet their long term debt by using funds of customers and also the state provides his full support when needed.

M.Faizan et al (2014) explore the relationship between bank profits and their capital in Asian countries over the period of 1994 to 2008 by using dynamic two steps GMM. They explore that relationship between loans and total assets have significant and negative impact on bank net spread while the impact of the Gross domestic product on bank profit is significant in Asia. Their study also suggests that control variables are consistently positive with the risk of financial institutions.

Hoffmann and Rodrigo (2011) studied impact of macroeconomic-variables used GMM and pooled estimation approach for the period 1992 to 2003 and finds GDP is negative impact on financial sector performance but interest rate and inflation is positive impact on return on assets.

(**?**) explore the interest margin determinants in central and Eastern Europe countries over the period of 1994 to 2001 by using banks financial statements data. By using three types of banks data of saving banks, commercial banks, and cooperative banks and finds that higher operational efficiency plays an important role in lowering the interest rate in both markets. He also finds that the structure and capital adequacy of banks in central and eastern European countries affect the interest rate positively. The lending capacity and lending risk pay an important role in high-interest rate margins. Macroeconomic factors gross domestic product inflation act as a major role in determining the interest rate in central and eastern European countries.

? examine the bank-specific factors as determinants of non-performing loans in

Pakistan banking industry by Least Square Regression by using panel data over the period from 2006 to 2016. They investigated that in Pakistan the non-performing loan is increases. This study explores that the Earning per share has a significant and negative impact on bank non-performing loan while liquidity ratio has a positive relationship with the non-performing loan. They argue that the bank should keep eye on capital adequacy ratio because of the negative impact on NPL.

If the control of the top management is efficient on individual branches operation, the expectation of competences of an individual branch would be the best performance of the bank branch. Study on U.S banks branches network, Sherman and Ladino (1995); Berger and Humphrey (1992) and branches network of Canadian bank schaffnit et al. (1997) establish competence nearly as discrete those generally establish in research of unrelated banks, regular with comparatively less control for the top management of the banks.

Demsetz and Strahan (1997) examine the effect of an increase in the level of geographic within a region of the banking sector as a whole and create a favorable impact. Increasing the banking network of a bank in the geographic location of the country has good for the expected return of risk. Some other researcher that construct the banking industry M& As promote profit efficiency regular for better-quality of geographic diversification, but they dont have an impact on costly production Berger and Humphrey (1992), 1992; Akhavein et al. (1997). These studies create variance in among target and acquirer had less effect on overall effectiveness progress following consolidation, recommend that the capability of acquirers to transfer higher skills are objectives may be limited.

?, examine the link between banks distance and financing constraints firms, from 1996 to 2003 on Italian banks and firms. The study shows that functional distance between bank branches has a positive relationship with the chance of firms being rational, and share credit is less and negatively related to overdrawing. In southern provinces, the no of small size is less in Italy.DeLong (2003) investigated the diversified banks merger and stockholder income in United State. Delong concentered on the bank's merger in a different geographic region and focus on banking sector involved in different diversification. And their study shows that there is

discrimination in the merger of different types of firms.

The cost of the bank was increased when the distance between the bank headquarters and bank branch in increased. As a result, creditor extracts charges from near borrowers. When an increase in distance the bank charge high lending rate because banks pay more for monitoring charges to safeguard the interest of customers.Berger and DeYoung (2001), find in their study that geographic expansion has not positively related to the geographic because of few some bank work in a targeted market efficiently. But some banks run efficiently in the international market because of their competency.

Tahir et al. (2015) focus on the study of the impact of bank lending on economic growth World Bank indicators from 1973 to 2010. For this study they used economy growth as depended variable and independent variables were credit for the private sector, inflation, investment, and government expenses. In the result, they explore positive relation among bank lending and economic growth. In the short run, there is no impact on government consumption, interest rate, and inflation and a positive impact of investment on economic growth. If the investor invests in the country it will more beneficiation for the homeland. Economic will boost but if there is inflation in the country then it will inverse impact on economic and investment will be made into other countries and this will impact an increase in importing of goods manufactured in other countries.

Koivu (2002) , investigate the relationship between the efficient banking sector and economic growth in 25 countries from 1993 to 2000. The result shows a negative relation between interest rate and economic growth and also find that an increase in lending amount does not stimulate economic growth. Banking failure is the main cause behind this negative on economic growth. Moshirian and Wu (2012) examine the impact of the change in the banking system on the economic growth from 1991 to 2010 by using secondary data of 36 markets. They find that there is a weak relation between the banking sector and country economic growth in the future. They also find the economic growth only affect the public sector banks.

Sibindi and Bihma (2014) examine the relation of banking sector development and economic growth in Zimbabwe collected the from international financial statistics

database over the period 1981 to 2004. The dependent variable of there is economic growth and real broad money, real domestic credit and real GDP as independent variables. They explore that the long run relation between banking sector development and economic growth because Zimbabwe banking market positively impacts on the economy.

The structure of ownership hasbeen categorized into two main ranges owner ship identity and ownership concentration (Lee,2008). He explore the relationship between bank profits and their capital in Asian countries over the period of 1994 to 2008 by using dynamic two steps GMM. They explore that relationship between loans and total assets have significant and negative impact on bank net spread while the impact of the Gross domestic product on bank profit is significant in Asia. Their study also suggests that control variables are consistently positive with the risk of financial institutions. While the relationship between banks capital and risk positive thats mean the whole Asian banks facing the capital risk. When banks increase loan deposits and loan the risk for equity holders increases because in most banks in Asia banks need to keep a reserve for safety measures thats increase the cost of loan capital and decrease the return of owner equity.

In the banking sector, ownership may increase in operating cost and also hurt the performance of banks. Where, (ungrureanu, 2008) argue that ownership structure plays an important role in monitoring and controlling of all activities through better information system.

Liang and Reichert (2007), investigate the relationship between economic growth and developmentof financial system. They used economic growthas dependent variable and stock market, export, labor, money supply and investment as independent variables and found that there ispositive and significant relationship between real GDP and financial sector. He argue that the less develop economics should build up their labor force, improve exports and their money supply for better economic because there isa direct impact on banking sector development and economic growth.

The study of Sun and Tong (2003) showed that state ownership had negative

impact on the performance of the banking sector in China, they find that foreign ownership does not impact on bank performance. General public ownership and private ownership has positive impact on banking sector performance but foreign ownership has negative impact on return on asset of banks Aymen (2014). They argue that the concentration of ownership is more note able in emerging countries. (Elali, et al 2015) argue that ownership concentration ownership in emerging economies often has conflicts between minor and majority shareholders which causes a negative impact on banking performance. According to agency theory, they argue that concentration of ownership ends up with improved controlling and monitoring of management which further argue that the ownership plays an important role in corporate governance for the performance of companies.

Jokipii and Monnin (2013) find that how stable banking sector impact on economic growth. They used the data of 521 banks of 18) OECD countries. They used banking stability as a dependent variable and real output growth, and inflation as an independent variable. Their study shows that there is a positive relationship between the stability of the banking sector and economic growth and a negative relation between real output and inflation and GDP. They explain that the unbalance financial system increase the risk of future negative growth. Inflation and banking sector stability has no clear relation.

Al-Laham et al. (2009) investigated the impact of the development of electronic banking on monetary policy and economic growth over the period 1996 to 2007 by using the data of different banks and central banks of different countries. As depended variable, they used economic growth and electronic money as the independent variable. The results suggest that an increase and development in electronic money have a positive impact on economic growth and also good impact on the monetary policy decision.

Investigated the relationship between financial sector developmentand economic growth in Nigeria by Okoye et al. (2017) by using central bank data. The growth of economy used as dependent variable and valve of share, inflation, investment, market concentration and expenses of government as independent variables. Their results show that the banking sector affects both in the short run and in the long

run for the growth of economy.

