

**Impact of Macroeconomic Factors on Performance of
Commercial Banks in Pakistan**



Submitted by

Javed Ali

Supervised by

Dr. Farhat Mahmood

Department of Business Studies

Pakistan Institute of Development Economics, Islamabad

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By

Javed Ali

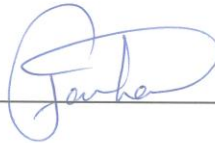
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For the Pakistan Institute of Development Economics, Islamabad

External Examiner: _____



Supervisor: _____

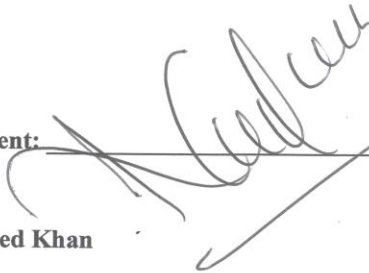


Dr. Farhat Mahmood

Lecturer

PIDE, Islamabad.

Head of Department: _____



Dr. Nadeem Ahmed Khan

Head, Department of Business Studies,

PIDE, Islamabad

Declaration

I **Javed Ali** solemnly declare and affirm on oath, that I myself have Authored this MBA thesis with my own work and means, and I have not used any further means.

Javed Ali

Reg No: PIDE2018FMBA (1.5)01

DEDICATION

I would like to dedicate this thesis to all of my family members.

ACKNOWLEDGEMENTS

I can no other answer make, but, thanks, and thanks. ~William Shakespeare

This has been a long journey for me. It was not the easiest path on earth, yet definitely one of the most wonderful learning experiences, I have so many people to thank for making this journey possible and enjoyable. I would like to start by thanking from my supervisor Dr. Farhat Mahmood. Dr. Farhat Mahmood has generously lent me her expertise in research and it was a great honor for me to work under her supervision. Special thanks go to my family and friends.

ABSTRACT

Based on the significant contribution of the listed commercial banks to the economic progress of Pakistan, this study investigates the impact of macroeconomic factors on the profitability of the listed commercial banks in Pakistan for years 2006 to 2018. Panel data estimation techniques have been used to examine the effect of five major external factors i.e. GDP, Interest rate, Inflation rate, Exchange rate and Money supply on profitability of commercial banks of Pakistan. The indicators used to measure the profitability of banks are return on assets (ROA) and return on equity (ROE). The finding shows that the selected macroeconomics factors have negligible impact on commercial bank's profitability.

Keywords: - ROA, Interest rate, ROE, Inflation rate, GDP, Exchange rate and Money supply

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CHAPTER 1

INTRODUCTION

1.1 Overview of Financial System

Financial System is the system that allows exchange and transfer of funds between lenders, borrowers and investors. Financial system can also describe, as an organization that exchange and transfer the excess funds from individual and organization with surplus to those with deficits. It is consisting of legal structure, financial instruments, and institutions and individuals dealing with the flow of funds. It operates at domestic level and global level. Moreover, it consists of closely related goods and services, complex markets and financial institutions intend to facilitate and provide proper, efficient and regular relationship between the depositors and investors.

In the system the functions of financial institutions such as banks are very important to manage in order to generate positive returns. Their basic and fundamental role is to assist and channelizing the funds from surplus into deficit economic entities. The essential and critical instrument in fulfilling the pioneer function is to guide the flow of scarce essential financial resources to investment for higher interest rate and to gain the highest return. According to Sunbelt and Cube (1994) the efficient financial system is critical not just for the local mobilization of capital, but as a source for gaining competitive advantages for capital in the global markets and also to use the resources through proper channel¹.

The functions of financial system are to improve the financial system efficiency on intermediation by exploring and expending the information and reducing the

¹ The channel means to provide a platform to investors.

monitoring cost and transaction cost. The modern financial system creates opportunities for the investment and promote the investment cycle, and provide good business opportunities, enables the trading, valuate and monitor the performance of authorized managers, assemble the savings, to facilitate and provide the opportunity of exchange of goods and services, risk hedging and the diversification of risk in the financial markets. The most efficient² functions are allocations of resources, human capital and accumulations of physical capital with more fast technological progress and also to developed economic growth Creane, et al. (2004).

