Firm and Country Specific Determinants of Risk Taking in Pakistani Commercial Banks

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Abstract

The intention of this study is to examine the impact of bank and country specific factors on the risk taking of selected commercial banks in Pakistan.Sample size of 27 commercial banks of Pakistan has been used by gathering data from 2006 to 2014.Dependent variables are credit risk and operational risk. On the other hand, independent variables are the proxies of bank and country specific indicators. OLS regression model has been employed to analyze all dependent and independent variables of the study. Results showed overall significant impact on risk taking of Pakistani conventional banks. Applicable and adequate administration of exposure has been suggested to survive in this competent and rivalry environment. This paper, according to results recommends that, bank managers of Pakistani commercial banks should intensely notice those factors that cause risk in banking activities. Additionally, to survive in the time of crises and in this competent environment, banks should follow the strategies of State Bank of Pakistan.

Keywords: Risk, Commercial Banks, Pakistan.

Introduction

In the area of South Asia, Pakistan is in the list of second biggest economies and countries (Shafiq and Nasr, 2010). In the advancement of economy, service sector acts as a dominant player. In order to make the banking zone of Pakistan stable, solid and healthy, the relationship between corporate ring and efficiency and performance of banking institutions is imperative (Albertazzi and Gambacorta, 2009).Gainful and productive zones of banks enhance the stoutness of economy and able to tolerate the inverse sufferings on large scale (Athanasoglou, Brissimis and Delis, 2008)

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Some past developments of banking industry of Pakistan demonstrated that, banking industry have been played a momentous role in the improvement of nation and economy. As shown in the figure 1, from the time period of 2006 to 2009, banking sector of Pakistan illustrated an enhancement with the perspective of assets, surplus funds and savings (Ali, Akhtar and Ahmed, 2011). Figure 1 illustrated this expansion of listed banks of Pakistan.

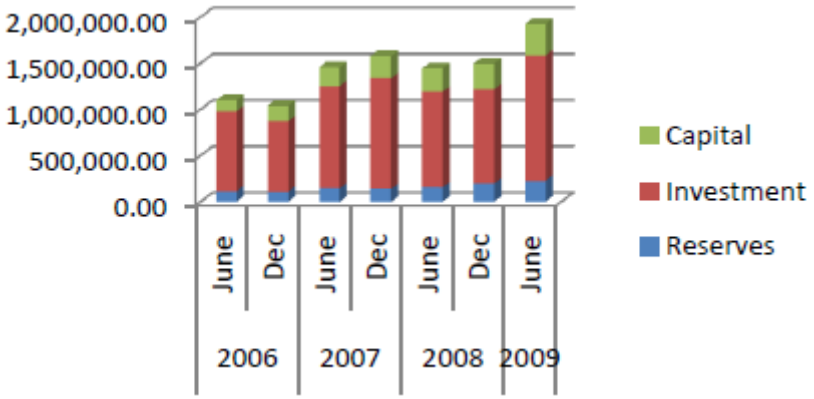

Figure 1- Listed Banks' levels of Assets, Surplus Funds and Savings from 2006 to 2009. Source: Statistical Bulletin, State Bank of Pakistan (December 2009)

Performance of banks changes with the influence of many bank related (inside) and country related (outside) determinants. These both inside and outside variables has influence on the efficiency levels of banking zone (Raza, Jawaid and Shafqat, 2013).

According to State bank of Pakistan, 5 state owned banks, 16 privatized banks, 4 specialized banks, 6 Islamic banks, 4 foreign banks, 10 microfinance banks, and 8 development finance institutions has been well established in Pakistan till 31st December 2015.

In this modern era, banks try to enhance their levels of profitability as well as try to reduce their expenditures status, so to achieve that requirement and to boost up their efficiency, administration of exposure is the focal point of attention. Because levels of exposures in this competitive environment is in more enhanced form (Haneef et al., 2012) so, it is necessary for mangers to have better understanding of all exposures' aspects to control them efficiently and effectively. Burki and Niazi (2010); Ishtiaq (2015) explained that due to many reasons such as, advanced techniques, creativity in goods and liberalism, Pakistani banking economy experienced many types of exposures.

In Pakistan, with the perception of financial expressions, every commercial bank has to tolerate with many kinds of exposures. Lopez (2003); Ishtiaq (2015) declared that, it is the important decision in the exposure administration that, banks have to realize efficiently that, which exposures they must ignored. Because banking institutions are in process to transfer funds to fruitful and dynamic zones, in this way, these activities has great influence on the development and improvement of economy in Pakistan (Shanmugan and Bourke, 1990; Sufian and Parman, 2009).