Kirogo et al (2014) explained the effect of risk assessment on bank performance a survey of insurance companies in Kenya over the period of 1998 to 2004. Primary data have been collected through questionnaire for using mean, percentage, standard deviation and Pearson correlation analysis in this study. The study showed that effective risk management to increase the performance of insurance firms in Kenya. Karugu and Ntoiti (2015), study the impact of management risk of credit on the effectiveness of banks in Kenya for the period of 1980 to 2009, in this study they used descriptive statistic model. They find that the management of credit risk had a positive impact on bank profitability and it explains 14.4% of the variations in banking profit. The result also shows that credit monitoring and controlling have a positive and significant impact on profits and that 47.8% of the variation in profits.

To check the profitability of financial sector interest spread is the key factor. The difference between interest revenue generates and the amount of interest paid out to the lenders or fund providers is interest income for banks. Higher interest spread higher the profitability of banks would be consider more stable financial industry Ongore and Kusa (2013).

Commercial banks play a very vital role in any economic for resource allocation. Banks deposits the money of individuals, businesses, different institutions and from governments and banks lends that money to borrowers. Banks are main institutions that help the country economy by allocating these deposits for many purposes. The role of banks in every country are very important ether the financial institutions are domestic or foreign Williams (2007).

According to Guru et al. (2002) the performance of the financial industry is very important. It is necessary for the banking sector to work properly. Increasing and decreasing of Net interest spread depend on many factors by which affect the efficiency of banks. Liquidity management is an important factor for the performance of the banking sector.

Jagadeesh (2015) studied the factors of bank probability in the United State of America (USA) from 1970 to 1980s. They study that bank profitability depends

on their internal and external variables which impact on bank performance in significant way. Furthermore, they find that bank size has a negative relationship between bank profits. They argue that bank size increases the non-performing load and bad debt losses.

Tarus et al. (2012) investigate the importance of banks role in Turkey and explore that the banks receive money from public or from other financial intermediaries and lend it to the general public for interest and earn money by these services of credit facilities. Lin et al. (2012) explore that net interest spread is the factor by which banks generate more money. They find that NIM is an important factor in the performance of banks that shows the profitability of banks and shows how successful the banking region of a country.

Net interest margin considers an important factor for evaluation of effectiveness and stability of banking progress and for optimization of asset structure.

Fungacova and Pogosyan (2011), examine the factors of net interest spread in Russia. There are many factors that affect the NIM. In this study, they used common variables of net spread of interest rate that are liquidity risk, credit risk and size. The results show a negative relation between credit risk and interest spread while liquidity risk significant impact on interest margin for both local and foreign banks. Liquidity risk is a negative impact on net interest spread and the banks which are state-owned are rely on the government for their liquidity issues. For the development of financial system banking is considered to be a basic factor, for the allocation of assets from banks to borrowers bank provides a link. In this scenario, it is important that this work of intermediation by financial institutions complete by bearing minimum cost keeping in mind the objective of social welfare. Clearly, lowering the intermediation cost lowering the social expenses.

Yousfi (2015) study the impact of risk management on Jordanian Islamic banks performance for the period 1998 to 2012. In research he used pooled least square method with fixed effect is used to test the study hypotheses. The results show a negative impact of operational and credit risk on banks financial performance while a positive and significant impact of market risk management on bank performance. Ross and Sara (2012) study the function of stock market risk and banks

are promoting long-run profitability for the period 1993 to 2002 in this study used CAMP Model and APT integration for the stock market. In this, they find that the volatility level of the stock market is not linked with the progress of economic and that none of the financial factor with the private saving rate.

Banking system and economic growth in Nigeria study by Obademi and Elumaro (2014) by employing linear regression function. They conclude that the banking sector in Nigeria has a positive impact on economic growth but on the other hand, argue that the banking rules and laws have a negative impact on economic progress and recommended that some policies should be reviewed. In their view, some policies which interfere of government should be reviewed from time to time.

Aurangzeb (2012) investigates the role of the financial institution in the growth of economic by using information of ten banks from 1998 to 2010. Granger casually tests, ordinary least square, unit root test, and Philip perron and augmented dickey fuller is used. In this study, the researcher finds that the policymaker makes policies for banking sector efficiently and effectively contribute to the development of economic growth. (Cebenoyan and Strahan, 2004) investigate the impact of lending, management of risk and capital structure at commercial banks for the period of 1992 to 2001, in this study they use Reverse Causality model and regression method for fifteen banks. A positive relation between risk management and bank profitability is found in this study. They found that banks improve credit money by managing risk. They argue that when banks manage their risk they improve their lending capacity.

The impact of risk of non-performing load and profitability of financial industry of Pakistan for the period of 2001 to 2010 by using five banks Askari Bank Ltd, Habib Bank Ltd, Summit Bank Ltd, Bank Alfalah Ltd and United Bank Ltd by Haneef at al. (2012). In Pakistan, the risk management system is not properly working. The result shows that the profitability of banks decreases due to non-performing loan and mismanagement of risk.

Abhiman and Ghosh (2007) study the risk of credit in Indian state-owned banks over the period of 1994 to 2005. Cross country comparison model is used for private banks, public banks, and foreign banks. They find that credit risk has an

impact on bank performance and profitability, which cause a reduction in return on asset (ROA) and return on equity (ROE). They also show that credit risk influence operating expenses and gross domestic production while bank lending has a positive impact on bank earnings.

The impact of credit money of the banking sector on economic growth in Nigeria examine by Akpansung and Babalola (2011) for the period of 1979 to 2008. They explore unidirectional causal relation between gross domestic product and private sector credit. The result of the study indicates the positive impact of the financial sector on economic growth. The study recommended that an increase in financial and private sector credit for the better economy.

Sironi et al (2013) investigated the impact of capital structure, lending risk, and profitability of the financial sector in the European region for the period of 1999 to 2004. The data simple of the investigation is 181 large banks of Europe. They used correlated and alternative ownership models for financial reports of the banks. The study finds variables like lending risk management and the structure of capital show negative relation and selected banks financial performance were not significantly related. The quality of public sector banks in terms of loan quality is very low due to high insolvency chances and the quality of private banks in terms of loan quality is high due to lower risk.

Richard, Nsiah and Bonnah (2014) study the impact of risk assessment on the financial sector in Ghana over the period 2012 to 2013. The result of the study shows that the factor of size banks, gross domestic product and inflation rate has a positive and significant impact on the performance of the financial institutions. Furthermore, the study investigates that credit risk has insignificant on the profitability of banks.

Study the impact of credit risk management practices on the performance of banks. The study shows negative impact of credit and operation risk on commercial banks performance and the positive impact of debt collection on commercial bank performance. The study recommended that commercial banks should implement an effective risk management policy Karugu and Ntoiti (2015).

Arora and Agarwal (2009) study the impact of banking supervision and risk management on the performance of three banks in India. Comprehensive risk management approach is used in this study. They find the performance of banks are linked with risk management and policies used by banks to minimize risk. They argue that issues or lack in the policy of risk management gap is accruing between reserve bank and top management of the banks.

Bezbaruah (2015) investigated the impact of corporate governance, risk management, and banking sector profitability in financial crisis over the period of 1998 to 2008. They use the data of 181 large banks. They investigate the relation by using variables like credit risk management insignificant and negative relationship on bank profitability. They argue that the loan quality of public banks is bad as compared to private sector banks. Due to high chances of insolvency the public sector banks loan quality is bad.

Alshatti (2015) Study the financial sector performance and behavior of risk management of Jordanian banks over the period 1999 to 2009 by (A. The result shows that the credit risk significantly impacts on bank performance, which influence on the asset return (ROA) and domestic production. Their finding suggests that the risk management pays more than profitability in the future. Tarraf and Majeske (2013) studied the risk-taking behavior and bank performance in the crisis era 2008. They find that risk-taking behavior negatively impacts on the performance of banks.

Jagadeesh (2015) study the impact of savings on the growth of economic over the period 1980 to 2013. He employed auto regression distributed lagged mode. The results show a significant relationship among saving and economic growth of the country. He argues that when saving of country increases which impact on economic on the country positively.