1.2 Overview of Pakistani Banks

After the independence , Pakistan had done notable efforts for the development of commercial banking sectors of the country. The Pakistani financial system is measured as an essential part of macroeconomic factors policy. Time to time policy makers have done financial reforms for the effective mobilization of funds and to increase domestic savings. From 1947 up to 1980s, Pakistan have focused on necessary infrastructure, introduced new reforms to support different macroeconomic factors policy. In the early period of independence, financial sector has remained seriously controlled and the interest rates were administratively set and it was usually negative in real terms of economy. The monetary policy was introduced for the direct allocation of credit. At initial stage equity market and bond market were virtually nonexistent and the money market was underdeveloped. The new commercial banks of Pakistan often have to offer loans to priority sectors and were concernend with the borrowing firm's profitability. From 1970s to 1980s the macroeconomic condition of the country was unstable due to economic crises conditions as well as political

² The financial system efficiency means that it must pay depositors favorable rates of interest rates and charge Borrower favorable rates of interest on their provided loan.

conditions. The government of Pakistan introduced policies to overcome the financial system difficulties and increased the country economic growth. The key purpose of these policy reforms were better allocations of financial resources, exploring the level playing field for financial institutions and financial markets for introducing competitive environment, exchange rates and credit risk management etc. The reforms suggest that the main goal to diminish the extra government cost of borrowing on domestic debts. The other objective was to boost the private sector credit expansion in the country. The State Bank of Pakistan (SBP) policy is adoptable towards other registered commercial banks in Pakistan. Anwar (2011) found the banking structure reforms in Pakistan were introduced to address the issues like interest rate fluctuations, privatization of government sector banks and decline of profits in commercial banks. In 2002 Islamic banking system was introduced in Pakistan and registered with Karachi Stock exchange (Pakistan Stock Exchange). In 2008-2009 during global financial crises Islamic banks earns profit and perform very well as compare to other listed commercial banks. Economy of Pakistan (2012) report point out the large size banks are relatively robust to macroeconomic factors.

Profitability as defined by Rose (1999) is the net after-tax income of banks measured by return on assets and return on equity ratios. There exists numerous external factors that affect profitability ratios such as GDP, inflation rate, real interest rate, imports and exports of a country etc. In Pakistan, commercial banks have been affected by the macroeconomic conditions as it is evident that over the past decade, Pakistani banks have faced financial stability challenges due to changes in economic indicators (e.g. see Staikouras and Wood (2004) and Kosmidou, Tanna, and Pasiouras (2005) give evidence of significant contribution of external factors towards earnings of banks, but in Pakistan only few studies such as Ali, Akhtar, and Ahmed (2011) and

Gul, Irshad, and Zaman (2011) have done research into this topic covering only five years' time period. On the other hand, in case of Pakistan, most of the previous studies have checked the impact of fundamental/internal/banks specific factor on its profitability. This study will identify the key external elements that have impact on the performance of banks.

1.3 Objective of the Study

The objective of this research study is to study the association between macroeconomic variables and profitability of listed commercial banks in Pakistan over the period 2006-2018.

1.4 Research questions

- What is the impact of macroeconomic factors on Return on Assets (ROA) on Pakistani banks?
- What is the impact of macroeconomic factors on Return on Equity (ROE) on Pakistani banks?

1.5 Significance of study

The banking industry of Pakistan is rapidly growing. Every bank is trying to enhance overall performance in order to occupy a better position in financial system. This study does not only helpful for the bank managers but also valuable for other stakeholders such as public, government, State bank of Pakistan and other financial institutions.

1.6 Organization of study

The paper is organized as follows: chapter one covers introduction, objective of study and the significance of the study; chapter two focuses on literature review; chapter three is about the research methodology; chapter four covers data analysis, results and discussion. Finally, chapter five presents conclusion.

CHAPTER 2

LITERATURE REVIEW

Kanwal and Nadeem (2013) have investigated the relationship between banks profit (using ROA, ROE as profit proxies) and macroeconomic determinants factors (i.e. GDP, Inflation, Interest rate). They have used panel data from 2001-2011 for commercial banks of Pakistan. As per findings of this study the inflation rate has negative and significant relation with ROA and GDP relationship is positive but insignificant in case of ROA. The inflation rate association is positive and significant with ROA while it has-statistically negative but significant impact on ROE. Finally ,GDP shows negative and insignificant influence with ROE and interest rate shows positive and significant relationship with ROE.

Ilo (2011) stated that relationship between banks performance and macroeconomic external factors. They have used panel data from 2002 to 2012 for the effect of financial performance of commercial banks in Kenya. They have explored that GDP, inflation rate, broad money supply and interest rate have positive and significant effect while the exchange rate has negative but insignificant influence on ROA. Same results have been found by Gul et al. (2011) for the GDP and Inflation. Both macroeconomic factors have direct and significant relationship with ROA. If expected general inflation rate is high in the future, they consider that they will increase their interest rate. Then anticipated inflation will be equivalent to the real inflation rate and results shows positive effect on banks performance and also no decrease will be in business activities Windram and Driver (2009).