Background of the Study

A number of studies have been conducted to find out the impact of bank specific and country specific factors on bank performance level. And also many researchers have conducted work on bank and country specific variables jointly or separately. Ramadan, Kilani and Kaddumi (2011)investigated the determinants of profitability evidence from Jordan and results illustrated that there is a significant variation in bank performance and there is also an individual effect of bank and country specific variables on bank performance. Ali et al. (2011) also explored positive andconsiderable relation between profitability measures i.e. ROA and ROE and performance of the government and private conventional banks of Pakistan due to well organized assets and economic growth.

Association between Turkish conventional banks' affectivity and asset size and non-interest income was positive. On the other hand, inverse relationship was found between bank size, loans and banking performance, after applying regression model (Alper and Anbar, 2011) on the basis of bank specific and country specific factors. Ferhi and Chkoundali (2015) investigated about the relationship between performance of banking sector and its credit exposure. Outcomes showed that, Islamic banks have less credit exposure as compare to classic banks. In the case of Islamic banks, size has less positively influence but there was more positively influence of size in case of conventional banks. Athanasoglou et al. (2008) investigated the effectiveness of banks using bank related, industry related and macroeconomic factors, evidence from Greek. Results concluded that all bank related variables with the exception of bank size has significant relationship with bank profits and there is positive relationship between bank effectiveness and business cycle.

According to Dreca (2013) the impact of many bank related factors on the CAR in the banking sector of Bosnia and Herzegovina is positive as well as negative. Relationship between deposits to assets ratio, log of assets (size), loan to assets ratio, return on asset and CAR was

inverse but considerable. The impact of return on equity, provision of loan loss to total loans ratio, equity to liabilities ratio, and net interest income to total assets ratio on CAR was significant and positive.

This research intends to examine the impact of bank as well as country specific variables on the risk behavior of selected commercial banks in Pakistan.

This research has following two objectives in order to realize the aim of the study.

1. To assess the relationship between bank specific factors such as bank size, portfolio composition (PC), operating leverage (OL), return on equity (ROE) and the risk taking of selected commercial banks in Pakistan.
2. To determine the relationship between macroeconomic indicators such as GDP growth rate, inflation (CPI), Banking Strength (Z-score), market share (MSD) and risk behavior of chosen Pakistani conventional banks.

Research Questions

1. What are the important influential bank specific factors for risk prospective in Pakistani banks?
2. What are the dominant country specific factors that lead to risk potential in Pakistani banks?

Significance of the Study

After the international financial distress, banking sector started to give more importance to the risky activities in banking transactions. Stable performance of banks is only possible with the effective and efficient administration of exposure in banking institutions. So banking managers required to have full knowledge about risks in order to manage them rationally. Shafiq and Nasr (2010) argued that, in the area of South Asia, Pakistan is in the list of second biggest economies and countries. Therefore, this paper intends to check the influence of bank specific and country specific on the risk behavior of selected Pakistani commercial banks. Several studies have been conducted in Pakistan, to check the impact of these bank related and country related variables on the performance of Pakistani banks such as, (Ali et al., 2011; Akhtar, Ali and Sadaqat, 2011; Bhutta and Hasan, 2013; Bilal, Saeed, Gull and Akram, 2013; Raza et al., 2013; Kanwal and Nadeem, 2013; Muneer et al., 2013; Malik, Baig, Abbass and Rehman, 2015), but this study contributed with the perspective of risk taking.

This study will focus on two categories of exposure. First one is credit risk and second is operational risk. Lending credit is the main service of banks, and as a result of, there are the chances of occurring non

performing credit. According to SBP (2003), banking firms have to bear many straightforward or cyclical operational victims and risks due to wrong management of inside practices, techniques, employees, and sometimes from outside circumstances.

This research intends to access the relationship between bank specific factors and risk behavior of selected Pakistani banks. Other main purpose of this paper is to determine the relationship between country's related factors and risk taking of selected Pakistani Commercial banks. This paper also intend to find out that, what are the important influential bank related determinants that have impact on the risk taking of Pakistani banking institutions. Additionally, this paper will also find out, what are the important macroeconomic factors that lead to risk potential in Pakistani banks.

Therefore, conclusion is that, this paper has significant importance in the existing literature with the addition of risk behavior of Pakistani banks. Knowledge about risky activities of banks is also important and valuable for shareholders as well as stakeholders of banking firms in order to take important decisions.

Literature Review

Mamatzakis and Remoundos (2003) conducted this study to check the performance indicators of Greek banks in nineties. This study covers the period of 1989 to 2000. Researcher examined the profitability of banks on the basis of Structure Contact performance, a theoretical structure. Researcher found that, the introduction of euro and market deregulation in the last decade increased the banking competition in Greek. But the evidence of this result is weak in this study. But researcher has powerful indication about the management decision indicators and found that there is a significant relationship between Greek banks performance and management decision factors.

