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Risk Management and Its Impact on Banking Sector Performance: Evidence from Pakistan

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ABSTRACT

over the last decade, profit in Pakistani banking sector is highly vulnerable which indicates that banking sector faced some obnoxious events commonly known as Risk that left sunwanted and intolerable effects. Therefore this paper highlights those determinants that are not only attributable for the reduction in banks' profitability but also mark a question on banks' performance. The dynamic panel data models' analyses used for investigating the extent through which Banks' Risk produced effects on Banks' performance. The unbiased and consistent estimates obtained from two step system GMM reveals that all the under studied risk types are attributable for the reduction in the Banking Sector Performance in Pakistan.

***Keywords*:** Panel data models, Financial Crises, Pakistan's Banking Sector, Risk Management, Credit Risk, Liquidity Risk, Operational Risk, Interest Rate Risk

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INTRODUCTION

Banking and Non-Banking financial organizations are auxiliary for vigorous success and persistent growth of the economy. As these institutions generates funds from the depositors and lend it to those who required it in this way banks indirectly and directly produce resources for financial and economic development of the state. Banking system are the back bone of any country's economy that's why stability in banking system is the necessary requisite to ascertain the economic stability and magnification.

In all over the World, Banks are performing worthless analysis of the financial statements through which it become easy to retain the tenacious banking sector performance. For instance by showing the liabilities on the balance sheet, they represent savings and ensure timely payment of interest to creditors' while on the other side that represents the assets status of banks which by lending to cash users they expand their funds. The other functions of banks are settlement of payments, treasury, forex, money market, equity market, bond market, bullion market, investments, guarantees, import and export and smoother transfer of goods and services from one place to other. Through which they make it possible to invest the capital in a very productive way to fuel the economy of any country. The diverse nature of functions performed by the banking industry engage them with volatile nature of risk. These risks can restrain many objectives and goals to achieve. Due to which it threats the bank's success and survival. The explosive risks that the banks are confronting now a days in the unpredictable environment include liquidity risk, interest rate risk, exchange rate risk, credit risk, operational risk and market risk (Al-Tamimi and Mazrooei 2007). Therefore a well organized risk management is essential as banking is a business of risk (Hussein et.al 2016).

As the evolution of banking industry, the need of proper management of risk has become the most prudent and preferable concerns for policy makers. Risk Management is not only a process for identifying and assessing the loss that a business entity faced but also it involves the acquiring of effective risk management techniques that are safeguard to deal with such intolerable unpropitious events. The implementation of proficient risk management processes can assist the banking industry to enhance the competitive abilities in the market through mitigating the risk exposures. Therefore, the recent study represents new ideas for managing risk in financial institutions especially in banks by throwing some light on this crucial topic.

Risk is fundamental challenge not only for developed countries but developing countries also confront it as it diminish the performance of banks The business of banking contains high risk due to its volatile nature (Adeusi et al., 2014; ul Mustafa, Abro, & Awan, 2021). According to Fan and Shaffer (2004) who investigated the efficiency of large domestic banks in US against risk in their study they comes to know that credit and insolvency both risk are attributable to the changing in the baking profitability. Likewise Ali and Daly (2010) examine a cross country analysis of two developed economies for instance Australia and USA and investigated the macroeconomic factors that are attributable of default risk. Their study reveals that the adverse economic shocks can easily affects the US economy as compare to Australian economy. Moreover due to the economic stability the chance of default risk become reduce.

In developing countries credit risk creates loan loss problems. Furthermore, Kaaya and pastory (2013) and Ul Mustafa, Ansari, and Younis (2012) worked on default risk and banks' performance regarding Tanzania they found a negative impact of credit risk on banks' performance, hence the increase in the altitude of loan losses can decreases the banks' performance. Risk not only occurs due to the fault in internal bank's operations and loan losses, it can also occur because of the uncertainty in the social and political environment of the country as Hussain and Al-Ajmi (2012) highlights the point that the continuous disturbance in social and political environment makes the managing risk highly challenging for the banks of Bahrain.

Likewise other developing countries i.e. Bahrain and Tanzania the banking system of Pakistan may also faces some fundamental types of risk that can leads towards huge losses and creates uncertainty. The banking industry in Pakistan is confronting with numerous risk for instance credit risk, liquidity risk, foreign exchange risk, market risk, interest rate risk and several others not only due to the internal factors but also the unstable economic policies and political environment of Pakistan makes the situation more critical. Therefore, the banking industry in Pakistan is now avoiding those actions and activities by which it encountered to heavy losses. The banking industry in Pakistan meets the standards of Basel II for capital adequacy ratio (Nazir et al., 2012). Banks must hold a limited amount of capital according to it.

Financial Crises And Banks' Risk:

The financial crises of (2007-2008) left an impact on practically every country's economic climate, resulting in sluggish growth, rising inequality, political instability, and, in some cases, societal conflicts (Ahmad et al. 2019). In past decade financial crisis left the banking industry in deprived condition with confronting the intolerable losses. Financial crisis spreads all over the world and without any distinguish either the economy is developed or developing it left undesirable devastating effects. Consequently result in the collapsing of many financial institutions and left others in the situation of about to collapse, especially banks confronts with the problem of severe liquidity and credit shortage consequently reduced the scope of banking activities and its profit.

The financial crises started to show its impact in 2008 on developing economies like Pakistan. By the evidence of financial soundness indicators it is cleared that in CY08 the profitability growth in Pakistani banks was severely reduced and becomes negative as shown in [FIGURE-1]. Pakistani Banks' also faced the liquidity shortage to the lowest stage as shown in [FIGURE-2]. On the other side the greatest preference of banking management is to acquire the required amount of funds for fulfilling the up-coming demands of cash lenders, borrowers, depositors and investors on time, but because of the shortage in liquidity banks may not able for giving the required amount and due to which it may not meet its obligations. Furthermore, the liquidity shortage also shakes the depositors' confidence because in that condition banks are unable to fulfill the credit requirements of the costumer on time. Consequently, this critical condition levels down the banks' status and its progress among the other competitors.

Furthermore, financial institutions specially banks channelized their funds by taking it from the money saver and give it to investors and other borrowers who need it. Therefore banks acts as an intermediary in the process of transferring funds from one party to the other party. These funds sometimes become Non-performing or bad loans that the debtors fails to return the banks. Whereas excessive amount of non- performing loans attributes an alarming situation to the bank because it improves the chance of happening of default risk and adversely affects the banks' performance.

In the study [Fig. 3] represents the clear picture of trend in non Performing loans from (2006-2016) according to which these loans are increasing from CY07 to CY11 especially during the period of financial crises situation become worst and there were rapid increase in nonperforming loans. This critical condition increases the chance of

credit risk in banks which results in bank failure. Moreover, it is clear from [Fig. 1]that the profitability in Pakistani Banks is suffering with instable growth that reflects the uncertainty in the banking sector, basically this uncertainty is due to the influence of the determinants that internally or externally or combined affects the banking sector's profitability. The graphical representation of ROA, ROE and NIM that are used as profitability indicators in this study also show a clear picture of the past decade's instability in banks' profitability. Banking statistics shows that all the three determinants decrease from 2006 to 2016 [Fig. 4,5,6].

While the repercussions of risk cause unwanted losses that raise the need of prudent risk measures and implementation of appropriate policies regarding risk management. Therefore the study emphases to pursue the factors that significantly and pertinently affect the profitability of banking sector of Pakistan. The respective study adds its contribution in the arena of risk management by pursuing the pertinent determinants regarding banks performance. The results that will found through this study will helps the bank's managers and other concerned authorities in the development of appropriate strategies and plans that in future enhance the banking profit and its earnings by minimizing the risk at the possible level.