Riaz and Mehar (2014) explored the association between banks determinants and macroeconomic external factors on the profitability of commercial banks of Pakistan. They have used panel data from 2006 to 2010 to analyze the profitability of listed

commercial banks in Pakistan. They found that GDP has positive and significant effect on ROA and ROE. But interest rate has negative and insignificant relationship with banks profitability of commercial banks.

Sharma and Mani (2012) investigated the relationship between banks profitability and macroeconomic external factors in the country, they have used panel data from 2006 to 2012. They observed insignificant connection between GDP and ROA. Zeitun (2012) found that macroeconomic external factors on banks performance of Gulf countries. They have used cross sectional data, time series data and panel data for research to find the impact on each other. The results show that GDP has positive and significant correlation with banks' performance ratios (ROA and ROE), but inflation rate has negative and significant association with banks performance ratios.

Bashir (2013) examined the results of anticipated inflation and unanticipated inflation for the performance of banks. The impact of anticipated inflation mostly positive while unanticipated inflation effect negative towards the profitability of banks. The output of anticipated inflation is positive because the banks have an opportunity to adjust the inflation rate and gain profit on base of adjusted inflation rate. As a result the revenue trends to improve (increase) as compare to total cost.

Kipngetich (2011) investigated the association between the interest rate and financial performance of commercial banks in Kenya. They have found that the relationship is positive and significant between interest rate and financial performance of commercial banks in Kenya. Commercial banks have an authority to fix and adjust their interest rates according to bank's own policy under the guidelines of central bank for the financial year. The results show the lending interest rates is statistically

positive and significant relationship with the profitability of commercial banks in Kenya.

Pacine (2017) examined the association between macroeconomic factors on the financial firm performance in United Kingdom (UK). They have collected top hundred firms' data for the period of 2000 to 2014. The results show that GDP has positive impact on financial firm performance.

Demirguc and Huizinga (1999) applied liner regression for the data results for the commercial banks. The data is collected data of different (eighty) countries from different regions for various banks. The results found that macroeconomic variables have positive but insignificant relationship with banks profitability because some countries are stable and some are economically weak as compared with each other.

Naceur (2003) used panel data for top stable deposits banks in Tunisia. They found that there is insignificant impact of external determinants (GDP and Interest) on the performance of Tunisia banks.

Saad and Moussawi (2012) investigated the association between inflation rates and profitability of commercial banks in Lebanon. Panel data is used for the period of 2000-2010. The results show that inflation rates does not affect the profitability while credit risk affect the profitability of commercial banks in Lebanon.

Alper and Anber (2011) examined significant relationship between GDP and ROE. GDP shows negative and insignificant influence on ROA. The same result was found by Kanwal and Nadeem (2013) GDP and ROE are negatively significant with each other due to customer choice and profit. Customers have lack of information about the loan and investment which is why it leads to negative and insignificant relationship with each other. The results of macroeconomic determinants are inverse to banks

profitability in case of Pakistan due to fluctuations in inflation rate and saving portion is low.

Gul et al (2011) explored that association between banks performance factors and macroeconomic factors. They have used panel data for listed commercial banks of Pakistan for the period of 2000 to 2009. On the basis of results they have found positive and significant affiliation between external factors and the performance of commercial banks in Pakistan and same results examined by Ali et al (2011).

Demetriades and Hussein (1996) investigated that financial fund is the main and leading macroeconomic in the progression of economic growth in the country or other financial performance firms. Thus they have further explore that causality for bi-directional in majority of the countries but in some areas the development of financial system follows the strong economic growth in the country. Luintal & Khan (1999) collected data of ten different developing countries from different regions and they have found the causality affect between the development of financial system and output growth is bi-directed the sample selected countries. Rajan and Zingalas (1996) found the results for the importance of financial development process growth. The study results shows that they have need to focus on the financial structure and sources of company finance. They have concluded the financial sectors facilitates and provide an opportunity to improve the growth of corporate sector.

Masood and Ashraf (2012) investigated the association between banks specific and macroeconomic factors. They have used panel data for twenty-five Islamic banks of twelve different Islamic countries for the study duration of 2006-2010. They found that Real Gross Domestic Products (RGDP) has negative impact with ROA and positive significant impact with ROE. The other banks specific variables (operating

efficiency, deposits and liquidity) have negative insignificant impact on Islamic banks profitability for the 12 different Islamic banks.