Hassan and Bashir (2003) conducted a research by using regression methodology in order to check the influence of country related factors, bank related variables, composition of monetary market, and indicators of tax on prosperity level of Islamic banks internationally. From 1994 to 2001 years data is used in present study. Results found that, prosperity scope of Islamic banks at global level depends upon high rate of capital and ratio of finance to asset. Variables of country related have positive connection with bank prosperity and there is inverse relationship between tax and efficiency of Islamic banks.

Ahmad and Ahmad (2004) carried this study to analyze the determinants of credit exposure of Islamic banks operating in Malaysia. For this purpose, sample size was six Islamic banks and data used from

the year 1996 to 2002. Results showed that, capital, assets with risk weighted, provision of credit loss, and credit to risky zone has an important impact on commercial banks' credit exposure. As well as, credit exposure of Islamic banks operating in Malaysia also affected by assets' size and assets with risk weight age.

Sufian and Habibullah (2009) analyzed the effect of bank related and country related indicators on the performance of Chinese banking system from the time period of 2000 to 2005. Total 220 observations are used in this paper. To check the impact of above factors, linear regression method is practiced. Results showed that, on government owned conventional banks of China, there is a positive relation between credit exposure, capital and liquidity and bank efficiency but negative relationship with respect to cost. There is a positive impact of credit risk on banking profits while negative relationship between cost and profitability in case of joint stock conventional banks of China. On the side of country related variables, there is positive relationship between growth of economy and profitability and negative relationship with respect to supply of money.

Matejasak, Teply and Cernohorsky (2009), investigated the United States' banks and banking system of European 15 area in order to analyze their risk and capital structure. Five years data has been used for this purpose from 2000 to 2005. Results of these models showed that in the perspective of both countries, there is clear positive relationship between risk behavior and capital restrictions. No doubt, both countries follow the restrictions of their capital structure and banks in America use these restrictions in order to minimize their exposure of risk. European banking system which efficiently maintaining their capital also prefers to go behind the continuance of their capital adequacy ratio in order to minimize risk.

Espinoza and Prasad (2010) explored the influence of bank related and country related determinants on the problem credit of GCC banking zone. Researchers used the panel data from the period 1995 to 2008. Researchers used this data on system GMM, difference GMM and fixed effect model. VAR model was also employed in this study. Results illustrated that, the impact of GDP on problem credit was negative and considerable. There was a relationship between problem loans and foreign market circumstances. Results of bank related factors showed that, there was also a momentous relationship between balance sheet items and problem loans in GCC banks.

Williams (2011) explored the banking firms of Nigeria, to determine the factors that have influence on capital adequacy. Time period under this study was from 1980 to 2008. By using co-integration

method, researcher examined the inflation, deposits, rate of exchange, political factor, circulation of money, and savings' return. Judgments of applied method evidenced that, solidity of political activities have minimum chances of monetary crises. Research also concluded that, the impact of inflation on CAR was negative.

Bilal et al. (2013) and Muneer et al. (2013) investigated the relationship between Pakistani banks efficiency and internal and external factors. Years covered in this paper are five from 2007 to 2011. Researchers considered twenty five banks of Pakistan categorized as conventional banks out of thirty eight banks. In this paper, examiners selected expressive statistics, method of correlation, and regression method to find out the relationship between above factors. There is negative relationship between ROA and CPI. There is negative relationship between non executed credit and return on asset of selected Pakistani banks. Findings also showed that, expansion rate of manufacture, net interest margin and bank size are positively correlated with each other. Relationship between return on equity and capital is considerable and positive.

Tariq, Ahmed, Rafi and Ahmed (2014) conducted a study with the aim that, to analyzed the profitability and performance of banks in Pakistan by applying and executing Balance Score Card (BSC). For this purpose, researchers used regression model. Results of this model found that, BSC has a great importance in the productivity, performance of banks and faithfulness of customers as well. Researchers recommended that, other business institutions can also utilize this BSC.

Malik et al. (2015) analyzed the banking factors and country related factors. Researchers applied regression method to check the relationship between performance of selected Pakistani banks and bank and country related determinants. Total banks used in this study were 21. Time period covered was from 2006 to 2011. Results demonstrated that, the impact of size on the performance of banks was momentous and positive. The influence of ratio of nonperforming loan and ratio of debt to equity on the earnings levels of banks was considerable and inverse. There was positive and important relationship between GDP, ratio of capital and ROE of Pakistani banks. The impact of PC on the ROA was inverse and momentous.