RELEVANT LITERATURE:

Risk is not only creates hurdles in the attainment of goals and objectives but also a threat for any business organization. The banking industry relies on modern innovation, products, and services, as well as a specific way of conducting business (Gana, Abdulhamid & Ojeniyi 2019). Banking activities are highly volatile in nature that's why, so risky. It's the only business that exposed to high risk in human history in comparison with other businesses. Therefore there are several existing studies that emphases on the importance of risk management like Hassan (2009), Al-Tamimi (2002), Al-Tamimi and Al-Mazrooei (2007), Hussain and Al-Ajmi (2012), Nazir et al. (2012), Rehman (2016) examines the risk management practices in banks.

Now a days, banks' capability of receiving funds and increasing number of lenders is reduced because of operating in an environment which is changing rapidly by new innovations in this sector, with a lots and lots of competition pressurize exert for the maximization of profit that spur an uninterrupted selling of products and services in the way to assure consumer's satisfaction at highest level but there are several risk involves in just one single activity for instance credit risk, operational risk, interest rate risk, market risk and liquidity risk etc, therefore a number of studies have taken regarding the association of risk and banks' profitability like Hussain and Al-Ajmi (2012) in their study found that the most common types of risk that not only Islamic but conventional banks are also facing include operational, liquidity and credit risks. Moreover, Islamic banks affected more adversely by operational, credit, residual, liquidity and settlement risks in contrast with conventional banks. Al-Tamimi and Al-Mazrooei (2007) investigated about the extent by which the Banks in UAE are using the risk management practices and the techniques for dealing with various risk types. Their findings reveal that the most dominant risk that the UAE banks are confronting is exchange rate risk followed by credit and operational risk. They also found that the banks in UAE are proficiently managing the risk.

Rehman in 2016 conduct a primary research and inspect a comparative analysis regarding risk management practices between Islamic and non Islamic banks. She founds that the major types of risk that adversely affects the banks of Pakistan either Islamic or Conventional are liquidity, market, operational and credit risk. When assessing overall risk, liquidity risk and credit risk are essential considerations (Alim, Ali & Melta 2021)Abbas et al. in 2014 inspect the impact of one of the substantial risk that is default risk on the performance of banks regarding Pakistan. The panel data approach used by the researcher on the six year's period and fixed effect regression analysis was applied to reckoned the required results. Furthermore the credit risk in the study is referred by the ratio of non-performing loans to total loan and loan loss provision to total loan. From the respective study they concluded that credit risk is attributable for the reduction in banks' performance as it oppositely and pertinently related with the Performance of Banks.

Arif and Nauman in 2012 studied about one of the most dominant risks that the Pakistani banks confront known as liquidity risk. Their study extracted that liquidity risk pertinently influence the Banks' profitability. While, liquidity gap as well as non-performing loans are conversely and oppositely related with the profitability and aggravate the liquidity risk. Habib et al. in 2014 studied about corporate as well as banking sectors of Pakistan regarding operational risk management. Their primary data based research revealed that management of operational risk has been seen in banking companies to some extent while corporate sector are inefficient in risk management techniques.

Hussain et al. in 2016 investigated the comparison of large verses small commercial banks regarding risk management in Pakistan. Their findings reveals the fact that prudential risk management can improves the banks' performance that's in other words can be explained as an efficient management of risk significantly improves the banks' performance. Qasim and Jan in 2014 inspect the private banks financial performance regarding Pakistan. They analyze top ten commercial banks' data by applying the regression analysis. They explore in their study that the size of bank and operational efficiency inversely associated with assets returns on the other hand the two variables negatively influenced the asset management ratio. Moreover their study also shows that the larger bank size generates higher interest income.

Yao et al. in 2018 explore the integral variables that influenced the financial institutes' profitability regarding Pakistan. Their studies extracted that banks capability of earning profit in Pakistan has negatively and significantly related with inflation, credit quality, banking sector development, operational efficiency and industry concentration. They also found that unstable political environment lowers the profitability of Banks. Their assessment regarding the banks' profitability reveals that specialized banks are producing more net interest margin as compare to the commercial banks. Nadeem and Kanwal (2013) investigated about the major macro-economic determinant that affects the banks' profitability in Pakistan. In the respective research he refers the profitability by using ROA, EM and ROE. His pooled ordinary least square analysis shows that interest rate vulnerability pertinently and positively affects the bank ability of profit earning whereas inflation is oppositely and conversely relates with the banks' profitability. Finally, GDP shows insignificant relationship with three profitability measures.

Adeusi et al. in 2014 reveals the relationship of risk management and Banks' financial performance regarding Nigeria. In their study they found an inverse association of doubtful loans with banks' performance whereas on the other side loan to asset ratio was positively associated with Banks financial performance. From their findings they recommended that increase in manage funds increase the banks performance. They suggested that proficient management of risk pertinently impacts the performance of banks in Nigeria. Therefore it is essential to protect investor's interest by using appropriate risk management techniques. Wasiuzzaman and Nair in 2013 examined a comparative study of performance between Islamic versus non Islamic banks regarding Malaysia. The findings of the study reveals that in conventional banks the values of average assets returns, bank size and board size are more than the Islamic banks. Furthermore the estimated coefficient of liquidity, capital adequacy, operational efficiency, asset quality and board independence regarding Islamic banks shows greater value. Excepting some variables like liquidity, board characteristics and bank type all the variables significantly affecting the bank's profitability.

Kadioglu1 et al. in 2017 examines the association of asset quality with the banks' profit regarding Turkey. In their study they inquire the effect of default loans on the profitability by examining 55 banks of Turkey through panel regression approach. They used ROA as well as ROE for referring the profitability. They found that non-performing loans are attributable for the reduction of banks' profitability. Therefore the greater amount of non-performing loans and lower asset quality decrease the banks' profitability and vice versa. Kaaya and Pastory (2013) reveals that credit risk negatively associated with banks' performance. In other words higher degree of risk lower's the performance of banks.

Risk management is challenging not only for developing economies but developed economies are also affected by it. That's why researchers of developing as well as developed countries are continuously working on it. Imbierowicz and Rauch in 2014 studied about the US commercial banks and investigate the association of liquidity and credit risk. In this study they found that both the risk do not economically posses the meaningful relationship of equal time period. Moreover, these two categories of risk do influence banks' profitability of default. In their study they also found that both types of risks separately increase the probability of default. Fan and Shaffer in 2004 studied about the large domestic banks of USA and in this study he analyzes the efficiency against risk. Whereas the respective study concludes that the changes in credit and insolvency risk change the banks' efficiency. While on the other hand bank's efficiency does not show responsive to liquidity risk as well as from the loans products.

Aebi et al. (2012) investigated the impact of Risk governance on Banks' performance during the period of financial crises in Switzerland. They used ROE and buy-and hold returns to measure the Banks' performance beside some control variables as board size, CEO ownership and board independence. They found that the banks where the CRO without involving the Bank CEO directly reports to board of directors produce sufficient or greater stock returns and Return on equity and perform efficiently even during the period of financial crises. Iannotta et al. (2007) investigated about risk and performance of the European banking industry. In their comparative study they worked on 181 large banks of 15 European countries and investigate that whether the change in ownership

structure makes any change in the performance and risk of Banks. They found a pertinent difference of risk and performance among the banks having different ownership structure. Their result also indicates that private sector banks generate more profit than public sector and mutual banks due to their higher returns on their earning assets. Whereas public sector bank confronts with higher insolvency risk as compare to other banks.

DATA AND VARIABLES' DESCRIPTION:

To acquire the required objectives of the study, methodology of this study comprises on the analysis of four major types of risk. The ten year's data from 2006 to 2016 on 35 Pakistani banks has been taken from secondary sources. Variables in the model are classified into four categories as determinants that measure Banking sector Performance, determinants that measure the impact of Risk in banking sector, Banks' Specific determinants postulates the internal condition of banking sector and macro- economic determinants are used to specify the influence of macro-economic condition on banks' performance regarding Pakistan. Except the macro-economic determinants the ten years data regarding all the determinants has taken through the financial statements analysis report published by State Bank of Pakistan and from the second source as well that is annual financial statements of individual banks, Whereas the facts on annual GDP growth also on inflation has extracted from World Economic Indicators (WDI) database over the period from 2006 to 2016.