Otuori (2013) examined the relations between the factor of exchange rates and determinants of commercial banks of Kenya. The result shows that the inflation has a negative but significant relationship on the banks' performance of Kenya.

Moore and Craigwell (2000) explored the relationship between commercial banks determinants over the financial spread for the period of 1990. They have found that GDP, market power and provision for loan losses have significant influence on banks spread (i.e. banks performance ratios).

Aburine (2008) examined the association between exchange rate and profitability of commercial banks in Kenya. They have used 154 banks for the period of 1980-2006. They found that exchange rate has negative but significant influence on the profitability of commercial banks in Kenya. They have investigated that macroeconomic factors have negative relation with the ROA (return on assets).

Mwanza (2007) explored the association between bank profit and exchange rate. There is a negative and insignificant relationship between exchange rate and the performance of commercial banks. They have found that exchange rate and banks profitability are negatively related with each other because higher level of exchange rate leads to lower performance in commercial banks. Ali et al. (2011) found the relationship between the factors affecting and the profitability of Islamic in Jordan. They have used multiple linear regression model for panel data for the period of 2005-2009. The result shows that GDP, Inflation rates, exchange rate and other internal factors have positive and significant association with ROE .

Walfe and Amidu explored that relationship between money supply and economic support factors in Ghana for the period of 1998-2004. The monetary policy effects the money supply. They have found that money supply and country economic support significantly affect the banks' lending rate (i.e. bank's behavior). Moreover, the results show that inflation rate negatively and insignificantly affect the banks' lending rates in Ghana.

Zaheer et al. (2009) explored the affiliation between seven macroeconomic risk factors, the return of textile and banking sectors. They have applied Generalized Autoregressive Conditional Heteroskedasticity (GARCH) method for the period of 1998 to 2008. The results show that money supply, exchange rate and other macroeconomic factors have positive and statistically significant impact with the returns of textile and banking sectors.

Siaw and Lawer (2015) used a co-integrated approach for the determinants of banks deposits in short run and in long run in Ghana. They have found that in the short run, inflation rate and money supply show positive effect while inflation show negative effect in long run.

Khrawish (2011) examined the association between external determinants and internal determinants of commercial banks. They found that exchange rate has positive and statistically significant connection with commercial banks but negative and insignificant association with growth rate and inflation rate towards ROA. Goddard et al (2004) examined that the relationship of GDP is positive and significant with bank's profits and stable GDP give profitable opportunity to banks

Aburine (2009) examined the link between the influence of macroeconomic factors with banks performance in Nigeria. They have found positive and significant

association between interest rate and banks performance. The results show that inflation rate is positive and statistically significantly correlated with bank performance (ROA,ROE). Some other studies (Pasiouras and Kosmrdou 2007),Molynex and Thornton(1992) and Sufian et al (2008) found that interest rate and inflation rate has positive and statistically significant correlated with bank profitability.

Bourke (1996) indicated that inflation have negative and significant association with bank profitability, because if anticipated inflation occurred then banks will deal with proper strategy according to the situation and will adjusted to anticipated inflation rate.

Wong et al. (2006) explored the relationship of GDP and inflation, they show positive and significant effect on Return on Assets (ROA) and same results shown by Alper and Anber (2011) for the external factors toward the profitability of banks.Saksovoona and Solovjova (2011) explored the relationship between internal determinant toward the external determinants during the period of economic crises. GDP have positive but inflation have negative affect on ROA. Bilal et al (2013) investigated the association between banks specific factors on the listed commercial banks of Pakistan. They have used panel data for the period of 2007-2011. They found that the external determinant i.e. inflation rate has positive and significant impact on ROA while significant influence on ROE only. The results show that there is positive influence of new business and industry production growth rate. It indicates the rise of production increase the productivity of banks in a country.

Zawadi Ally (2014) explored the relationship between banks profitability and external macroeconomic factors (e.g. GDP, inflation, interest rate). The GDP coefficient is