Ipumbu and Gerson (1999) investigated the impact of saving and investment on the growth of the country over the 17 years. They used co integration analysis and error correction model. They find that the level of saving is a good proxy to compare the international laws but the on another hand the performance of the investment is not good. Investment is not a satisfactory factor for the economic

growth of the country. They find other factors like real income inflation and investment in another different sector of the economy.

A stable and improve banking market impact on economic growth in Nigeria examine by Ghani (2017) over the period of 1970 to 2010. They used vector error correction model (VECM) ranger Causality and in these model, they investigated the problem of high-interest rate, unfavorable and needless government expenditure and government influence on loan issue to the selective sector for their personal advantages. The authors recommended that a good and strong policy should be implemented for the betterment of the country economic.

Obamuyi et al. (2012) examine the impact of banking lending on economic growth in Nigeria for the period of 1973 to 2009 by using different model vector error correction model (VECM). They investigate that the bank's rate affect the growth of the economy in different sector such as industrial sector, manufacturing sector, and agricultural sector etc. in this study they evaluate the banking rules on the economic of a country. They recommended that polices should be revised according to the needs of the economic conditions to improve economic growth. Furthermore, they suggest that those policies should be removed which are useless.

Nwaru and Okorontah (2014) studied the impact of credit instruments of banks on the growth of economic condition in Nigeria for the period of 1985 to 2010. They employ Granger Causality Multi regression test and unit root test. The government of Nigeria gives confidence and support to the banking sector for the purpose of allocation of loans. In Nigeria, most of the sectors do not perform effectively for economic growth but the financial and banking sector contribute well as compare to others like exports, production etc. They recommend that the policy of credit related should be the monitor.

Okoye and rchard (2013), study the effect of bank lending rate on the performance and profitability of banking industry over the period (2000-2010. Co integration test and Unit root test they used in this study. They explore that the bank rate and monetary policy rate impact on the growth of economic. The result show a positive relation between monetary policy and economic growth. Banking rate and monitory policy are true parameters of measuring banking sector performance.

The authors argue that the government should revisit policy rate time to time and improve the policies then these things improve the performance of banks and performance of banks directly impact on economy of Nigeria.

The financial development and investment in agriculture in Nigeria are studied by Afangideh (2010) (2010) over the period 1970 to 2005. He uses the liberal model of financial development. They find that the lending of banks to agriculture has a positive impact and efficient impact on gross national saving and the output of sub-sectors. The result shows that development in the financial system and brings direct change in national savings, development in the agriculture sector. They recommend that the government should bring favorable policies for the banking sector to lend more credit to agriculture to increase savings.

Elegbe (2013) studied the failure of banks and economic development over the period of 2001 to 2010. The study uses Granger Causality test. The result indicates that the failure of the banking system and fiscal policy increase the government expenditure and increase the rate non-performing loan. As the production of industrial unit decrease so that thing increases the non-performing loan and this will lead to the failure of the banking sector.

The time series data analysis on the effect of banking reforms in Nigeria is examined by Azeez and oke (2012) over the period for 1986 to 2010. The results explore the long-run relationship between variables. Moreover, the not positive impact of banking reforms oneconomic growth and this study recommended that the framework of regulatory and supervisory review and make changes according to needs.

Shittu (2012) investigated the impact of financial intermediation on the growth of the economy over the (1979-2010). He used a unit root test and adopted the Engle granger technique and co-integration test. The result shows that the financial intermediation and financial sector has an important effect on the growth of the economy and suggest the use of advanced technology in Nigeria.

The impact of commercial credit to the agriculture sector for the development of agricultural studied by Obilor (2013) over the period (1984-2007). He employed Dicky-Fuller test, use thee no linear regression model and unit root test. The

result examines that the government scheme of credit related to the agricultural sector has a positive outcome on production. Furthermore, the other variables have a negative impact onthe development of agriculture.

Usman and Adejare (2013) examined the impact of monetary policy on the growth of an industrial unit in Nigeria over the period (1970-2010). For the purpose of analysis, they used a multi-regression analysis technique. The result examined that deposit and rediscount have a positive impact on the industrial sector. T-Bill has a negative impact on the industrial sector. The study recommended that the industrial sector should be developed for the economic growth ofthe country.

Aurangzeb (2012) investigated the sector of banking contribution in the economic growth in Pakistan over the period 1981-2010. He used a unit root test and OLS, ADF and Granger causality test. The result shows advances, interest income, investment, and profitability have a positive impact on the growth of the economy in Pakistan.

The system of credit to small and medium-sized enterprises and economic growth in Nigeria examine by Uremadu et al. (2010) They used the Least Square (OLS), CoIntegrati on Econometric method. The result shows the negative impact of lending oneconomic growth. The study recommended that there is need to reduce the interest rate. The system of credit lending procedure to small and medium-size organizations was not so organized to get the desired results. There is a need to improve policy by the government to achieve the desired objectives.

Mosin (2011), examined the monetary policy the impact on the spread of lending borrowing rate in Pakistan over the period (2001-2011). Unit root test and panel co-integration test have been used in this study. He finds that the result analysis pass through the deposit rate is low at 16% and effective for monetary policy. The interest rate is a key factor of monetary policy in any country.

Banking sector reforms impact on economic growth in Pakistan investigated by **?** over the period (1973-2008). He employed the ordinary least square (OLS). He argues that reforms in the banking sector and financial area have a positive impact on economic growth in Pakistan. The study explores banking reforms like saving, deposit, lending, and interest rate have co-related with economic growth. Least

square model is used in this study. They find positive relation between banking reforms and economy growth. The banking sector in Pakistan full fill the needs of different sectors such as industrial and service sector, government and private sector business. The government of Pakistan takes many steps to improve the reforms of banking sector

Iqbal et al. (2003) investigated the impact of saving and credit on the economic growth of Pakistan over the period 1993 to 2007. The result examined that due to increase in one sector the credit one percent in private sector then the output of this increase brings change in gdp by 5.55%. In Pakistan credit and saving play an important role in the economy growth. The state bank of Pakistan is suggested to formulate and implement suitable policies to improve the credit and saving. Another study investigated the effect of the performance of banks on the economic growth in Pakistan over the period (2008-2012). They argue that when banking sector of a country grows this brings change in economy on the country. The results of the study showed that a developed banking sector is fruit full for the country economy. The result examine that profitability, deposits earing and credit have positive impact on economy of Pakistan. The study suggest that a favorable and improve reforms bring change in the banking sector that helps in betterment of economic growth.

Gul (2011) investigated the factors affecting profitability of banks in Pakistan over the period 2005 to 2009. These factors are banks specific and macroeconomic. Equity, deposits, total assets, and management efficiency are internal or bank specific factors. External factors are economic growth, inflation, monetary policy, and market share. They argue that the internal and external variables are affecting the profitability of banks in Pakistan. They find positive and significant relationship among these factors on bank profitability.

Ongore and Kusa (2013) examined the performance of banks in Kenya. The capital adequacy, management efficiency and asset quality have positive impact on banking sector performance. But the liquidity of assets has not significant impact on performance of banks in China. Other macroeconomic variables such as inflation, GDP and foreign exchange have negative impact on bank performance.

Nwaru and Okorontah (2014) examined the bank privatization and performance of banks in twenty two developed countries. The result shows that the private banks have lower efficiency and lower capital competency compare to state owned banks. The profitability of the banks after privatization can increase. But at the same time efficiency and credit risk significantly decrease.

Study the performance and the profitability of banks before and during crisis period in Switzerland. The factors of bank profitability contain bank specific, macroeconomic and industrial specific variables. The bank performance and profitability described by funding cost, growth of loans, business model, and operating effectiveness. And they also describe the less efficient banks were not profitable as compare to ef ficient banks. The ownership and efficiency of management are major determinants of bank profitability Dietrich and Wanzenried (2014).