Profit the integral component of banks' performance that predict about the future life of bank (Muda et al, 2013). Profit is an important element that contributes positively and effectively in the improvement and enhancement of baking sectors' performance that support the banks to retain its market value in today's competitive environment. Generally ratios that refer the profitability are assumed to be the best measure of performance (Muda et al., 2013) therefore in various studies these ratios are used for indicating the performance. The undergoing study measures the bank's performance regarding Pakistan in three dimensions that are Return on assets, Net interest margin and Return on equity. According to Rose (1999) who elucidates the Profitability in the way that it is the net income earned after the reduction of tax is generally calculated via ROA and ROE ratios. In various studies ROA and ROE have used as a profitability measures like Nadeem and Kanwal (2013), Hassan and Bashir (2003)

Bank's Performance Determinants:

Return on Assets is the first determinant that is extracted from the pertinent literature which represents the banks' performance. This financial ratio reckons the bank's profit and clearly postulates the capability of utilizations of banks' asset resources. According to Masood and Ashraf (2012) ROA represents the banks' competence of generating profit by deploying its available fund resources. ROA also represents the efficiency of management the proficient management that applies prudent and proactive techniques in their financial activities can earn sophisticated profit from its assets not only that it also opens new avenues for the bank that assist it in generating more funds resources.

Second measure of Performance is ROE that stands for Return On Equity. This ratio basically reckons the bank's earnings from its equity stock. The well managed and well managed banking performance have the ability to deploy the capital in an efficient way consequently the bank acquire the confidence of investor which leads it to earn a lump

sum amount of profit by the end of the year. Whereas on the other hand disorganized and inefficient banking performance ruins the profit.

Net Interest Margin is the third determinant of the respective study that refers the bank's performance, which is calculated by taking the difference of interest income and expense and then the required results are obtained by dividing it to total assets. Generally NIM represents in percentage and it express the interest profit relative to its assets. This is an interest based earnings of banks that the banks earns after deploying the asset resources. The higher value of NIM indicates the efficient performance of banking sector.

Bank's Risk Determinants:

Credit risk which is also known as the risk of default is the devastating risk among all the other types of risk In the study it is calculated by the division of non-performing loans from total loans. Here the non performing loans are those unpaid loans that the debtor is unable to pay back in the given time. Furthermore if these loans will increase in total loans of any bank so the chance of credit risk increases because these loans are attributable for the occurrence of credit risk. Furthermore, Banks usually lend money to individual and businesses for consumer financing and business so, there is always uncertainty that individual or business may unable to pay in future because of negative NPV.

Liquidity Risk is reckoned by taking the division of gross loans and advances to total deposits. Deposits are the main source of retaining liquidity in the bank which the bank deploy in diverse ways for instance banks lend funds to the borrowers through which bank generate profit. Therefore this ratio basically represents the liquidity condition of banks in Pakistan. All the banks have to accumulate the enough amount of fund to overcome the liquidity shortage problem which becomes adverse during the period of financial crises. Shortage of liquidity creates several problems for banks in which one of the most crucial problem is that due to the shortage of liquidity banks are become unable to fulfill the cash requirements of the borrower as well as of the others cash necessities. This shortage of liquidity consequently shake the costumers' believe on the bank. Therefore, banks face liquidity risk problem as in this condition a bank may not be able to provide funds to its depositors on time.

Operational Risk is estimated through taking the ratio between operating income and operating expense. This ratio indicates the proficiency of the banking management in operational activities the deft and well organized operational activities enhance the operating income and lower the operating expense due to which the profit margin become increase. It shows that part of earned income which deploys for the operating expense so it does not contains the principal and loans interest. Banks suffers from operational risk due to the implementation of inadequate, outdated, or inappropriate methods in internal banking operations or may be due to external events.

Interest Rate Risk (IRR) is computed by taking the ratio between interest rate sensitive assets and total assets. Those assets that change its value due to the changing or fluctuations in the interest rate are in financial terms known as interest rate sensitive assets this change happens when the asset re-priced according to the changes in interest

rate. On the other hand the abrupt or unpredicted change in interest rate reduced the equity's market value consequently the bank suffers from heavy losses. Furthermore when unanticipated change occurs in the interest rate then banks have to change its interest structure in cash flows according to the recent changes.

Bank's Specific determinants:

Bank size posses an integral and significant place in determining the bank's performance. Bank size constitutes on the assets that acts as an engine for running the banking activities. To deal with the problem of large value of banking total assets or to make it uniform with other variables it is computed by taking the logarithm of the total assets which is consistent with Javaid et al. (2011) who also approximated bank size in the same way. According to different studies that are already referred in hypothesis the proposed association of bank size and its performance is positive. The more the number of asset a bank posses the higher the profit bank can generate. Therefore, larger banks can generate more profit as compare to smaller banks, as large banks posses more opportunities of diversification of their assets resources. The pertinent literature reveals the direct relation of Bank size and Banks' performance. For instance, several evidences like the studies of Arif et al. (2013) and Al-Qudah and Jaradat (2013) reveals that the performance of bank positively associated with Bank size.

Loan to Total Asset (LA) Ratio, arise when the bank is incapable to manage its liabilities with its assets on both sides of balance sheet. Furthermore, traditionally banks give loans to regulate their business activities and in return they earn profit. That's why loan to asset ratio explains how immediately bank utilizes its assets to earn profit. Moreover, higher amount of profit reflects better bank's performance. Whereas, the greater accumulation of unpaid loans impulses the greater chance of bank's default.

Macroeconomic Determinants:

As the previous literature shows that GDP produces pertinent effects on the banks profitability. Furthermore the growth in GDP tends to increase the demand for credit consequently that increases the profitability of banking sector whereas the reduction in the growth of GDP in result declines the demand for credit that inversely impacts the banking profit (Ongore and Kusa 2013).

In the prosperous and wealthy economic period the credit demand goes higher that magnifies the growth in productive investments Moreover when the growth in economic is positive then the loan default become decrease on the contrary it increases when there is a negative growth in economy or in bad economic condition in both cases the profitability of bank is affected (Vong and Chan 2009). Therefore, pertinent studies indicates that Banking sector's performance improves with the augmented growth in GDP For instance Athanasoglou et al. (2008) and Trujillo-Ponce (2013) also found the same relationship of GDP growth with Banks' performance.

Inflation is the second determinant that is used in the model to express the impact of external vulnerability on banks' performance. According to previous studies the banks' expenses change according to the changes that happen in current inflation. Therefore if the change in inflation occurs according to the prediction then banks' generally manage

their expenses which prevent the banks from repercussions. According to the view given by Perry (1992) if the fluctuations in inflation are as accurate as predicted then through it banks usually adjust the interest rate that expands the generated revenues greater than the increase in cost. Whereas Rasiash (2010) gives a contrary approach when the central bank practices to control the inflation then it enhance the borrowing cost and reduced the ability of creating credit. Furthermore various studies like Kosmidou et al. (2005), Abdullah et al. (2014) postulates that inflation and Return On Equity are positively relates with each other whereas Return On Asset and Net Interest Margin are negatively associated with inflation.

Econometric Model:

In this study dynamic panel analysis model is adopted which include lagged dependent variable with the explanatory variables. The conventional estimation techniques become inappropriate due to the inclusion of lagged dependent variable in the model. Therefore an appropriate technique two step system GMM will be used. Bond et al. (2001) first time used that technique on the growth model and after finding the results he observed that this technique is more proficient that it provides more appropriate results as compare to GMM.