positive and statistically significant. There is direct association between GDP and banks profitability. When GDP growth trend is positive then the effect on banks is positive and when GDP growth trend is negative the effect of banks profitability is negative in Tanzania. Furthermore, the study results show that the economy in Tanzania have fluctuations but tend to achieve improvement in some macroeconomic factors. The positive impact of GDP with banks profitability has been supported by the studies of Athanaoglou and Staikouras (2006). Demirguc Kunt, Naceur (2003) and NHuizinga (1999) and Flamini et al. (2009). Zawadi Ally (2014) in other study found that the inflation has negative but insignificant impact on return of Tanzania banks. The main reason is to point out that it occurred due to not anticipation of the inflation rate and so not able to adjust their rate according to inflation rate. The same results are explored by Khrawish (2011), Saksonova and Salovjove (2011), Naceur (2003) and Demirguc Kunt and Huizinga (2003) that inflation rate have negative and insignificant impact with returns of banks. Saeed and Akhter (2012) explore the relationship between macroeconomic determinants on returns of banks in Pakistan. The results show that there is a significant but minor influence of macroeconomic factors on the performance of listed commercial banks in Pakistan. Money supply has negative and insignificant influence on banks profitability. Interest rates and exchange rates have positive but insignificant association with the return of banks. Muwanza (2007) supported the studies and they have found that higher level of exchange rate leads to lower the performance of commercial banks.

Maigua and Mauni (2016) examined the relationship between exchange rates and performance of banks in Kenya. The results show that exchange rate has inverse

relationship with commercial banks performance and so there exists a negative and insignificant relationship between exchange rates and banks returns.

CHAPTER 3

DATA SPECIFICATION AND METHODOLOGY

In Pakistan there are in total 30 conventional banks which include 20 privatized local banks, 5 specialized banks and 5 foreign banks. This study take 16 banks out of 30 banks excluding the foreign and specialized banks. The data of macroeconomic variables i.e. Inflation rate, Exchange rate, Gross Domestic Product (GDP) and Money supply are taken from State Bank of Pakistan and World Development Indicator (WDI) data bank. Furthermore, the data of internal factors of banks bank specific variables are taken from consolidated annual reports of bank (Balance sheets and Income statements) of the respective banks included in this research work. The bank specific variables used here are return on asset (ROA) and return on equity (ROE). The below given table **3.1. Mentions the definition and measurement of variables.**

Table.3.1. Data Specification of Variables

| Variables | Definition | Source of Data |
|------------------------------|---|-----------------------|
| Return on Asset (ROA) | For considering marginal efficiency and financial performance of banks, ROA is considered a good indicator. It shows how efficient and competent the management of banks is in allocating assets to generate profit | Annual Report |

$$ROA_{i,t} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Return on Equity (ROE) ROE measures the return rate on common stock holders' equity. It measures the efficiency of banks at making profits from each unit of equity holders. It is calculated as;

$$ROE_{i,t} = \frac{\text{Net Income}}{\text{Total equity}}$$

Inflation rate Inflation rate is used to observe the overall increase in Consumer Price Index (CPI) for all services and goods. It is calculated as;

$$INF_i = \frac{CPI_2 - CPI_1}{CPI_1} * 100$$

Real Effective Exchange Rate (REER) REER is the ratio of nominal effective exchange rate and index of cost or price deflator. SBP

Real Gross Domestic Product (GDP) growth It is used as broad measure of Business cycle. SBP

Real Interest Rate Real interest rate is lending interest rate adjusted to inflation. SBP

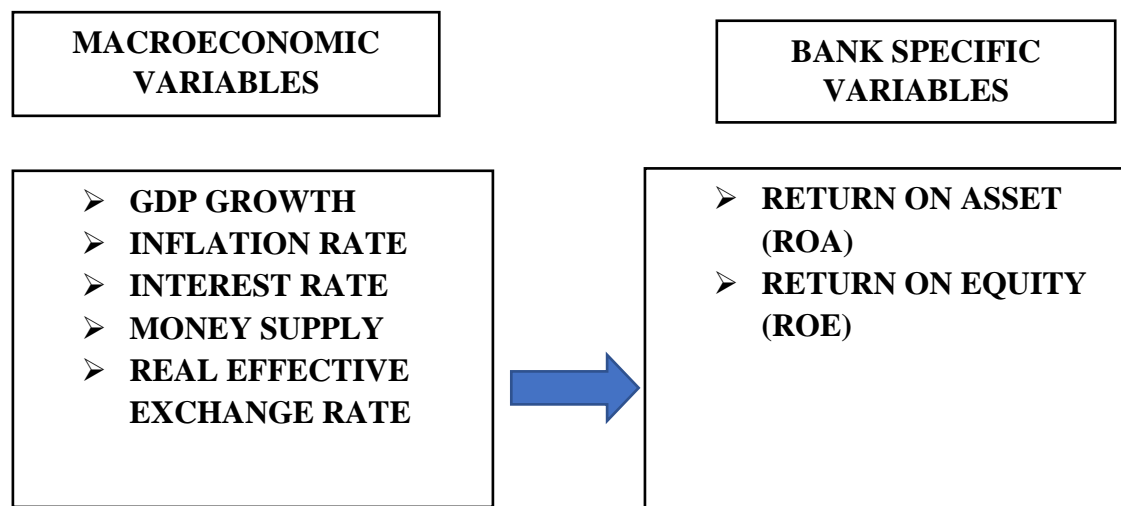
Broad Money Supply It is money in the form of notes or in the form of coins or deposits in banks or other institutions. WDI