Park and Weber (2006), examine the relationship between performance of banks and structure of Korean banks over the period 1992 to 2002. They find that the market share of bank has positive and significant impacton profitability if we ignore bank efficiency. When bank effectiveness is specially control, then market share has insignificant effect on profitability of the banks. They also find the reforms between post and pre-Asian financial crisis time are the main factor of Korean bank profitability.

Study the bank profitability and efficiency in MENA countries over the period 2001 to 2008.The study shows that performance of both local and foreign banks are affected but also impact microeconomic condition and structure of banking sector. In this study they used accounting and balance sheet variables. The cost effectiveness has less impact on banking sector performance and profitability of financial institutions. Most of the research has focus on profit efficiency and bank profitability before this study. In MENA banks are not cost efficient as compare to European bank. As like MENA banks less develop countries banks are less cost efficient Olson and Zoubi (2011).

Lin and Zhang (2009) examine the link between banks distance and financing constraints firms, from 1996 to 2003 on Italian banks and firms. The study shows that functional distance between bank branches has a positive relationship with

the chance of firms being rational, and share credit is less and negatively related to overdrawing. In southern provinces, the no of small size is less in Italy. Delong (2001) investigated the diversified banks merger and stockholder income in United State.

Pasiouras and Kosmidou (2007), are investigated the diversified banks merger and stockholder income in United State. Delong concentered on the bank's merger in a different geographic region and focus on banking sector involved in different diversification. And their study shows that there is discrimination in the merger of different types of firms.

Higher or rising interest rates impact positively on NIM as interest rate increases the interest income of the banks Javaid (2016). In this study the main independent variables are interest rate and slope of the yield curve have significant impact on bank net interest margin (NIM). A rise in short term interest impact positively and increase interest margin of the banks. A 100 basis points rise in interest rate and slope of the yield curve increase the net interest spread of Pakistani banks by 0.5 percent and 0.94 percent.

In developing financial sector the profit and margin of interest rate of banks are higher than develop countries Demirgüç-Kunt and Detragiache (1998). Saiful and Mohd (2003). Examine the mainstream and performance of Islamic bank in Malaysia. The results of study show Islamic banking have high return on asset to efficient use of current overheads. Shariah rules are followed by Malaysia Islamic banking system to provide loan and deposits. The high ratio of return on asset and lower overhead cost for Islamic banking do not suggest any effectiveness.

Villalonga (2004), find that diversification premium that yield as a sample for discount based and data and use Business information Tracking series used in earlier studies. Studies shows that the diversification effect financial sector performance.

Khanna and Yafeh (2005) study the hypothesis that facilitate the business group and joint insurance between joined firms and considerable proof of risk allocation by Korean, Thai and Japanese group but minor proof of it abroad in the world. The outcome of the study may or may not be related to banks because banking

industry is different from other.

If efficiency and control of top management is efficient on individual branches of banks, it would be expected to gather that the performance of individual branch is best. The competence of single branch would be affected if the top management loss the control. Study on united state banks branches network, Sherman and Ladino (1995); Hannan and Berger (1997) and bank branches network in Canada. They find that top management control on banking efficiency has positive impact on banking sector performance. They also find that when number of branches increased in country it positively impact on banking sector performance and also positive impact on economy.

Demsetz and Strahan (1997) examined the impact of geographic expansion within country of banking sector as a complete and create typically positive effects. The expected return of risk is reduced when number of branches increase in the different cities of the country. They argue that diversification and M& As promote the efficiency of profitability in banking industry but they do not impact on cost productivity.

Alessandrini et al. (2008), investigated the relationiship between banks distance and financing constraints firm, by using banking sector over the period 1996 to 2003 of Italian banks. The result shows that functional distance has positive impact on the chance of firms being rationed; share credit is negatively related with overdrawing. In southern provinces in Italy the number of small enterprises is less. DeLong (2001) study the diversified banks merger and shareholder in U.S. in this study DeLong focus on the merger of banks which are operating in different areas and focus on banking firm involve in different diversification. They divide the merger activities of banks in different categories according to diversification, geographic location and activities.

Hirtle (2007) investigated the impact of branch performance on network size in United State banks. He finds that the larger and small size banks have high deposits and gain cost benefits but at the same time medium size branches has low deposit rate and high cost. He argue that the medium size branch network incurred high operating costs as compare to large and small size bank branch network in

U.S.

Paradi et al. (2011) investigated the bank branch efficiency of two stage evaluations using the data of 816 bank branches of Canadian banking sector over the period 2001 to 2010. They find that the performance of small size branches is highly competent in terms of intermediation, production efficiency and profitability and decrease the chances of merger because the operating efficiency.

Deng and Elyasiani (2008), examines the bank holding, diversification and risk. They find that geographically diversification of branches of banks decrease the risk and increase premium. They argue that when distance between bank branches decreases and banks headquarters than increases the firm value and decrease risk. So top management is able to control the operations of branch efficiently and increase the value of the firm in the market. They recommend that local management to free hand to control branch operations according to the market needs then the branch work effectively and increase the value in operating market.

Chiappori et al (1995) examines the spatial competition in banking sector, localization, cross subsidies and regulation of deposits and lending rates. They examine the results of rules of rates pay on deposits. The main objective are follow, first is offer low credit rate because competition increase in the market. Second is a bank offer different packages of credit and deposit services. The distance between bank branch to headquarter has used in the earlier studies, the dispersion of branch network I the region has been ignored. The banks bear high monitoring cost to maintain operations of branch. When the branches of a bank in large in numbers in the market then the installation of new branch in same market is negative impact on bank performance and market share.

Li and Greenwood (2004), study on insurance sector in Canada over the period 1993 to 1998. They explain that two idea of diversification of firm. First is diversification of firms in different area of possible advantage was attaining the economies of scope. But this statement overlooks the opportunity that diversified firm was capable to compete with other firms in market. So that banks geographically diversified are able to compete and survive in multi markets.

Study the profitability and multimarket contact in banking sector of Italy over

the period 2002 to 2005 by Coccarese and Pellecchia (2009). They show that multimarket relations are positive and significant linked with performance and profitability of banking industry. The competition between banking sector is decrease due to multimarket operations of banks in Italy. The study on five popular measures of banking sector competition, regularly, forecasts of competitive behavior within country and cross country (Carbo et al. 2009). The five measures are, interest margin, HHI, return on assets Lerner index, H-statistic are related with each other.

Y.Altunbas et al. (2007) examines the spatial competition in banking sector, localization, cross subsidies and regulation of deposits and lending rates. They examine the results of rules of rates pay on deposits. The main objective are follow, first is offer low credit rate because competition increase in the market. Second is a bank offer different packages of credit and deposit services. The distance between bank branch to headquarter has used in the earlier studies, the dispersion of branch network I the region has been ignored. The banks bear high monitoring cost to maintain operations of branch. When the branches of a bank in large in numbers in the market then the installation of new branch in same market is negative impact on bank performance and market share.

Emmanuel and Adgboyega (2014) investigated the banking industry and economic growth in Nigeria. In this study they used linear regression function. During this study conclude that the banking sector have positive impact on economic growth but on the other hand find that banks rules & regulation had negative impact on economy growth. This study recommended that these current policies should be continued and some rules and regulations should be reviewed. In this study they find that over all banking sector performing well but only few things create trouble for economic growth such as federal or provincial government influence. They recommended that some of the overall policies should be reviewed according to the situation.

Degllnnocenti et al. (2018), they find that the increasing the number of branches and geographic diversification policies has increases the asymmetric difficulties between banks and customers of banks. By increasing the number of branches

increase agency cost and explore more risk of inefficiency but at the same time number of branches show the main objective for banks to collect more information related to credit lending and deposits in the market. By increasing number of branches of banks over the country to increase more deposits and making loan for the bank. When distance between branch and headquarter is increased this will negatively impact on the relation of the bank and local customers. The relationship between bank and local industry and customers can be established through small and less diversified bank branches.