The accuracy of this technique is due to its marvelous features as it corrects the unseen heterogeneity as well as control the non included variable bias as well as potential endogeneity from the model. Precisely by overcoming on all the problems that makes the results unbiased and inefficient two step system GMM produce unbiased, efficient and best estimators.

$$PERFORMANCE_{i,t} = PERFORMANCE_{i,t-1} + \beta 1 \text{ Bank's } Risk_{i,t} + \beta 2 \text{ Bank's } specific_{i,t} + \beta 3 \text{ MACRO } Specific_{i,t} + \mu_t + v_t + \varepsilon_t$$

In the above econometric model the determinants are classified into four categories as Banks' Performance, Banks' Risk, Banks' Specific and Macro specific determinants. Whereas Banks' risk determinants consist of liquidity, operational, interest rate and credit risk. While, the Bank specific variables encompass the Bank size and Loan to assets ratio regarding bank i at time t. Whereas GDP growth and Inflation rate express the macro-economic effect so these determinants are used as macro-economic variables in the above econometric model. Furthermore "μ_t" is the unobserved individual specific effects, "v_t" denotes the time specific effects and "ε_t" indicates the error term.

Furthermore, to examine the efficiency of the estimates and proficiency of the method Sargan/Hansen test of over identifying restrictions is used for the inspection that either the instrument are exogenous. It basically examines the overall validity of the instruments. Then AR (1) test is used in the study which stated that the null hypothesis relation with error term of first difference equation should be rejected for no autocorrelation. Moreover, the AR (2) test is used and it should not be significant.

Results and Discussion:

Presentation of the dependent and explanatory variables

Table-6.1 postulates the presentation of dependent and explanatory variables in the form of ratios and notations.There are total 11 variables included in the research that are

classified as Banks' Performance variables, Banks' Risk variables, Banks' specific variables and macro- economics variables.

Table-6.1: Presentation of the dependent and Independent variables

Variables	*Measure*	*Notation*
Dependent variables		
Return on assets	*Net profit/total Assets*	*ROA*
Return on equity	*Net profit/total Equity*	*ROE*
Net interest margin	*(Total interest income-total interest expense) /total assets*100*	*NIM*
Independent variables		
Credit risk	*Non- performing loan/ Total loans*	*Credit Risk*
Liquidity Risk	*Gross advances/ Total deposits*	*Liquidity Risk*
Operational Risk	*Operating expense/operating income*	*Operational Risk*
Interest Rate Risk	*Interest rate sensitive assets/ Total assets*	*Interest Rate Risk*
Bank size	*Natural log of total assets*	*Bank size*
Loan to Total Asset ratio	*Total loan / total assets*	*Loan to asset ratio*
GDP growth	*Per year growth in the GDP of the country*	*Gdp Growth*
Inflation rate	*Per year inflation rate*	*Inflation rate*

Variables' summary for the period 2006 to 2016

Table-6.2 represents the summary of all the included variables over the period of 2006 to 2016. The econometrics model of the study constitutes on Banks' performance, Banks' risk, Bank-specific and macro-economic determinants. The variables of the study are reckoned by percentage except only bank size which is taken in logarithm. The variables mentioned below are extracted from the pertinent literature.

Table-6.2: Variables summary over the period of 2006 to 2016

s.no	Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
3	***Return on equity***	***352***	***0.053***	***1.288***	***-14.742***	***18.065***
4	***Return on assets***	***353***	***0.004***	***0.023***	***-0.104***	***0.205***
5	***Net interest margin***	***353***	***2.998***	***1.558***	***-2.556***	***7.168***
6	***Credit Risk***	***325***	***12.571***	***13.223***	***0.0014***	***99.991***
7	***Operational Risk***	***351***	***7.112***	***18.830***	***-96.395***	***98.97***
8	***Liquidity Risk***	***352***	***0.666***	***0.284***	***0.014***	***2.678***
9	***Interest Rate Risk***	***353***	***0.864***	***0.119***	***0.014***	***1.378***
10	***Loan to assets ratio***	***354***	***0.447***	***0.147***	***0.003***	***0.891***
11	***Bank Size***	***352***	***18.52***	***1.498***	***14.711***	***21.642***
12	***Inflation***	***385***	***9.646***	***4.8817***	***2.539***	***20.286***

13	***GDP Growth***	***385***	***3.879***	***1.441***	***1.606***	***6.178***

Source: Financial statement analysis of individual banks, State Bank Of Pakistan and WDI

Pair wise correlation Of Dependent With Independent Variables (2006-2016):

Before running the regressions, correlation between the dependent and independent variables is represented in tables-6.3.1, 6.3.2 and in 6.3.3 respectively. Table-6.3.1 represents the association of ROA with explanatory variables, Table-6.3.2 indicates the intensity of association of ROE with the explanatory variables and Table-6.3.3 reflects the degree of relation of NIM with the explanatory variables.

Table-6.3.1: Pair-wise correlation between Return On Assets With *Independent* Variables(2006-2016)

Variables	Return on Assets	Loan to asset ratio	Bank size	Inflation	GDP Growth	Liquidity Risk	Operational Risk	Credit Risk	Interest Rate Risk
Return on Assets	1.000								
Loan to assets ratio	-0.217* (0.000)	1.000							
Bank size	0.195* (0.000)	0.239* (0.000)	1.000						
Inflation	-0.292* (0.000)	0.292* (0.000)	-0.077 (0.145)	1.000					
GDP Growth	0.264* (0.000)	-0.177* (0.0008)	-0.015 (0.776)	-0.839* (0.000)	1.000				
Liquidity Risk	-0.196* (0.000)	0.423* (0.000)	-0.075 (0.159)	0.247* (0.000)	-0.107* (0.044)	1.000			
Operational Risk	-0.006 (0.917)	0.106* (0.048)	-0.012 (0.827)	-0.028 (0.600)	-0.025 (0.645)	0.053 (0.319)	1.000		
Credit Risk	-0.108 (0.053)	-0.104 (0.060)	-0.19* (0.000)	0.043 (0.445)	-0.137* (0.014)	0.351* (0.000)	-0.016 (0.778)	1.000	
Interest Rate Risk	-0.039 (0.463)	0.344* (0.000)	0.464* (0.000)	-0.082 (0.127)	-0.066 (0.218)	0.145* (0.006)	0.119* (0.025)	0.145* (0.009)	1.000

Note: (*) indicates 5% level of significance

Table-6.3.2: Pair-wise correlation between Return On Equity With Independent Variables (2006-2016)

Variables	Return on Equity	Loan to asset ratio	Bank size	Inflation	GDP Growth	Liquidity Risk	Operational Risk	Credit Risk	Interest Rate Risk
Return on Equity	1.000								
Loan to assets ratio	-0.164* (0.000)	1.000							
Bank size	0.204* (0.000)	0.239* (0.000)	1.000						
Inflation	-0.251*	0.292*	-0.077	1.000					

	(0.000)	(0.000)	(0.145)						
GDP Growth	0.218* (0.000)	-0.177* (0.0008)	-0.015 (0.776)	-0.839* (0.000)	1.000				
Liquidity Risk	-0.171* (0.001)	0.423* (0.000)	-0.075 (0.159)	0.247* (0.000)	- 0.107* (0.044)	1.000			
Operational Risk	-0.011 (0.840)	0.106* (0.048)	-0.012 (0.827)	-0.028 (0.600)	-0.025 (0.645)	0.053 (0.319)	1.000		
Credit Risk	-0.084 (0.134)	-0.104 (0.060)	- 0.189* (0.000)	0.043 (0.445)	- 0.137* (0.014)	0.351* (0.000)	-0.016 (0.778)	1.000	
Interest Rate Risk	0.044 (0.408)	0.344* (0.000)	0.464* (0.000)	-0.082 (0.127)	-0.066 (0.218)	0.145* (0.006)	0.119* (0.025)	0.145* (0.009)	1.000

Note: (*) indicates 5% level of significance

Table-6.3.3: Pair-wise correlation between Net Interest Margin With Independent Variables (2006-2016)