Note: After-Tax Net Income is used to calculate ROA and ROE ratio

3.1. Conceptual Framework

In order to investigate the impact of macroeconomic factors on banks profitability this study has taken exchange rate, interest rate, inflation, GDP and money supply as independent variables while the bank specific variables which are ROA and ROE have been taken as dependent variables.. The ROA and ROE are used to describe the growth of banks. So the following conceptual framework is designed to show the scope and concentration of the study in terms of the above mentioned variables.

Figure 1: Macroeconomic and Banks Specific Variable
(Conceptual Frame for Conventional Banks)



Source: author's self-conceptualization

3.2. Model Specification

The following models are used in this research work

Model 1

$$ROA_{i,t} = \alpha_1 + \beta_1 MS_{i,t-1} + \beta_2 GDPG_t + \beta_3 INF_t + \beta_4 INT_t + \beta_5 REER_t + e_{i,t} \quad \dots(Eq.1)$$

Model 2

$$ROE_{i,t} = \alpha_1 + \beta_1 MS_{i,t-1} + \beta_2 GDPG_t + \beta_3 INF_t + \beta_4 INT_t + \beta_5 REER_t + e_{i,t} \quad \dots (Eq.2)$$

Where,

ROA: Return on assets respectively to banks

ROE: Return on equity respectively to banks

MS_t : Broad money supply for bank at time (t).

$GDPG_t$: Annual growth of real gross domestic product at time (t).

INF_t : Annual inflation rate (i.e. CPI proxy) at time (t).

$REER_t$: Real effective exchange rate at time (t).

INT_t : Real Interest rate for bank at time (t)

$e_{i,t}$: the composite error ($e_{i,t} = a_i + u_{i,t}$)

Un-observed bank-specific effect and the idiosyncratic error are represented by a_i and $u_{i,t}$ respectively.

The nature of data used in this study is panel data. The panel data is also termed as longitudinal data. It is two-dimensional in nature which involves measurement over a span of time which have multiple observations spreading over a wide range of phenomena over multiple periods for same organizations, beings and nations etc. Panel data are used because it removes the problem of recognition/identification. Presently it is widely used across economic fields solely because of its growing popularity in different spheres of research work.

The reason of panel data more acceptance is that it escalates the observation number and helps in controlling factors that cannot be calculated or observed like different types of practices in different firms or banks; or variables that have tendency to alter over periods but not across individual units. Further this type of data allows degree of

freedom which minimizes the issue of multicollinearity and thus increasing the efficiency of estimates (Hsiao 2007).

There are two kinds of panel data set which are named as “Balanced” and “Un-Balanced”. The former one contains each observation across each time period, which means none observations are missed during the process while the later one contains some missing values for some factor variables across different periods.

3.3. Estimation Technique

While dealing with panel data the first step is to decide whether to run regression with fixed effects or random effects. In order to opt for the appropriate effect, Hausman test has been run which favours random effect model for the estimation of equations 1 and 2. Random effect Model is used in econometrics for panel data analysis when one supposes that there is no fixed effects. It is also termed as special case of fixed effect model. In this type of model, the intercept sometimes denoted as α is supposed to be drawn randomly from a population with a single constant mean. The meaning of this statement is that the researchers uses Random Effect Model when the sample taken from population is large in size and we take the data values randomly to represent our regression analysis. As this research work uses some fixed amount of total banks so it was preferred to choose Random Effect Model as a representative model.

CHAPTER 4

RESULTS & INTERPRETATION

4.1. Descriptive Statistics of variables

The below table (Table 4.1) shows the descriptive statistics of the macroeconomic variables included in this study. The first column shows that 208 observations are taken for each variable. The second column indicates the average values of the variables where the variable with largest mean value is Real Effective Exchange rate (105.37) followed by the mean of exchange rate (104.22) and mean of return on asset (83.87). The variables with the lowest average values are money supply (15.34) followed by inflation (8.86) and GDP (4.16). The variable having minimum mean value is interest rate (2.34). The third column of table discusses the standard deviation.. The lowest standard deviation GDP (1.48) followed by the interest rate (4.71) and then inflation rate (4.80). The other two variables exchange rate (8.22) and money supply (8.57). In the dependent variables the highest standard deviation is ROE (59.84) and followed by ROA (45.98).