Patersen and Rajan (2002) examined operation of medium and large banks are differently from sole market banks, because the operational activities of medium size and large scale banks are standardized and offering of loan to customers based on market information about borrower.

M.Smirlock (1985), investigated the relation between concentration and banking sector profitability over the period 1973 to 1978. 2700 unit state banks data is used inthis study. The data of those banks included which are working under the regulations of FDIC of Kansas City. He fined that the concentration explains noting to bank profitability rates. However market share, positively impact on profits of banking sector.

U.Dawood (2014), investigated the factors affecting profitability of banking industry in Pakistan over the period 2009 to 2012. The profitability of banks are affected by internal and external factars in any country. For internal factors he used Equity l ratio, top management policies and risk management etc. and for external factors include monetary policy, gdp inflation etc. He finds positive and significant relationship between liquidity, cost management with profitability of Pakistani banks.

M.Rashid et al. (2015) investigated the profitability of banking industry evidence from Pakistani banking market. The sample consists of 26 banks operating in Pakistan over the period 2006 to 2011. Study explore that the size of bank positively impact on profitability on banking market while non-performing negatively related with profitability. Earing per share is also significantly related with performance of banks. They argue that bank capital and bad debts are cause to decrease the

profitability of banking industry. Moreover, results of the study explore that the profitability of banks operating in Pakistan are affected by some market specific factors such as non-performing loan. The results of external factors like GDP, monetary policy, interest rate and inflation are positively impact on earnings per share and return on asset.

HYPOTHESIS :

H1: Interest rate has negative impacton banks profit.

H2: Interest rate has positive impacton banks profit.

H3: Slope of the yield curve has negative impact on banking sector profit.

H4: Slope of the yield curve has positive impact on banking sector profit.

Chapter 3

Data Description and Methodology

This chapter justifies the data gathering method, explanation of the variable and the techniques what we chosen are addressed:

3.1 Data Description

The data set of this study consists on the banking industry of Pakistan. These banks are working under the guide line of The State Bank of Pakistan. Time period of study is 2009 Q1 to 2017 Q4. Overall 26 public, privately owned banks operating in Pakistan. The sample selections of banks is done on basis of data availability so 20 banks are included in sample size. All data have been collected through quarterly financial reports of banks, financial analysis reports published by State Bank of Pakistan (SBP) and Pakistan Bank Association (PBA).

3.1.1 Measurement of Variable

The dependent variables in this study is profitability and profitability of banks is calculated in three way , ROA (return on Asset) , ROE (return on equity) and NIM (net interest margin). Return on asset ratio explains the income generated by bank in quarter in relation to its overall assets. Return on equity ratio the profit

TABLE 3.1: Measurement of variables

Variables	Measuring	Empirical Evidence
Performance		
ROA	Net profit after tax/total asset	Chiappori, perez-castrillo (1995), Samad (2004), Carbo et al. (2009),
NIM	(Interest income - interest expense) /Total assets	S.Claeys & R,Vennet (2003), S.Yuksel & S.Zengin (2017)
ROE	Net profit after tax/equity	John GODDARD et al, (2003) G.Ali (2010) M.Rashid et al. (2015)
Equity ratio	Equity/Total Assets	Berger(1995);Bourke,(1989); Hassan and Bashir,(2003), M.Rashid et al. (2015)
Asset growth	Real Asset Growth	R.Aydemir,G.Ovenc (2016)
GDP Growth	Real GDP growth rate	P.Alessandri and D.Nelson (2013) ,C.Altavilla et al.(2017), M.Rashid et al. (2015)
Bond	Quarterly average of Ten year bond rate	P.Alessandri and D.Nelson (2013), C.Altavilla et al.(2017)
KIBOR	Karachi Interbank Offerd rate	C.Borio et al (2015), M.Rashid et al. (2015)
Slope	Difference Between 10 years Bond rate and three months T-Bill rate	C.Borio et al, (2015)

earn by banks in quarter in relation to shareholders investment. Net interest margin is the net spread between interest earn and interest expense. Independent variables are EQR equity ratio Equity ratio expresses the relationship between shareholders equity over total bank assets. Real assets growth explains Quarterly growth in real total assets of banks. Assets growth is real total assets or tangible assets of banks. GDP (Gross domestic product) represents the final of value goods & services produced within a country during a specifed time period, such as a fiscal year. Kibor show Karachi interbank offered rate it is used as short term borrowing rate for banks. Kibor is the lending and borrowing interest rate within Pakistani banks. Slope of the Yield curve is the difference between 10 year bond rate and three months T-Bill rates. HHI shows the value of Herfindahl-Hirchman index. HHI is used to measure the market concentration.

3.1.2 Sample Selection

The sample selections of banks is done on basis of data availability so 20 banks are included in sample size. All the data have been collected through quarterly financial reports of banks, financial analysis reports published by State bank of Pakistan (SBP) and Pakistan banks association (PBA).

TABLE 3.2: Sample Selection

Banks	Number of listed banks (2017)	Final Sample
Public Banks	4	2
Privatized Banks	7	4
Private Banks	18	14
Total	29	20

3.2 Methodology

3.2.1 Interest Rate and Yield Curve Bank Profitability

$$Y_{i,t} = \beta_1 Y_{i,t-1} + \beta_2 LEQR_{it} + \beta_3 Lassetgrowthl_{it} + \beta_4 GDPgrowth_t +$$
$$\beta_5 LGDPgrowth_t + \beta_6 Kibor_t + \beta_7 Ddkibor_t + \beta_8 LDkibor_t + \beta_9 Slope_t +$$
$$\beta_{10} DSlope_t + \beta_{11} LDSlope_t + \beta_{12} HHI_t + \lambda$$

We use three models toexamine the impactof interestrate yield curve and other independent variables on financial sector profitability.

Where Y_{it} are dependent variables, in this westudy used three dependent variables in separate tenders of the model first is ROA returnon eequity ROE, second is return onasset and third is net interestmargin NIM. Return on equity (ROE) calculated through Net profit after tax divided by total equity, ROA Net profit after tax divided by total assets and Net interest margin (NIM).

Interest spread divided by total assets. In this study we incorporate three different types of profitability measurement variables. Consistent with past studies, we used lagged value of dependent variables to capture persistency of profitability. Bank specific macroeconomic variables are used in this study. The independent variables are Equity ratio, asset growth, GDP growth, Kibor (Karachi interbank offered rate) slope of the yield curve and Herfindahl-Hirschman Index (HHI). In this study quarterly data is used from 2009 to 2017.we use this model for NIM and ROA and a separate model for ROE.

$LEQR_{it}$

Equity ratio expresses the relationship between shareholders equity over total bank assets. Equity ratio is calculated through total shareholders equitytotal assets. Equity ratio expresses that the portion of shareholder investment in total assets. Shareholder equity is calculated = share capital + reserves + un-appropriate profit (loss).

$LAssetgrowthl_{it}$

Quarterly growth in real total assets of banks. Asset growth is real total assets

or tangible assets of banks. To find the growth rate of asset the value of asset in current year minus value of asset in previous year.

$LGDPgrowth_t$ (GDP)

Grossdomestic product(GDP) represents thetotal value offinal goods and servicesproduced within a country duringa specified timeperiod, such asa fiscalyear. It isthe most commonlyused single measureof a country'soverall economic activity. As GDP data of Pakistan is available on yearly basis and we use quarterly data, this problem is sort out by using EVIEWS to convert data into quarterly basis recommended by these authors Youssef saidi,Sizyoongo Munenge and Ramesh Chandra paudel.

$Lkibor_t$

Kibor show Karachi interbank offered rate it is used as short term borrowing rate for banks. Kibor is the lending and borrowing interest rate within Pakistani banks. It is proxy of short term interest rate. We used quarterly average of daily KIBOR rate. The daily KIBOR rateis goodproxy for the state bank of Pakistans (SBP) monetarypolicy stance.