Variables	Net Interest Margin	Loan to asset ratio	Bank size	Inflation	GDP	Liquidity Risk	Operational Risk	Credit Risk	Interest Rate Risk
Net Interest Margin	1.000								
Loan to assets ratio	0.057 (0.289)	1.000							
Bank size	0.319* (0.000)	0.239* (0.000)	1.000						
Inflation	0.125* (0.019)	0.292* (0.000)	-0.077 (0.145)	1.000					
GDP Growth	-0.135* (0.011)	-0.177* (0.0008)	-0.015 (0.776)	-0.839* (0.000)	1.000				
Liquidity Risk	-0.203* (0.000)	0.423* (0.000)	-0.075 (0.159)	0.247* (0.000)	- 0.107* (0.044)	1.000			
Operational Risk	0.085 (0.111)	0.106* (0.048)	-0.012 (0.827)	-0.028 (0.600)	-0.025 (0.645)	0.053 (0.319)	1.000		
Credit Risk	-0.458* (0.000)	-0.104 (0.060)	- 0.189* (0.000)	0.043 (0.445)	- 0.137* (0.014)	0.351* (0.000)	-0.016 (0.778)	1.000	
Interest Rate Risk	-0.023 (0.671)	0.344* (0.000)	0.464* (0.000)	-0.082 (0.127)	-0.066 (0.218)	0.145* (0.006)	0.119* (0.025)	0.145* (0.009)	1.000

Note: (*) indicates 5% level of significance

System GMM Estimation of Performance with Risk:

Panel data estimation technique used to analyze the connection between Risk and Bank's performance regarding Pakistan. In tables-6.4.1,6.4.2 and 6.4.3 the estimated findings of dynamic panel techniques has been shown with respect to the performance determinants. The explanatory variables that are estimated encompass not only the risk variables but also macro-economic and bank specific variables.

System GMM estimation of Return On Asset With Risk (2006-2016)

In Table-6.4.1 of column 1 to 4 represent the estimated findings of the regression. These findings show the extent of explanatory variables by which they influenced the banks' performance reckons by ROA. In column 1 the explanatory variables show the

significance at 1% level of significance except the lag dependent of Return on Assets which is significant at 5% significance level. However the column 2 shows the significance of all variables at 1% whereas inflation is the only variable that is significant at 5% significance level. Moreover in column 3 and 4 all the variables are highly significant at 1% significance level.

Table-6.4.1 System GMM estimation of Return On Asset With Risk (206-2016)

Dependent Variables	1	2	3	4
Return On Equityt-1	-0.97**	-0.82*	-0.83*	-0.97*
	(0.01)	(0.00)	(0.00)	(0.00)
Liquidity Risk	-0.25*			
	(0.00)			
Credit Risk		-0.004*		
		(0.00)		
Interest Rate Risk			-0.49*	
			(0.00)	
Operational Risk				-0.001*
				(0.00)
Bank Size	0.08*	0.07*	0.07*	0.06*
	(0.00)	(0.00)	(0.00)	(0.00)
Loan To Asset Ratio	-0.98*	-0.87*	-0.44*	-0.92*
	(0.00)	(0.00)	(0.00)	(0.00)
GDP Growth	0.04*	0.03*	0.03*	0.12*
	(0.00)	(0.00)	(0.00)	(0.00)
Inflation(Cpi)	0.01*	0.001**	0.003*	0.03*
	(0.00)	(0.02)	(0.00)	(0.00)
No Of Observations				
	318	**294**	**318**	**283**
Sargan Test	31.82	28.30	28.91	27.89
	(0.62)	(0.82)	(0.57)	(0.63)
AR(1)	-2.29**	-3.27*	-3.24*	1.77***
	(0.02)	(0.00)	(0.00)	(0.08)
AR(2)	-0.33	-1.63	-1.11	-1.49
	(0.74)	(0.10)	(0.27)	(0.13)

Note: *, ** and *** indicate significance at 1% , 5% and 10% levels of significance respectively. Figures in parenthesis are robust standard errors.

According to the expectations the previous year Return on Asset influence the Return On Asset of current year but on the other hand the negative relationship shows that banks are not utilizing the earnings of previous year in a way that it increase the current year profit. Table-6.4.1 also reveals that all the four types of risk possess negative association with banks' performance which is highly significant too. The result is consistent with the results of Hussain et al. (2016) who also found a negative association of Risk and Banks' performance. This association indicates that repercussion of risk attributes the reduction in banks' performance. Operational risk inversely and significantly impacts the banks' performance which indicates the inefficiency of Pakistani Banking sectors in their operational activities. According to Banya and Biekpe (2018) the inadequacy in the utilization of input resources indicates that the banks' inefficiency which consequently increases the cost income ratio and decrease the banks profit.

Whereas Credit Risk negatively and significantly associated with Bank's performance, the estimated value is not so high but significant which indicates that Pakistani banks are still facing the problem of loan default consequently it continuously reducing the banking sector's profitability. Similar to Credit and Operational Risk Liquidity Risk also, implies

an opposite but highly significant relation with banks' performance. This association suggests that increase in liquidity risk tends to reduce the banks' profitability therefore Pakistan's banking sector showing that there position is very poor to resist the liquidity crises arise in financial sector. Moreover Interest Rate Risk is another risk that implies an inverse but significant relationship with banks' performance. The estimated value is highly significant as well as it is larger than the other risk coefficients, Which implies that the abrupt fluctuation in interest rate fluctuates the investors' and savers' decision that attributes an unpropitious effects on banking sector's profitability.

According to column 1 to 4 of Table-6.4.1 the reckoned values implies that Banks size exerts positive influence on Banks' Performance which is consistent with the results of Gul et al. (2011), Rao and Lakew (2012), Muda et al. (2013), Akhtar et al. (2011) who worked on the factors that affects the Banks' profitability in Pakistan. The results indicates that banks are continuously increasing their assets through several ways i.e. consumer financing, commercial financing, industrial and corporate financing and diversified investments. Column 1 to 4 of Table-6.4.1 reveals that loan to asset ratio exerts opposite but pertinent influence on Banks' performance which is consistent with the results of Alper and Anbar (2011) who used ROA as profitability indicator and found a negative association of Loan to asset ratio and ROA. The estimated coefficient is highly significant too which suggests that abrupt and abnormal growth in banks loans leads to the reduction in its profitability because rapid growth in loans raises the chance of non-performing loans.

The estimated findings of Column 1 to 4 of Table-6.4.1 reveal that GDP growth exerts a positive influence on Banking sector's performance which is consistent with the studies of Kosmidou et al. (2005), Hassan and Bashir (2003), Almumani (2013), Obamuyi (2013), who also found a positive association of GDP with Banks' performance. The firm and direct association between GDP growth and Bank's performance suggest that the increase in GDP growth over the ten years period accelerates the banking sector's profit in Pakistan. Column 1 to 4 of Table-6.4.1 reveals that inflation is positively and pertinently influenced the banks performance in the ten years period. This positive association between inflation and Banks' performance is also proved by the studies of Kosmidou et al. (2005), Athanasoglou et al. (2008). The direct as well as positive relation elucidates that in inflationary economy banks expect higher returns on their loans without any drop in demands of loan. Hence, where expected and actual inflation remains same, then the business activities going on without any reduction and banks' performance retains with the same level without any distraction.

In column 1 to 4 of Table 6.4.1, the value of sargan test is less than 1 which shows that instrumental variables are clear from any association with residuals, due to which they are acceptable instruments. Furthermore, in column 1 to 4 the AR (1) values are significant at 10% level whereas AR (2) test values are insignificant which indicates that identifying restrictions are valid and validates that there is no autocorrelation present in the model.

System GMM estimation of Net Interest Margin With Risk (2006-2016)

In column 1 to 4 of Table-6.4.2 the lag dependent of NIM exerts positive influence on the current years' Net Interest Margin at 1% level and is highly pertinent too. This strong and

positive association indicates that income generated by the utilization of assets is more than the expense. Furthermore it shows that Pakistani banks are utilizing their assets in an efficient way that's the income is higher than expense consequently it positively contributes in banks profit.