Table 4.1. *Descriptive Summary of Macroeconomic Variable for Full Sample*

| <i>Variables</i> | <i>Mean</i> | <i>Std.Dev</i> | <i>Min</i> | <i>Max</i> |
|------------------------------|-------------|----------------|------------|------------|
| GDP Growth | 4.163077 | 1.484302 | 1.61 | 6.18 |
| Inflation | 8.868462 | 4.803153 | 2.53 | 20.29 |
| Interest rate | 2.347692 | 4.719237 | -6.77 | 8.32 |
| Money Supply | 15.34385 | 8.573171 | 6.52 | 42.91 |
| Real Effective Exchange rate | 105.3715 | 8.227453 | 95.27 | 121.49 |
| Return on Asset (ROA) | 83.87981 | 45.98719 | 1 | 167 |
| Return on Equity (ROE) | 104.226 | 59.84385 | 1 | 207 |

Source: Author's computation

4.2. Correlation Matrix

Table 4.2 Correlation Matrix of variables

| Variables | ROE | ROA | GDP | Inflation | Interest rate | Exchange rate | Money Supply |
|----------------------|------------|------------|------------|------------------|----------------------|----------------------|---------------------|
| ROE | 1 | | | | | | |
| ROA | 0.30 | 1 | | | | | |
| GDP | 0.0577 | 0.0902 | 1 | | | | |
| Inflation | -0.0508 | -0.0853 | -0.8623 | 1 | | | |
| Interest rate | -0.0309 | -0.0211 | 0.2640 | -0.5190 | 1 | | |
| Exchange rate | -0.0010 | 0.0455 | 0.5976 | -0.7934 | 0.5593 | 1 | |
| Money supply | 0.0635 | 0.1227 | 0.3460 | -0.0844 | -0.5248 | -0.224 | 1 |

Source: Author's computation

The above table (Table 4.2) describes the correlation matrix among the variables which is used in this study. In this study the results show that most variables are not highly correlated with each other. On the base of results, the low correlation between the variables means that there is no existence of multi-collinearity problem. In the multi-collinearity model Bryman and Cramer (2001) explain that it will exist when the correlation exceed 0.80 to 0.90.

4.3. Random Effect Model Results

The random effect model results are given as under

Table 4.3 Random Effect model with ROA as dependent variable

| Dependent variable (ROA) | Coefficient | Std Err | P value |
|---------------------------------|--------------------|----------------|----------------|
| GDP | -2.544936 | 2.932191 | 0.385 |
| Inflation | -1.08328 | 1.140355 | 0.342 |
| Interest Rate | -0.017585 | 0.6177149 | 0.981 |
| Exchange Rate | 0.2193202 | 0.4205067 | 0.602 |
| Money Supply | 0.8026256 | 0.3378234 | 0.018 |
| Cons | 68.69078 | 56.7985 | 0.227 |
| Sigma_u | 38.298826 | | |
| Sigma_e | 26.506867 | | |
| Rho | 0.67612729 | | |
| No of Observation | 208 | | |
| R-sq | 0.0224 | | |

Source: Author's computation

The above table shows that ROA is dependent variable on which the independent variables are regressed through random effect model. The first independent variable is GDP, the coefficient of which shows that one unit change in GDP will change the dependent variable by 2.54 units. The negative sign implies that they have inverse relationship. The coefficient and p value indicates that they have negative and insignificant relationship. Inflation and interest rate also have negative and insignificant relationship with the dependent variable ROA. The former with a coefficient of -1.08 and the later with coefficient of -0.01. The p values of inflation and interest rate are 0.34 and 0.98 respectively. Whereas exchange rate has positive and insignificant relationship with ROA. The coefficient value of exchange rate is 0.21 and p value 0.60. Money supply has positive and significant relationship with ROA with coefficient of 0.80 and p value of 0.01.