$Slope_t$

Yield curve data we use10 yeargovernment bond rate. Yield curve is the difference between 10 year bond rate and three month t.bill rate. (Nelson and Siegel 1987). HHI_{it} show the value of Herfindahl-Hirschman Index. HHI used to measure the market concentration. HHI calculated to sum of the square the market share of each bank is operate.

$$HH_I = \beta 1^2 + \beta 2^2 + \beta 3^2 + \beta 4^2 ::::::: + \beta n^2$$

λ fixed effect model and it is show the error term in the model.

The most important key variables in this study we use are Three month t.bill rate for short interest rate and slope of the yield curve. In addition for short and long term interest rate we use first lags (L) and first difference (D) of both interest rate and slope levels, while to measure the short term and long term effect of level terms of KIBOR and slope we use lags. To control short term effect of interest rate we use first difference Alessandri and Nelson (2015).

3.3 Panel Data Analysis

Panel data analyss is used when data have time seres and cross section data. Time series means the collection of data at specific order and equal space for example monthly quarterly half yearly and annually data for the period of 2009 to 2017, cross section data means the collection of data of the firm and individual of specific time for example one year data. In this study use the panel data analysis. In the panel data three different model used and each have different assumptions. The first is common effect model, second is fixed-effect model and last is random-effect model. There are two different tests to use for determine which of the model to be used for panel data analysis, in common effect and fixed model used the likelihood ratio test to identify which model is approprate.

H0: Common effect model is appropriate.

H1: Fixed effect model is approprate.

If answer is significant then reject null hypothesis and if answer is insignificant then use null hypothesis. In this study the answer is significant so used the fixed effect model.

In fixed effect and random effect model used the Hausman test to identify which model is appropriate.

H0: Random effect model is appropriate.

H1: Fixed effect model is appropriate.

If answer is significant then reject null hypothesis and if answer is insignificant then use null hypothesis. In this study the answer is also significant so used the fixed effect model.

Chapter 4

Results and Discussion

4.1 Descriptive Statistics

Descriptive statistics basically help to define the basic characteristics of data and present the simple and easy summary about the simple and measure. Descriptive statitics include mean, median, max, minimum and standard deviation. These statistics shows average behavior of the data..

TABLE 4.1: Descriptive

Variables	Mean	Maximum	Minimum	Std.Dev
BOND	0.1136	0.1486	0.0779	0.02267
EQR	0.0869	0.3138	0.0028	0.04655
GDP	0.03802	0.057	0.016	0.01286
HHI	0.1959	0.4613	0.0582	0.10779
KIBOR	0.0927	0.1301	0.0569	0.02552
NIM	0.0087	0.0963	-0.0023	0.00447
RAG	0.0301	2.2574	-0.3903	0.12992
ROA	0.0016	0.0517	-0.0314	0.00453
ROE	0.0087	0.1662	-9.7088	0.36646
SLOP	0.0209	0.0426	0.00051	0.011

Note: Variables: NIM , ROA (returnon asset), ROE (returnon equity), EQR (equity ratio), Assetgrowth(the growthrate ofreal totalassets), Gdpgrowth(real GDPgrowth), Bond (government bond ratewith 10-yearmaturity), And kibor (thequarterly average ofthe daily interest rate)..

The summary statistics about Return on assets (ROA) shows that average value of 0.0016 in overall Pakistani banking industry. This value shows that average return on assets of banks is 0.3%. The standard deviation of ROA is 0.0045 while the maximum value of ROA is 0.051 and minimum value of ROA is 0.031.

NIM is the abbreviation of Net interest margin. The mean value of NIM depended variable is 0.0087 while minimum and maximum values are -0.0023 and 0.096 on the other side the value of standard deviation is 0.0044 in Pakistani banks. ROE is also depended variable and the summary statistics about ROE shows that the mean value of 0.0087 in overall Pakistan banking industry. The value shows that average return on equity of banks is 0.08% and the standard deviation of ROE is 0.036 while the maximum of ROE is 0.16 and minimum value is -9.70. The minimum and maximum value is highly variation with each other. EQR is abbreviation of equity ratio; Equity ratio is used to measure equity to debt ratio. The mean value of equity ratio is 0.086 while the standard deviation is 0.046 on the other side the value of standard deviation is 0.046 in Pakistani banks.

The mean value of bond is 0.11 and minimum & maximum value is 0.077 and 0.14. While the standard deviation 0.022 and maximum value is 0.14 and minimum value is 0.077. GDP growth rate value is 0.038. The maximum value of real GDP is .057 while minimum value is 0.016 and standard deviation is 0.012.

Herfindahl-Hirschman Index (HHI) mean value is 0.19 and standard deviation is 0.10. The minimum and maximum value of Herfindahl-Hirschman Index (HHI) is 0.058 and 0.46.

Karachi interbank rate (KIBOR) the average value is 0.092. The minimum and maximum value of KIBOR is 0.056 and 0.13. The standard deviation of KIBOR is 0.025.

The mean value of Real asset growth is 0.030. While the maximum value of real asset growth in Pakistani banking industry is 2.25 and minimum value of real asset growth is -0.39. The standard deviation of real asset growth is 0.12. Slope means the difference between ten year bond rate and quarterly average of daily KIBOR rate. The mean value of Slope is 0.020 and standard deviation is 0.010. While the minimum and maximum value of Slope is 0.0005 and 0.042.

4.2   Correlation Analysis

Correlation shows the association among the variables. Correlation also shows the relationship between two variables is strongly or weakly correlated. In this table the (2) EQR is positively correlated with lag real asset growth 0.1352. LEQR is negatively correlated with GDP 0.0027. LGDP is positive correlation with EQR 0.0018. KIBOR is negative correlation with EQR -0.012. LEQR is positive correlation with DKIBOR. The relationship between LDKIBOR is positive with LEQR 0.0194. The relationship among LEQR and SLOPE, LSLOPE, DLSLOPE is positive 0.0034, 0.010, 0.0034.the relationship between LEQR and HHI is negative.

Lag real asset growth is positively correlated with GDP 0.0025. LGDP and LRAG are positively correlated 0.0018 because when GDP is increases real assets of the banks also increases as GDP is the measure of economic condition of country when economic is in better position or in rising trend then positive impact on real asset growth. The relationship between KIBOR and DKIBOR is positive with LRAG 0.027 and 0.0003. LRAG and slope is positively correlated with each other 0.0703. LRAG and DSLOPE are positive correlated 0.0053 and HHI is negatively correlated with LRAG -0.0265.

The relationship between LGDP and GDP is negative -0.127. The correlation between GDP and KIBOR is positive 0.1103. LGDP and DKIBOR is negatively correlated -0.0148. Lag of difference of KIBOR is positively correlated with LGDP. 0.1301. Slope of the yield curve and LGDP is negatively correlated -0.0828. DSLOPE and GDP is negative relationship -0.0258. LDSLOPE is negative relation with GDP. HHI and GDP positively correlated with GDP 0.130.