Table-6.4.2 System GMM estimation of Net Interest Margin With Risk (2006-2016)

Dependent Variables	1	2	3	4
Net Interest Margin t-1	0.65* (0.00)	0.61* (0.00)	0.63* (0.00)	0.59* (0.00)
Liquidity Risk	--0.83* (0.00)			
Credit Risk		-0.02* (0.00)		
Interest Rate Risk			-2.97* (0.00)	
Operational Risk				-0.01*** (0.06)
Bank Size	0.1*** (0.05)	0.04** (0.04)	0.14* (0.00)	0.17* (0.00)
Loan To Asset Ratio	2.09* (0.00)	1.57* (0.00)	1.03* (0.00)	2.47* (0.00)
GDP Growth	0.07* (0.00)	0.09* (0.00)	0.07* (0.00)	0.05* (0.00)
Inflation (Cpi)	0 .04* (0.00)	0.02* (0.00)	0.05* (0.00)	0.04* (0.00)
No Of Observations	**317**	**258**	**318**	**316**
Sargan Test	31.82 (0.43)	27.98 (1.00)	30.41 (0.49)	31.26 (0.45)
AR(1)	-3.85* (0.00)	-3.31* (0.00)	-3.71* (0.00)	-4.02* (0.00)
AR(2)	0.77 (0.44)	-0.849 (0.395)	1.037 (0.299)	1.040 (0.298)

Note: *, ** and *** indicate significance at 1%,5% and 10% levels of significance respectively. Figures in parenthesis are robust standard errors.

Table-6.4.2 shows the estimated findings of system GMM in which bank's performance is reckon by Net Interest Margin. Column 1 to 4 shows an inverse but highly significant association with all types of risk at 1% significance level, except only operational risk that is significance at 5% significance level. Furthermore, In column 1 to 4 the estimated coefficients of loan to asset ratio indicates that it exerts an opposite but pertinent influence on Banks' performance at 1% level, also in column 3 and 4 bank size exerts positive and direct influence on Banks' performance at 1% level. Column 1 and 2 bank size exerts positive influence on Banks' performance but at 5% level. Moreover, macro-economic variables positively influenced the banks performance and imply highly significant relations at 1% significance level.

In column 1 to 4 of Table-6.4.2 all the four types of risk exerts opposite and pertinent influence on Banks' performance. The estimated coefficients of all the risk show less

value than Interest rate risk. This risk is the most dominant risk among all the risk that shows unpropitious effects on banks' performance. Banks' generates profit from its assets that are mostly interest sensitive. The interest rate vulnerability attributes fluctuations in the investment and savings decisions of borrowers and savers due to which the acceleration in banks' profit become reduced. Similar to interest rate risk liquidity risk also negatively but significantly relates to the banks' performance. The higher value of liquidity risk coefficient indicates that banks in Pakistan have efficient liquidity condition and banks are utilizing their liquid assets for generating the profit but the negative sign reflects that the utilization is not at appropriate level that's why it is not giving the required results and are unable to acquire the reduction in their liabilities and on the other side increase in their assets. Like the other two types of risk, credit risk is also negatively and significantly associates with banks' performance. Moreover the non-performing or unpaid loans are the major cause for attributing the credit risk therefore whenever the amount of non-performing or unpaid loans increase in total loans banks are exposed to credit risk problems. Furthermore operational risk also exerts a negative affect on the banks' performance. This negative impact shows that the operational efficiency of Pakistani banks is not at satisfactory level, they are not utilizing their inputs in an efficient way consequently it affects the banks' profit.

The column 1 to 4 of Table-6.4.2 reveals that Bank size exerts positive and pertinent influence on NIM which is similar to Table-6.4.1 results. This implies that the banks having greater bank size can accelerates their profit by the diversification of their products and risk. It could also means that the excessive amount of bank assets magnifies the capability of bank to produce profit through its resources. On contrast, loan to asset ratio relates negatively but significantly with banks' performance. The negative but significant impact of loan to asset ratio on banks' performance is similar with the results of Abdullah et al. (2014). The results shows that Banks are utilizing their assets to give the loans but this utilization is not in efficient way that's why the return on it is very less. Banks lend money to their costumers for earning the profit usually in the form of interest but due to the low lending standards and reporting banks may not differentiates between good and bad borrowers which in result increase the degree of loans default and consequently banks suffers with heavy losses and its profitability become decline.

Column 1 to 4 of Table-6.4.2 reveals the positive association of inflation with banks' performance which is similar with the results of Kosmidou et al. (2005), Abdullah et al. (2014) The reason behind this positive and significant relationship is that the prediction or forecasting of inflation by the management of banking sector is correct due to which the banks manage their expenses and lending rate according to the change in inflation which retains the banks to generates sufficient profit even with the change in inflation.

Moreover, from column 1 to 4 of Table-6.4.2 the other macroeconomic variable that is GDP also exerts a positive and pertinent influence on bank's performance. A vast theory exist in which the researchers also found the similar results like Sufian and Habibullah (2010), Vong and Chan (2009), Kosmidou et al. (2005). This association indicates that in prosperous and growing economies the demand for loans as well as productive investments increase and on the other hand the chance of loan default decrease which in result increase the banks' profitability. The sargan test for over identification and AR(1),

AR(2) test for autocorrelation in Table 6.4.2 gives satisfactory results which shows that over identifying restrictions are valid and there is no autocorrelation.

System GMM estimation of Return On Equity With Risk (2006-2016)

The results of dynamic panel estimation of Return On Equity and Bank's Risk is shown in Table-6.4.3. The result reveals an inverse association of credit and operational risk with banks' performance at 1% level of significance. While, the remaining two risk exert the negative but pertinent influence on ROE at 5% significance level. The Banks specific variables that are bank size and loan to asset ratio significantly impacts the performance of banks at 1% significance level whereas, bank size is positively but loan to asset ratio is negatively impacts the Banks' performance. Column 1 to 4 of Table-6.4.3 the lag dependent of Return on Equity is highly significant at 1% significance level but it creates a negative impact on current value. which refer that the ROE of the previous year does not increase the profit of current year. The reason behind this negative relationship is that banks are not utilizing their assets in an efficient way that's why banks are not generating maximum profit from their assets.

Table-6.4.3 System GMM estimation of ROE With Risk (2006-2016)

Dependent Variables	1	2	3	4
Return On Equityt-1	-0.64*	-0.65*	-0.64*	-0.69*
	(0.00)	(0.00)	(0.00)	(0.00)
Liquidity Risk	-0.99*			
	(0.00)			
Credit Risk		-0.06*		
		(0.00)		
Interest Rate Risk			-1.49***	
			(0.05)	
Operational Risk				-0.02*
				(0.00)
Bank Size	2.20*	3.63*	2.47*	2.29*
	(0.00)	(0.00)	(0.00)	(0.00)
Loan To Asset Ratio	-13.45*	-13.32*	-14.36*	-15.29
	(0.00)	(0.00)	(0.00)	(0.00)
GDP Growth	2.37*	1.14*	2.29*	2.27*
	(0.00)	(0.00)	(0.00)	(0.00)
Inflation(Cpi)	0.51*	0.33*	0.49*	0.49*
	(0.00)	(0.00)	(0.00)	(0.00)
No Of Observations	315	292	316	314
Sargan Test	33.34	32.76	33.38	33.48
	(1.00)	(0.38)	(1.00)	(1.00)
AR(1)	0.21	-1.78	-0.15	-0.63
	(0.84)	(0.08)	(0.89)	(0.53)
AR(2)	-1.19	-0.46	-1.18	-1.03
	(0.23)	(0.65)	(0.24)	(0.30)

Note: *, ** and *** indicate significance at 1%, 5% and 10% levels of significance respectively. Figures in parenthesis are robust standard errors.