Channar, Khan, &Shakri (2015) and Muneer et al. (2017) examined the association between level of banking performance and mechanism of inner usefulness. In this paper, researchers employed primary in addition to secondary sources of data. Tool of questionnaire was used as a primary source and monetary reports of banks. ANOVA and correlation method was used in this paper. Consequences of this

paper showed positive link between monetary performance of banks and mechanism of inner usefulness. Results conducted that, non-interest based banks had bellow financial effectives as compared to required figure, public banks had adequate, and private banks had extraordinary profitability level.

Research Gap

This section reviewed some previous literature regarding performance, efficiency and risk taking of banking industry at national and international level. Previous researches mostly performed to analyze the profitability as well as the performance indicators in the banking industry. Studies also carried out to check the influence of bank specific variables and country specific variables on the efficiency and earning behavior of banking zone at international level as well as at local banking industry. In Pakistan, also a number of studies have been executed regarding performance and profitability status of Pakistani banking industry with the influence of bank related and macroeconomic specific factors. But the limitation of all these Pakistani studies is that, the factor of risk taking was ignored specially in Pakistan. And the fact is that, risk management and control of exposure in banking zone is necessary for the succession of banks (Ahmed and Malik, 2015). So, this paper intends to fill this gap in the Pakistani banking zone. Purpose of this study is that, to check the impact of bank specific and country specific indicators on the risk taking of selected Pakistani banks. This paper will also try to remove above limitations by answer following research questions:

1. What are the important influential bank specific factors for risk prospective in Pakistani banks?
2. What are the dominant country specific factors that lead to risk potential in Pakistani banks?

In order to answer and explained above questions, following hypothesis are organized:

Research Hypothesis

H1: The bank size has a significant relationship with the risk taking of selected banks.

H2: Portfolio composition has a significant relationship with the risk taking of selected banks.

H3: Operating leverage has a significant relationship with the risk taking of selected banks.

H4: Return on equity has a significant relationship with the risk taking of selected banks.

H5: Market share has a significant relationship with the risk taking of selected banks.

H6: Z-score has a significant relationship with the risk taking of selected banks.
H7: GDP growth rate has a significant relationship between with the risk taking of selected banks.
H8: Inflation has a significant relationship with the risk taking of selected banks.

Data and Methodology

Source of Data

This paper covered the time period of 9 years from 2006 to 2014 on the basis of data availability. For calculation purposes data gather from annual financial statements of banks, from official website of SBP and World Bank. The nature of this research is secondary.

Sample Size

Total population size is 53 banks such as public sector banks, specialized banks, private banks, Islamic banks, foreign banks, micro finance banks, and development finance institutions. But total sample size used in this study is 27 commercial banks of Pakistan (as shown in Table 1) with 243 observations.

Sampling Technique

While selecting sample size in this paper, Convenience sampling technique is used.

Data Estimation Techniques

After collecting data, we design research instruments in order to analyze the impact of bank and country related variables on the risk behavior of targeted Pakistani banks i.e. descriptive statistics, correlation and multiple regression analysis.

Table 1: Banks Used in the Research

	Public Sector Banks
i.	First Women Bank Limited.
ii.	National Bank of Pakistan.
iii.	The Bank of Khyber.
iv.	The Bank of Punjab.
	Private Banks
i.	Allied Bank Limited.
ii.	Askari Bank Limited.
iii.	Bank Alfalah Limited.
iv.	Bank Al Habib Limited.
v.	Faysal Bank Limited.
vi.	Habib Bank Limited.
vii.	Habib Metropolitan Bank Limited.
viii.	JS Bank Limited.
ix.	MCB Bank limited.

x.	NIB Bank Limited.
xi.	SAMBA Bank Limited.
xii.	SILK Bank Limited.
xiii.	Soneri Bank Limited.
xiv.	Standard Chartered Bank (Pak) Limited.
xv.	Summit Bank Limited.
xvi.	United Bank Limited.
	Islamic Banks
i.	Al baraka Bank (Pak) Limited.
ii.	Bank Islami Pakistan Limited.
iii.	Dubai Islamic Bank Pak Limited.
iv.	Meezan Bank Limited.
	Foreign Banks
i.	Citibank N.A – Pakistan Operations.
ii.	Deutsche Bank AG- Pakistan Operations.
iii.	The Bank of Tokyo-Mitsubishi UFJ Limited – Pakistan Operations.