Table 4.4 Random Effect model with ROE as dependent variable

| Dependent variable (ROE) | Coefficient | Std Err | P value |
|---------------------------------|--------------------|----------------|----------------|
| GDP | -1.020454 | 6.490088 | 0.875 |
| Inflation | -2.154097 | 2.524052 | 0.393 |
| Interest Rate | -0.8057558 | 1.367245 | 0.556 |
| Exchange Rate | -0.6211628 | 0.9307463 | 0.505 |
| Money Supply | 0.037771 | 0.7477357 | 0.962 |
| Cons | 194.3733 | 123.9685 | 0.117 |
| Sigma_u | 14.120779 | | |
| Sigma_e | 58.670094 | | |
| Rho | 0.05475552 | | |
| No of Observation | 208 | | |
| R-sq | 0.0096 | | |

Source: Author's computation

Table 4.4 shows the dependent variable in this case is return on equity on which the independent variables are regressed. The table shows that the Gross domestic product, inflation, interest rate and exchange rate have negative relationship with return on equity while money supply has positive relationship with ROE which means that increase in money supply in the economy will increase the ROE of the banking sectors of Pakistan. Gross domestic product has coefficient of -1.02 and p value of 0.87 which shows negative and insignificant relationship with ROE. Inflation has coefficient of -2.15 and p value of 0.39 which is negative and insignificant relationship with ROE. Return on equity also has negative and insignificant relationship with interest rate and exchange rate with coefficients of -0.80 and -0.62 and p values of 0.55 and 0.50 respectively. Money supply has positive but insignificant relationship with ROE with coefficient of 0.03 and p value of 0.96.

The above results about GDP are supported by other researchers such as Demircuc-Kunt & Huizinga 1999, Macdonal & Schumacher 2009; Sufian 2011; Sharma & Mani 2012; Alper & Anber 2011; Sufian & Chong 2008. Inflation rate, interest rate and exchange rate results are supported by Kanwal & Nadeem 2012; Illo 2011; Gul et al. 2011; and money supply results are supported by Saeed & Akhter 2012.

Money supply have positive and significant relationship with ROA because if banks engage in loans to corporations, it will have an increasing impact on money supply as liquidity is injected into economy and generate positive cashflows. Then in times of positive economic activity these cashflows can rise and therefore the banks income. Therefore we see a positive significant impact of money supply on banks ROA.

Exchange rate have positive and insignificant relationship because most commercial banks in the economy do not hold foreign assets or deal in foreign currency reserves. Therefore their income are not dependent or effected by exchange rate fluctuations. We see the insignificant but positive impact because some banks may prosper because they hold small amounts of foreign currency reserves.

Money supply positive but insignificant relationship with banks performance. Banks live in the same expectations climate as firms and households so all their decision are dependent on each other's actions. In normal course of business banks are looking to finance corporations to get control of capital assets to generate output in order to payback cash commitment on loans they have taken. This increases the corporations as well as banks credibility in the market. In modern capitalist finance banks and corporations are listed on the stock exchange. Corporations performance is directly tied to the state of confidence and state of credit determined by the banks if those are good banks engages in more and more financing and earns back more in the increases process of money supply. This improves banks share prices on the exchange and is alternative to net income that is earns from its operations.

CHAPTER 5

CONCLUSION

There are different internal and external determinants that influence the profitability of listed commercial banks in Pakistan. In this study only external determinants were considered. There are five external macroeconomic factors are used i.e. GDP, Inflation, interest rate, exchange rate and money supply. The aim of these variables is to investigate their impact on profitability of commercial banks in Pakistan. ROA and ROE are internal factors and used as proxies for the profitability of listed commercial banks. After analysing thirteen years (2006 to 2018) panel data of sixteen listed commercial banks with the total number of 208 observations. As per findings of this study the selected five macroeconomic factors have not contribute noticeably towards the performance of listed commercial banks. Mostly, the performance variables are negatively and insignificantly correlated with the selected macroeconomic variables which means that banks profitability mostly depends on other influencing factors, most likely internal or bank specific factors as indicated by the low value of R square. This study is limited to the financial performance measured through the ROA and ROE. This study covers the short term period of thirteen years of sixteen commercial banks. The future study may cover the long term period and other internal and external variables of commercial, Islamic banks and microfinance banks.

5.1. Policy Recommendation

As per the finding of this study macroeconomic factors are not the main contributors towards the profit of Pakistani commercial banks, therefore the stakeholders (financial managers, individual investors, regulators etc.) should focus more on bank specific

factors such as corporate governance, number of branches, female directors, taxation, auditing etc.

Central bank of Pakistan have need to introduce friendly policy for interest rate with the investors.

Banks have to analyze both internal and external factors.

Future research could include more variables such as taxation and auditing.

Banks need to focus and anticipate the interest rate according to situations.

To implement sustainable macroeconomic policies that will promote sustainable growth.

To improve the wider coverage of target samples, data collection process qualitative factors should be consider and comparative analysis between domestic and foreign banks should be carried out.

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