LGDP and KIBOR is positive association. The relationship between LGDP and DKIBOR is negative -0.0148. LDKIBOR and LGDP is positive relationship 0.1301. Slope and LGDP is positive correlated 0.0471. The relation among LGDP with DSLOPE and with HHI is positive and with LDSLOPE the relationship is

TABLE 4.2: Correlation Matrix

Correlation	LEQR	LRAG	GDP	LGDP	KIBOR	DKIBOR	LDKIBOR	SLOPE	DSLOPE	LDSLOPE	HHI
LEQR	1										
LRAG	0.135	1									
GDP	-0.003	0.003	1								
LGDP	0.002	0.037	-0.127	1							
KIBOR	-0.013	0.027	0.11	0.062	1						
DKIBOR	0	-0.041	0.092	-0.015	-0.008	1					
LDKIBOR	0.019	0.002	-0.051	0.13	-0.251	0.284	1				
SLOPE	0.003	0.07	-0.083	0.047	-0.293	-0.145	-0.145	1			
DSLOPE	0.011	0.027	-0.026	0.035	-0.34	0.093	-0.064	0.253	1		
LDSLOPE	0.005	0.011	-0.011	-0.184	0.044	0.094	0.043	0.012	-0.018	1	
HHI	-0.027	0.01	0.131	0.171	0.042	-0.07	-0.206	-0.095	-0.016	-0.019	1

Note: Thedependent variablsare return onassets (ROA), andreturn onequity (ROE)Netinterest margin(NIM).The independent variablesare LEQR(lag Equityratio) , LRAG(lag of realasset growth)Real GDP (grossdomestic product), LGDP(the lagof GDP), KIBOR rate (quarterly averageof daily interestrate) DKIBOR(first difference ofKIBOR) LDKIBOR(lag offirst difference ofkibor), SLOPE(difference of 10 yearbond rate anddaily KIBOR), DSLOPE(first difference ofslope), LDSLOPE (lagof first difference ofSLOPE) Herfindahl-Hirschman Index (HHI).

negative -0.184. The relation of KIBOR and DKIBOR is negative -0.0083. LD-KIBOR and KIBOR is negatively correlated -0.251. Slope of the yield curve and lag difference of KIBOR is negatively correlated -0.293. LDSLOPE and KIBOR is positive relationship 0.0437. HHI and LDKIBOR positively correlated.

The correlation between DKIBOR and LDKIBOR is positive 0.2841. Slope and HHI is negatively correlated with DKIBOR -0.145, -0.0704. DSLOPE and LD-SLOPE positively correlated with DKIBOR. Slope of yield curve is positively correlated with DSLOPE and LDSLOPE. While HHI negatively correlated with yield curve. LDSLOPE and HHI positively correlated.

4.3 Results of Fixed Effect Model for Net Interest Margin (NIM

In this table show the result of dependent variable is net interest margin (NIM). Net interest margin (NIM) show net interest spread. Net interest spread is difference between interest income and interest expense of banks.

The value of R2 0.55 indicates that he model strong explanatory power. The value of ADj-R2 0.49 shows that the independent variables explain variation in dependent variables. Short term interest rate and slope of the yield curve are positive and significant impact on net interest margin. Banks eventually lend inward short term from their lenders and lend out long term to their borrowers.Rise in short term interest rate or down fall in long term interest rate flattens the slope of the yield curve, a signal for decrease in upcoming future country economy. A low demand and supply for credit money is sign of slower macroeconomic trend in the country. On the other hand a steeper curve is witness future rise in the economic. While Net interest spread is positively affected by steeper yield , therefore, in boom period of economy rise the credit demand and supply Estrella and Hardouvelis (1991) and arduvelis, 1991 Arian et al 2010. Interest spread or interest income and interest rate is directly related with each other, as NIM is the

TABLE 4.3: Results for Fixed Effect Model for Net Interest Margin (NIM)

Variable	Coefficient	Std. Error	t-stat	Prob.
LNIM	0.3724***	0.0108	0.0563	0.0000
LEQR	0.0154**	0.0654	0.7034	0.0014
GDP	-0.1397	0.0170	-0.2747	0.1302
LGDP	0.0090	0.0257	0.5360	0.1642
KIBOR	0.0057*	0.0567	0.7781	0.0860
DKIBOR	-0.0347***	0.0123	-2.4028	0.0016
LDKIBOR	-0.00882*	0. 0529	-1.2382	0.0547
DSLOPE	-0.0671***	0.0259	-3.3082	0.0000
SLOPE	0.0074***	0.0543	2.8893	0.0000
HHI	0.0156	0.0120	1.4109	0.3480
LDSLOPE	-0.0186	0.0264	-0.0973	0.2517
LRAG	-0.0088	0.0191	-0.7148	0.1329
R-squared	0.5530			
Adjusted R-squared	0.4928			
Durbin-Watson stat	1.5264			
F-statistic	8.0835			
Prob(F-statistic)	0.0000			

Notes: ***, ** and * denote significanceat One percent, 5 percent and 10percent, respectively. Variables: NIM(net interestmargin), LNIM (thelag ofNIM), LEQR (the lag of the equity ratio), LAssetgrowth (thelag of the growth-rate of real total-assets), Gdpgrowth(real GDPgrowth), kibor (thequarterly average ofthe daily interestrate), Dkibor(the firstdifference of thekibor rate), LDkibor(the lagof thefirst difference ofthe kiborrate), Slope (theslope ofthe yieldcurve), DSlope (thefirst difference ofslope), LDSlope (thelag ofthe first differenceof slope), HHI (Herfindahl Hirschmanindex). F statistic testsfor the overall significance ofthe model.

income generated through difference of interest spread between interest income and interest expense. In Pakistan banks income is more dependent on interest income as compare to other develop countries because in developed countries non-treading and interest rate hedging activities have influence on banking income. These hedging and non-interest income contributes positively and significantly on banking profitability. Higher or rising interest rates impact positively on NIM as interest rate increases the interest income of the banks Javaid et al. (2011); Saeed

2014). In this study the main independent variables are interest rate and slope of the yield curve have significant impact on bank net interest margin (NIM). A rise in short term interest impact positively and increase interest margin of the banks. A 100 basis points rise in interest rate and slope of the yield curve increase the net interest spread of Pakistani banks by 0.5 and 0.94. The impact of change in interest rate and slope of the yield curve on bank profitability is very small due the sensitivity of interest rate change is high and the treading activities and non-interest services are very small.

Lequity ratio significantly and positively impact on interest NIM. The past studies Berger and Humphrey (1992); Bourke (1989); Hassan et al. (2017) shows that the equity to total assets has positive and significant impact on banks profitability. They explain that increase in shareholder equity decrease the external funding, equity to total assets absorb the expected losses and risk associated with debt funding by reducing the cost of going bankrupt. Equity ratio (EQR) is positive and significant impact on interest margin. Increase in owner capital impact positively on interest spread as banks have to pay out less interest on borrowing.

Other bank specific, macro-economic and banking industry specific variables LGDP, lag asset growth and HHI is insignificant impact on net interest margin of the banks. Işik and Belke (2017) by using panel data studied the impact of macroeconomic and bank specific variable for the period 2010 to 2015 and they finds that the GDP is insignificant impact on banks interest income in Turkey. Real asset growth is insignificant and positive impact on bank profitability. Increase in the assets of bank are insignificant impact on profit of banks the possible reason is that the assets are not manage well and these assets are not properly used for productive objectives. The inefficient use assets turn into negative on the performance of the banks. Growth of bank total asset is positive impact profitability of banks by using resources efficiently and by increasing productivity but large banks might become inefficient in their performance due to complex bureaucratic system and too larger in size to fail Pasiouras and Kosmidou (2007). Naceur (2003) examined the impact of size of banks on profitability of financial sector, as size is also related with economies of scale and dis economies of scale, also the efficient use of

resources. Mostly total assets growth is termed as bank size. Bank size impact negatively on financial sector net interest spread and profitability, the study shows that if the size of bank is larger than net interest income is low. Larger financial institutions show negative interest income. The empirical study suggests that if the size of the banks reduces their interest margin would increases. Javaid et al. (2011) studied the impact of real total assets on bank profitability in Pakistan the study shows that increase in real assets of banks are not necessarily lead to rise in profitability and results shows insignificant impact on profitability. The results show as increase in real assets of banks negative and insignificant impact on bank profitability, a rise in real assets deceases the profitability of banks.

4.4 The Results of Fixed Effects Model for Return on Assets (ROA)

Dependent variable ROA return on assets and used fixed effect model. The R-squared is 0.5085 shows that the model has strong explanatory power. The value of Adj. R-squared is 0.4309 that the 43.09 percent variation between independent variables and dependent variable. The value for Durbin Watson is 1.58902 means there is no autocorrelation in sample. The variables LRAG, GDP, KIBOR and HHI do not affect the profitability. The impact of GDP is supported by the study of Anbar and Alper (2011), Demirgüç-Kunt (1989), Sufian and Chong (2008). These result is opposite from the theory which asserts that GDP growth decrease the profitability of financial sector. This opposite result may be due to customer preferences of depositing or choice of loan taking or asymmetry of information or lack of information about economic changes in country Kanwal and Nadeem (2013). Lag gdp is negaitive and significant impact on ROA.