Theoretical Framework

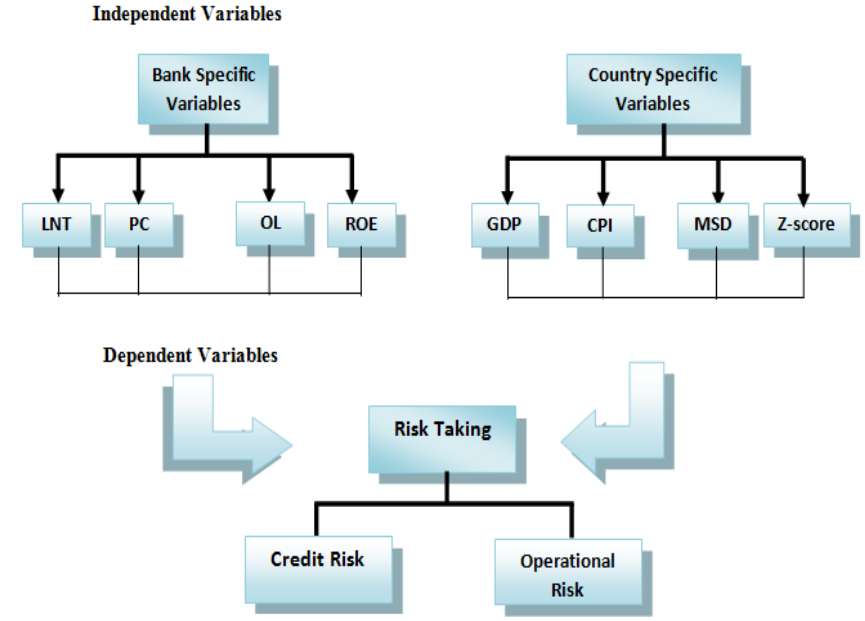

Figure 2: Theoretical Framework

Model Specifications

With the reference of research questions (see Section 1.3) and to consider these questions, this research employs Ordinary Least Square (OLS) regression model. This method of OLS is used because of the continuous nature of variables and due to the usage of panel data (Muhammad and Muhmood, 2013, p.194). OLS model was used in different previous studies such as (Haq, 2010; Abduh and Idrees, 2013; Dreca, 2013; Adusei, Akomea and Addo, 2014; Shingjergji and Hyseni, 2015). Data is used on the basis of availability.

Arrangement of model is as follows:

$CAR = \alpha + \beta_1 LNTA + \beta_2 P.C + \beta_3 O.L + \beta_4 ROE + \beta_5 MSD + \beta_6 Z.S + \beta_7 GDP + \beta_8 CPI + \varepsilon$

$NPL = \alpha + \beta_1 LNTA + \beta_2 P.C + \beta_3 O.L + \beta_4 ROE + \beta_5 MSD + \beta_6 Z.S + \beta_7 GDP + \beta_8 CPI + \varepsilon$

Where;

CAR= Capital Adequacy ratio
NPL = Non-performing loan ratio
LNTA = size
P.C = Portfolio Composition
O.L = Operating Leverage
ROE = return on equity
GDP= Gross Domestic Product
CPI = Consumer Price Index
MSD = Market Share
Z.S= Z-score
ε = Error term
$\beta_1 \ldots\ldots \beta_8$ = co-efficient of independent variables

Tables 2: Summary of all Study Variables

Independent Variables			
SR	Variables	Full Name	Measures
	Bank Specific Variables		
1	LNTA	Bank Size	Log of Total Assets
2	PC	Portfolio Composition	Total Deposits/ Total Assets
3	OL	Operating Leverage	Fixed Assets/ Total Assets
4	ROE	Return on Equity	Net Income/ Total Equity
	Macroeconomic Variables		
5	MSD	Market Share	Deposit at each Bank/ Deposit at all Banks
6	Z-score	Banking Strength	(ROA + K)/ (Vol. ROA)
7	GDP	Gross Domestic Product	Annual Rate of GDP
8	CPI	Consumer Price Inflation Rate	Annual Rate of Inflation
Dependent Variables			
1	CAR	Capital Adequacy Ratio	Total Eligible Regulatory Capital/ Total Risk Weighted Assets
2	NPL	Non-Performing Loans	Non- performing Loans/ Total Loans

Results and Discussion

Descriptive statistics

Table 3 shows the descriptive statistics of dependent and independent variables of the study. In this research, three measures of descriptive statistics are used that are minimum value, maximum value, mean value and S.D of all variables. Minimum and maximum value gives an idea about uppermost and lowermost value of research variables. Mean value demonstrates the average value of variables. Lastly, amounts of S.D show the variability in variables.

In descriptive analysis of variables (Table 3), dependent variables are NPL and CAR. Minimum value of NPL in 2006 is 0 and in 2007, its maximum value is 0.8856. Average value of NPL is 0.112462 which shows that, banks have to face nonperforming credits at 11.25% with 1% increase in total loans, which means banks can bear the exposure of credit and value of S.D is 0.1092164. Mean value of CAR is 0.204391 which is high as compared to the percentage fixed by State bank of Pakistan i.e. 10%. This ratio illustrates that, banks manage their capital requirements in order to stand strongly in the era of financial crises. S.D of CAR is 0.2059174 which shows the variation in CAR of banks.