Furthermore, according to Table-6.4.3 column 1 to 4 shows that all types of risk impacts negatively but significantly on Bank's Performance. The significance of the estimated value indicates the presence and influence of risk and negative estimated values of the

coefficients indicates that banking sector of Pakistan is adversely affected by risk from different aspects. In Table-6.4.3 Interest rate risk is the most dominant risk among the other types of risk and this results are similar with the results of Table-6.4.2 and Table-6.4.1. Banks posses the assets which are sensitive to change in lending rates that assets are called interest rate sensitive assets interest risk arise due to change in the value of this assets due to the abrupt fluctuation in lending rate. When the lending rate becomes high then bank generate more profit through the interest rate sensitive assets but on the contrast when the lending rate become low then the consumers and businesses pay low interest to the bank so the banks' profit decrease.

Column 1 of Table-6.4.3 reveals that Liquidity risk is negatively but significantly associated with the Banking Sectors' Performance. The negative impact of liquidity risk suggests that banks in Pakistan are unable to overcome the unpropitious or unexpected changing in their funds resources. Added to that when bank faces the problem of liquidity shortage then it avoids to lend money even to a potential costumer due to which bank bears an opportunity loss on the other side the banks' become unable to satisfies its depositor's need due to which lowers the depositors' confidence and banks reputation.

Column 2 of Table-6.4.3 indicates that credit risk is inversely and opposite relation with banks' performance. Furthermore credit risk is nothing but the most dominant risk among all risks regarding the exposure of potential losses. Usually banks deploy a large share of their assets portfolios in lending the loans to the borrowers and other loan necessities which attribute the credit risk. Moreover, Auronen (2003) in their theory argues that this might impossible to differentiate the good loan takers from bad loan holders this may raise the problems of the selection of correct one and also the problems of moral hazards which results in the accommodation of non-performing loans that leads to the exposure of credit risk consequently it diminish the banks' profit.

Table-6.4.3 indicates a negative but significant association of operational risk with banks' performance. The assessment of operational risk is not so easy as it involves the inefficiency arise from the management in their operational activities which in results attributes in the diminution of banks' capability of generating profit consequently it demolish the organization's existence. Moreover, the complex procedure of banking activities requires the advanced technology, appropriate techniques, prudent procedure and deft skilled management to resist the happening of operational risk.

Table-6.4.3 shows that bank size is positively and significantly impact the Return On equity as in Table-6.4.1 and in.Table-6.4.2. The result is similar to the studies of Alper and Anbar (2011) who also found positive association of Bank size and ROE The positive association of bank size with banks' performance suggests that generally large banks posses large number of assets which they deploys in diversified ways by economies of scale. On the contrast small sized banks have less number of assets and less opportunities of utilization. Added to that the Large banks' posses the cost benefit that lowers the average cost which upgrades the banks' profitability. However, loan to asset ratio is negatively associated with Return on equity. This implies that banks are deploying their assets to give loans but this utilization is not in an efficient way which negatively impacts the banks' profitability.

According to Table-6.4.3 inflation is positively and pertinently influenced the bank's performance. This result is consistent with the results of Masood and Ashraf (2012), who also found a positive relation between ROE and inflation. The results are similar to the result of Table-6.4.1 and Table-6.4.2 which shows that the inflation remains anticipated over the ten years period. The reason behind this positive association is that inflation remains anticipated, as declared above that change in inflation significantly affects banks' profitability but when expected and actual inflation become same, the business activities retains running with the same acceleration without any distraction in Banks' performance. However the unexpected fluctuation in inflation deteriorates the banks' stability and creates difficulties in cash flows for the borrowers.

In all the four columns of Table-6.4.3 Second macro-economic variable GDP positively and significantly influenced the Banks' performance. These results are similar with some other researchers like Akhtar et al. (2011) and Alexiou and Sofoklis, (2009), who also refers a positive association of economic growth and profitability of financial sector. This relationship indicates the impulse growth in economy substantially accelerates the business activities which consequently magnifies the banks revenues. Furthermore, the better economic growth substantially accelerates the demand of lending activities and banks take greater margin during the prosperous period increase the banks' profitability (Vong & Chan, 2009). The insignificant values of AR(1) and AR(2) indicates that there is no autocorrelation present and the sargan test proves that the over identifying restrictions are valid.

Conclusion:

The role and importance of banks induce to boosting up the economic growth can never be underestimated. A well established financial system is vital for sustainable promotion of entrepreneurship and private investments. The banking system faces dynamic competitive landscape and operational environment. It also creates pressure on banks to compete in this dynamic environment because in the financial system banking regard as a substantial component in over the globe. In the course of providing financial services, they have to gone through different kind of risk. Therefore, there is a need for banking system to strongly overcome all types of risk that will leads towards losses. Hence need for proper risk management system is vital for eradication of losses. As risk management challenges have greater impact not only on the banking sector but also on gross domestic growth of economy and generally on businesses development as well. Therefore the banking industry emphases and contemplate to control and manage those risk which arise due to inefficient banks' performance. The main consideration of this study is to determine the impact of risk management on banking sector performance.

The technique of two step system GMM has been applied on firmly balanced panel to inspect the influence exerted by the Bank's Risk, Bank's specific and macroeconomic variables on Banks' performance. The data on 35 banks of Pakistan over the eleven year period was extracted from secondary sources. The system GMM is an appropriate technique that produces best and more accurate estimates by controlling endogeneity, serial auto correlation as well as unobserved heterogeneity from the results.

The estimated findings reveal that Risk exerts negative and pertinent influence on Bank's performance over the ten years period. These findings match with the study of Hussain et

al (2016) who also observes a negative association of Banks' Risk and its Performance. The study result indicates that inadequate management of risk is attributable for the reduction in Bank's profitability which in future leads to bank failure that urges for the implementation of pertinent and prudent risk management techniques to prevent banking sector profitability from diminution.

The respective study suggested that proactive and effective operational management in banks leads to accelerate the banking sector's profitability. Whereas, possession of highly liquid assets increase the banks capability of generating profit. Furthermore rising in the accumulation of non-performing loans to the abnormal level and inadequate quality of banks' assets impulse the happening of default risk and attributable for the reduction in bank's profit. Therefore, the study results conclude that risk is a major threat for financial institutions. Based on analysis and observation, it would be advisable for financial institutions to focus on and apply cautious risk management practices to maximize bank revenue and protect it against potential losses.

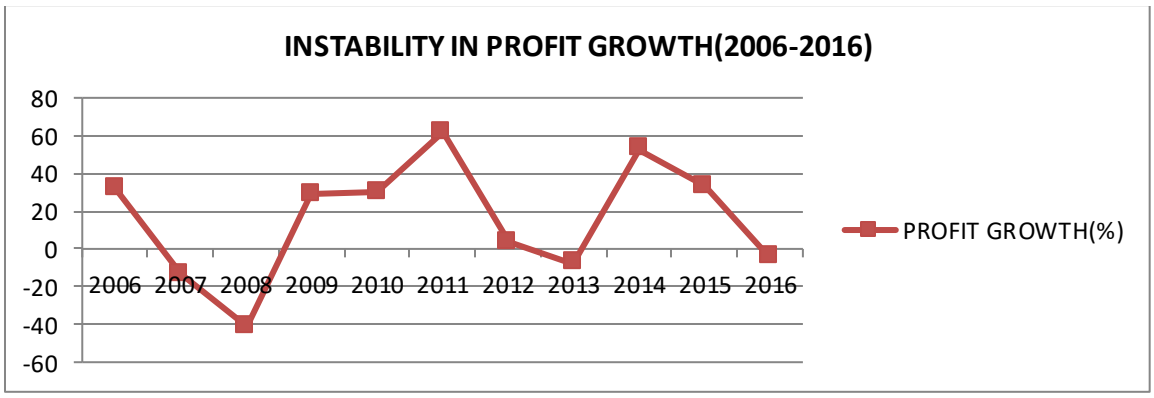

Fig. 1: Instability in profit growth in the Banking Sector of Pakistan (2006-2016). Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016)