While the main variables of our study are significantly impact on profitability of banks. Short term interest rate and slope of yield curve positively and significantly impact on ROA. In ROA the non-interest income and other income is also included so the impact of interest rate and slope of yield curve is less than NIM. Typically

Table 4.4: Results for Fixed Effect Model for Return on Assets (ROA)

Variable	Coefficient	Std. Error	t-Stat	Prob.
LROA	0.1573***	0.0511	0.0353	0.0031
LEQR	0.00472***	0.0371	1.0180	0.0000
GDP	-0.0024	0.0696	-1.0275	0.1571
LGDP	-0.0052***	0.0741	-4.3740	0.0000
KIBOR	0.0087	0.0337	0.0648	0.3416
DKIBOR	0.03035***	0.0463	2.7120	0.0023
SLOPE	0.01540***	0.1322	3.7410	0.0000
DSLOPE	-0.0047**	0.0341	-2.2372	0.0059
HHI	-0.0251	0.0576	-0.5678	0.6943
LRAG	0.0038	0.0114	0.4648	0.2937
R-squared	0.5158			
Adjusted R-squared	0.4379			
S.E. of regression	0.0047			
Durbin-Watson stat	1.5890			
F-statistic	7.0364			
Prob(F-statistic)	0.0000			

*Note:: ***, ** and * denote significance at 1percent, 5percentand 10percent, respectively. ROA(return on asset), LROA(the lag of ROA), LEQR(the lag equity ratio), LAssetgrowth(lag of the growth rate of total assets). Gdpgrowth(real GDP growth), KIBOR(the quarterly average ofthe daily interestrate), Dkibor(the first difference ofthe kibor rate), Slope(the slope ofthe yieldcurve), DSlope(first difference ofslope), HHI(Herfindahl.Hirschman index)..*

banks charges fees for their services and other trading activities income is also part of ROA. Net profit over equity is positive and significant impact on ROA. This result is consistent with the results study by Javaid et al. (2011) well capitalized banks experience more profits. Lag equity ratio significant and positive impact on return on asset. The owners investment is significant impact on return on asset, the increase of owner investment decrease the outer sources of funding and banks have to pay less amount to their lenders. Equity investment also decreases the cost of risk of different types of risk associated with borrowed money.

4.5 Results of Fixed Effect Model for Return on Equity (ROE)

Table shows the result of ROE and used regression fixed effect model. The value of R-squared is 42.06 percent shows that the model has strong explanatory power. The value of Adj. R-squared is 0.3756 percent that the 37.56 variation between independent variables and dependent variables. The value of Durbin Watson is 1.7069 means there is no auto correlation in sample. Real asset growth and HHI is insignificant and positive impact on ROE. Net profit after tax over equity, interest rate and has significant and positive impact on ROE. The slope of the yield curve and interest rate is consistent positive impact on ROE. These reults are consistent with the study of Demirgüç-Kunt and Detragiache (1998) and Staikouras and Wood (2004) and Borio and Disyatat (2015) investigated the impact of monetary policy by using financial data of 109 international banks from 1995 to 2012. Monetary policy works primarily through its imminent impact on the shorter term interest rate and term structure of interest rate. Through policy rate central bank closely controls short term interest rate. Expectation about future rate policy rate influences the yield curve more indirectly.

As in ROE the non-interest income is also important role because banks engage in non interest activities like charge fee for various services they have performed for their customers. Dinçer and Yüksel (2018) comment in their study that, non-interest earning is positive and significant impact on banking profitability. Their studies shows that focusing on new product & services like inter net banking, credit card fee and providing services on commission base enfluence the financial performance of banking industry. The overall result shows that the interest rate and slope of the yield curve is significant impact on bank profitability in Pakistan. While interest rate is more impact on ROA and NIM as compare to ROE because interest income is more sensitive with change in interest rate. In the short run both short term interest rate and slope is negative impact as Pakistani banks are not so efficient to adjust the change in interest. Higher interest rate and steeper yield increase the cost of funds in the short run which is adverse impact on NIM.

However in long run banks adjust their interest rate price with lending and borrowing. Real assets growth positive and insignificant impact on return on equity.

TABLE 4.5: Results for Fixed Effect Model for Return on Equity (ROE)

Variable	Coefficient	Std. Error	t-Stat	Prob.
LROE	0.0513	0.0122	0.3521	0.1103
LEQR	0.0717*	0.2541	1.7640	0.0140
SLOPE	0.0196***	0.0614	3.0815	0.0000
KIBOR	0.0902**	0.0642	2.1146	0.0216
HHI	0.2360	0.0135	0.0464	0.3823
LRAG	-0.0358	0.0217	-1.7428	0.3721
R-squared	0.4206			
Adjusted R-squared	0.3756			
S.E. of regression	0.0088			
Durbin-Watson stat	1.7069			
F-statistic	8.1076			
Prob(F-statistic)	0.0000			

Note:***, ** and * denote significance level at 1 percent, 5 percent and 10 percent respectively. Dependent variables ROE (return on equity) LROE (the lag of ROE), LEQR (the lag of equity ratio), LAssetgrowth (the lag asset growth rate of real assats), Kibor (the quarterly average of daily kibor), slope (the slope of the yield curve).

Chapter 5

Conclusion

Using fixed effect model technique we investigated how interest rates and yield curve impact bank profits in Pakistan using unbalance data set form 2009 to 2017 on quarterly basis. For the dependent variables we use NIM (net interest margin), return on assets and return on owner fund to check the impacts of short term interest and slope of the yield curve. For short term interest rate we use quarterly average of daily KIBOR rate and for slope of the yield curve we use 10 year government bond rate less three month t.bill rate. We also use bank specific, industry specific and micro economic variables, Assets growth, equity ratio are use as bank specific and HHI as industry specific and GDP as macroeconomic variable. All Data is used are on quarterly basics. The empirical finding explore that the impact of short term interest and yield curve is negative in the short term and turn to be positive in the long run. Other bank specific and macroeconomic variables does not impact significantly on profitability expect equity ratio. These results are consistent with results of pat studies.

The Banks operating in Pakistan should also concentrate on efficiency and used of financial assets. The study explore that the banks operating in Pakistan are not well managed and the used of these financial assets. Equity performs well over debt financing because the risk associated with the debt financing is high in Pakistan due to uncertainty. Equity financing also reduce the burden of debt and solvency issues. A rise in equity ratios of banking sector is desirable due to low risk. As Pakistani banking is more sensitive with change in interest rate and monetary

policy shocks and also in Pakistan the earning of banks of non-interest income is very small. As non-interest income is significant impact on bank profitability.

Recommendation

On basis of these findings it is recommended that interest and slope have impact on banks profit and interest rate by using the monetary policy tool by.

• State bank of Pakistan take in into consideration while setting policy rate, as SBP (state bank of Pakistan) is the central bank of country has to manage new policies recording interest rate and banks profit for the betterment of the financial sector industry.

• Also the banks operating in Pakistan increase the ways of earnings by creating new opportunities and by offering new product and services. As non-interest income is significant impact on bank profits they have to introduce new product and services to generate more income.

• The study also suggests that the bank specific factors that may impact on the financial sector profits have to be managed well and review time to time. The economy of scale and efficient use of financial assets are very important to earn more profits and minimizing cost of funds.

Research Direction

For future directions the study may purpose following recommendations.

• More bank specific variables like non-interest income, non-performing loan could include in the future study.

• Macroeconomic variables like inflation rate, exchange rate may impact the profitability of banks so these should be included in study.

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