Table 3: Descriptive Statistics

SR. No	Variables	Minimum	Maximum	Mean	S.D
1	LNTA	6.3889	9.2711	8.079376	0.626148
2	PC	0	0.9144	0.719161	0.147323
3	OL	0.0019	0.2683	0.029991	0.0269222
4	ROE	-14.7427	23.1628	0.08363	1.8037372
5	MSD	0	0.171	0.037037	0.0430935
6	Zscore	-2.618	33.2274	7.24226	6.0540406
7	GDP	1.6	6.2	3.6	1.4605558
8	CPI	7.2	20.3	11.088889	4.0989315
9	NPL	0	0.8856	0.112462	0.1092164
10	CAR	0.0105	1.4675	0.204391	0.2059174

Total number of observations are 243 (N= 243)

NOTE: Banks Specific Variables are following; LNTA (Bank Size), PC (Portfolio Composition), OL (Operating Leverage), ROE (Return on Equity). Macroeconomic variables are following; MSD (Market Share), Z-score (Banking Strength), GDP (Gross Domestic Product), and CPI (Consumer Price Inflation Rate), NPL (Credit Risk), CAR (Operational Risk).

Correlation Matrix

Correlation is a term used to analyze the association between exogenous and endogenous variables (Chandrasekharan, 2009). Correlation and regression analysis have been performed in this study between dependent and independent variables of the study.

Table 4: Correlation Matrix

SR.NO	Variables	LNTA	PC	OL	ROE	MSD	Z-score	GDP	CPI	NPL	CAR
1	LNTA	1									
2	PC	0.56**	1								
3	OL	-0.22**	-0.10	1							
4	ROE	0.12	0.03	-0.09	1						
5	MSD	0.79**	0.35**	-0.09	0.08	1					
6	Z-score	-0.56**	-0.76**	-0.03	0.03	-0.29**	1				
7	GDP	-0.06	-0.08	0.00	0.07	0.00	0.04	1			
8	CPI	-0.05	-0.00	0.10	-0.09	0.00	0.00	-0.84**	1		
9	NPL	0.08	0.03	-0.03	-0.14*	-0.05	-0.14*	-0.21**	0.05	1	
10	CAR	-0.56**	-0.64**	-0.04	0.00	-0.27**	0.78**	0.00	-0.00	-0.20**	1

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

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

NOTE: Banks Specific Variables are following; LNTA (Bank Size), PC (Portfolio Composition), OL (Operating Leverage), ROE (Return on Assets). Macroeconomic variables are following; MSD (Market Share), Z-score (Banking Strength), GDP (Gross Domestic Product), and CPI (Consumer Price Inflation Rate), NPL (Credit Risk), CAR (Operational Risk).

Results of Multiple Regressions

Multicollinearity is a term that is used to check the association between independent variables of the study. It shows the strength of independent variables in regression model, means how closely independent variables are associated with each other (Gujarati, 2009). In this research variance inflation factor (VIF) is used to check the multicollinearity between variables. Gujarati (2009) defined that, value of VIF should be less than 10 and it is the indication that, there is no issue of multicollinearity in analysis.

Discussion of Results

Findings of OLS regression model discusses in Table 5 and Table 7 respectively.

Testing Operational Risk Hypothesis

H1: The bank size has a significant relationship with the risk taking of selected banks.

First hypothesis is accepted i.e. there is significant relationship between LNTA and risk taking. Results find that, there is a negative but highly significant relationship between size and CAR (β = -0.547, p = .000). Negative association between them represent that, when total assets of banks increase, then the ability of banks to maintain capital requirements will decrease.

H2: Portfolio composition has a significant relationship with the risk taking of selected banks.

Second null hypothesis is rejected and there is a significant relationship between PC and risk taking of selected Pakistani banks. Table 5 illustrates that, there is inverse but significant relationship subsists between PC and CAR. It means when banks enhance their deposits level, their assets increase and their capital adequacy will decreases.

H3: Operating leverage has a significant relationship with the risk taking of selected banks.

Third hypothesis is also accepted i.e. there is momentous association between OL and risk taking. Regression shows that, there is negative and significant relationship exists between CAR and OL. OL shows that, how much fixed assets are funded by owner's capital in banking firms. High ratio indicates that, banks are unable to maintain their working capital in an efficient way. And in results, bank's cash reserves in the form of capital will decline.