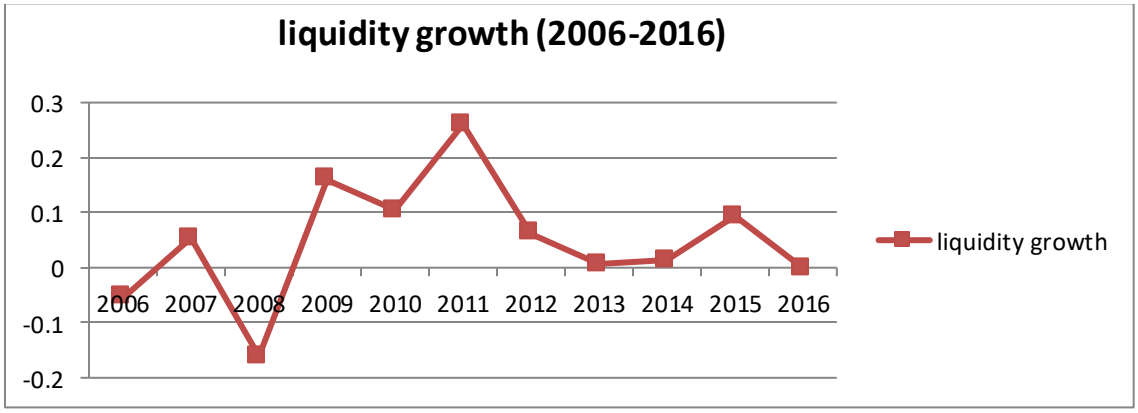

Fig. 2: Negative growth in liquidity during the period of financial crises in the Banking Sector of Pakistan. Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016).

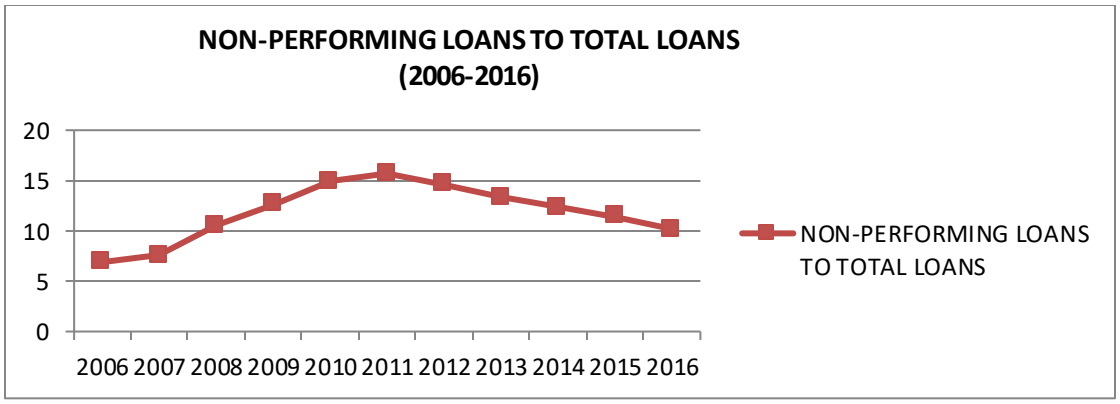

Fig. 3: Trend of Non-Performing Loans in Banking Sector of PakistanPakistan (2006-2016). Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016)

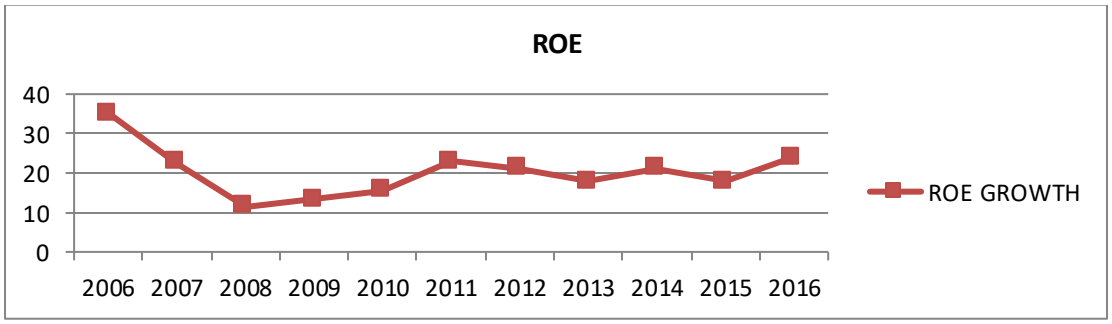

Fig. 4: Instability in Return On Equity In Banking Sector of Pakistan (2006-2016).Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016)

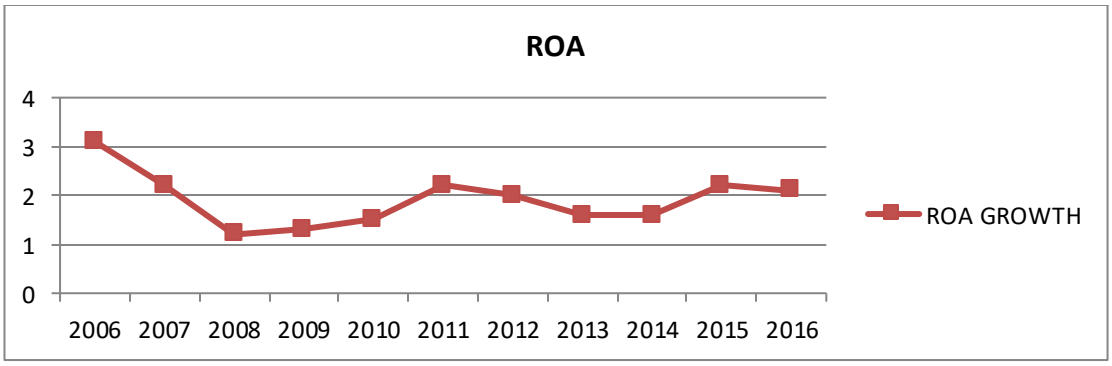

Fig. 5: Instability in Retruns On Assets in the Banking Sector of Pakistan (2006-2016). Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016)

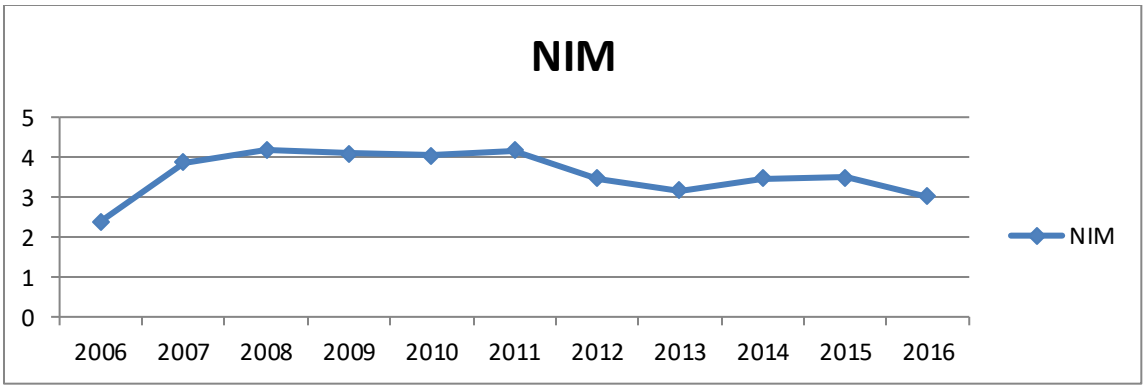

Fig. 6: Instability In Net Interest Margin in the Banking Sector of Pakistan (2006-2016). Source: Financial Stability Indicators by State Bank Of Pakistan Quarterly compendium (2011-2016)

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