H4: Return on equity has a significant relationship with the risk taking of selected banks.

Regression results demonstrate that, fourth null hypothesis is accepted. The impact of ROE on CAR is positive but insignificant. These results reveal that, there is no relationship exists between ROE and capital adequacy.

H5: Market share has a significant relationship with the risk taking of selected banks.

In fifth hypothesis, null hypothesis is rejected and there is significant and positive association exists between MSD and CAR. Market share relating to deposits gives the review of commercial banks with the perspective of subsidiary, total deposits and proportion of market share within the boundary of the country. Commercial banks maintain their capital in an efficient way and have more capital than the prescribed rate of state bank of Pakistan.

Table 5: Regression Analysis of CAR

Dependent Variable: Capital Adequacy Ratio (Operational Risk)				
Independent Variables	Standard Error *(e)*	Beta (β)	t value	Significance (p)
Constant	0.272		7.086	.000**
LNTA	.028	-0.547	-6.444	.000**
PC	.084	-.119	-1.972	.050*
OL	.308	-.101	-2.516	.013**
ROE	.004	.021	0.543	.587
MSD	.331	.338	4.880	.000**
Z-score	.002	.493	7.521	.000**
GDP	.011	-.300	-4.010	.000**
CPI	.004	-.281	-3.760	.000**
R^2= 0.68, F Value= 62.550 (P= 0.000), N= 243				

**Significant if P ≤ 0.01 (hypothesis will accept)

*Significant if P ≤ 0.05 (hypothesis will accept)

NOTE: Banks Specific Variables are following; LNTA (Bank Size), PC (Portfolio Composition), OL (Operating Leverage), ROE (Return on Assets). Macroeconomic variables are following; MSD (Market Share), Z-score (Banking Strength), GDP (Gross Domestic Product), and CPI (Consumer Price Inflation Rate).

H6: Z-score has a significant relationship with the risk taking of selected banks.

Sixth hypothesis is also accepted that, there is highly significant and positive relationship between Z-score and CAR. Banks maintain their banking activities in an efficient and effective way i.e. stability and efficiency of banks increases. Similarly, banks also retain their capital adequacy to overcome them from unstable environment.

H7: GDP growth rate has a significant relationship between with the risk taking of selected banks.

Table 5shows that, null hypothesis is rejected and the effect of GDP growth rate on CAR is negative and highly noteworthy. In growth phase, investment level of banks increase, deposits increase, banks lend more credit and then capital adequacy of banks will decline.

H8: Inflation has a significant relationship with the risk taking of selected banks.

Regression results also evidence that, there is negative and highly significant relationship exists between CPI and CAR. In this case, eighth null hypothesis is also rejected. When inflation of the country increases, CAR of banks shrinks and banks performance also declines with the increase in inflation rate. So, bank executives should try to sustain countries' inflation at lowest point, which leads the banking institutions to amplify their performance level at local as well as international level and to run the economy fluently.

Table 6: Summary of CAR Hypothesis

Hypothesis	Accepted/ Rejected
H1: The bank size has a significant relationship with the risk taking of selected banks.	Accepted
H2: Portfolio composition has a significant relationship with the risk taking of selected banks.	Accepted
H3: Operating leverage has a significant relationship with the risk taking of selected banks.	Accepted
H4: Return on equity has a significant relationship with the risk taking of selected banks.	Rejected
H5: Market share has a significant relationship with the risk taking of selected banks.	Accepted
H6: Z-score has a significant relationship with the risk taking of selected banks.	Accepted
H7: GDP growth rate has a significant relationship between with the risk taking of selected banks.	Accepted
H8: Inflation has a significant relationship with the risk taking	Accepted

of selected banks.

Testing Credit Risk Hypothesis

H1: The bank size has a significant relationship with the risk taking of selected banks.

Null hypothesis is accepted in this case and outcomes show that, there is positive but insignificant relation stand between LNTA and NPL.

H2: Portfolio composition has a significant relationship with the risk taking of selected banks.

Second hypothesis is accepted at 0.05 level of significance i.e. there is significant relationship between PC and NPL. Regression analysis computes that, the influence of PC on NPL is negatively significant. This relation shows good asset management of banking sector, which leads to high performance. Deposits will increase; lending ability will also increase, In case of large banks, chances of default will decrease because large banks have ability to diversify their overall risk as well as credit risk. So this is good in case of large banks.

H3: Operating leverage has a significant relationship with the risk taking of selected banks.

Third hypothesis is rejected i.e. there is significant relationship between OL and risk taking (NPL) of Pakistani commercial banks. Outcomes present that, association between OL and NPL is negative and insignificant. Means OL has no influence on credit exposure of Pakistani commercial banks.

H4: Return on equity has a significant relationship with the risk taking of selected banks.

Forth hypothesis is accepted i.e. relationship between ROE and risk taking (NPL) is significant. Impact of ROE on NPL is inverse and significant. When performance and efficiency of banks increases, then risk behavior of banks will diminish.

H5: Market share has a significant relationship with the risk taking of selected banks.

Table 7 shows that, there is negative and insignificant alliance arise between MSD and NPL. It shows that, there is no impact of MSD on NPLs of Pakistani banks.

Table 7: Regression Analysis of NPL

Dependent Variable: Non-Performing Loans (Credit Risk)				
Independent Variables	Standard Error *(e)*	Beta (β)	t value	Significance (p)
Constant	0.235		1.443	0.150
LNTA	.024	.141	1.024	.307
PC	.073	-.220	-2.248	.026*
OL	.265	-.016	-0.246	.806
ROE	.004	-.130	-2.121	.035*
MSD	.285	-.159	-1.411	.160
Z-score	.002	-.255	-2.393	.017*
GDP	.009	-.528	-4.339	.000**
CPI	.003	-.389	-3.207	.002*
R^2= 0.16, F Value= 5.554 (P= 0.000), N= 243				

**Significant if P ≤ 0.01 (hypothesis will accept)

*Significant if P ≤ 0.05 (hypothesis will accept)

NOTE: Banks Specific Variables are following; LNTA (Bank Size), PC (Portfolio Composition), OL (Operating Leverage), ROE (Return on Assets). Macroeconomic variables are following; MSD (Market Share), Z-score (Banking Strength), GDP (Gross Domestic Product), and CPI (Consumer Price Inflation Rate).

H6: Z-score has a significant relationship with the risk taking of selected banks.

Sixth hypothesis is accepted i.e. there is significant relationship between Z-score risk taking (NPL). Findings of regression found that, there is negative and significant connection between banking stability and NPLs.

H7: GDP growth rate has a significant relationship between with the risk taking of selected banks.

Null hypothesis is rejected. While testing seventh study hypothesis i.e. there is significant relationship between GDP growth rate and NPL. Outcomes present that, there is negative and highly significant relation exists between them. When economy will boost in the form of GDP growth, then banks' efficiency will also increase and will able to decrease their credit risk.

H8: Inflation has a significant relationship with the risk taking of selected banks.

Eighth hypothesis is also accepted and null hypothesis is refused. There is considerable and negative relationship between CPI and NPLs. When inflation will increase, then SBP have to introduce

monetary policy by increasing interest rates that will help to decrease loan customers and credit risk as well.

Table 8: Summary of NPL Hypothesis

Hypothesis	Accepted/ Rejected
H1: The bank size has a significant relationship with the risk taking of selected banks.	Rejected
H2: Portfolio composition has a significant relationship with the risk taking of selected banks.	Accepted
H3: Operating leverage has a significant relationship with the risk taking of selected banks.	Rejected
H4: Return on equity has a significant relationship with the risk taking of selected banks.	Accepted
H5: Market share has a significant relationship with the risk taking of selected banks.	Rejected
H6: Z-score has a significant relationship with the risk taking of selected banks.	Accepted
H7: GDP growth rate has a significant relationship between with the risk taking of selected banks.	Accepted
H8: Inflation has a significant relationship with the risk taking of selected banks.	Accepted

R square value of CAR is 0.681, which shows that variability percentage of capital adequacy i.e. 68% can be explain by LNTA, PC, OL, ROE, MSD, Z-score, GDP growth rate and CPI. VIF values of CAR are less than 10, which show that, there is no issue of multicollinearity. Rsquare of NPL's regression results is 0.16. 16% of fluctuation in NPL can be explained by independent variables included in this study. At 0.05 level of significance, hypothesis will accept.

Conclusion

Key Findings of Results

With the reference of research questions (see Section 1.3) of this thesis we found that, operational risk in Pakistani banks has significant influence of LNTA, PC, and OL. All country related variables also have considerable influence on operational risk of Pakistani banks. With the perspective of credit risk, dominant bank specific determinants are PC and ROE. And country specific factors are Z-score, GDP growth rate and CPI.

Results have concluded that, banks have to face operational risk due to inefficient internal practices and employees. Operational risk in this study has been computed by CAR. Results have showed

that, CAR of selected commercial banks of Pakistan is decreasing and bank managers are unable to maintain it according to the prescribed rate of SBP. To overcome this type of risk, banking officials should arrange training programs for their employees, backup schemes, and investment in progressive technology. This study also examined credit risk and results found that, selected commercial banks in Pakistan are playing a very good role in managing their credit customers to decrease the probability of bad debts. But to keep in line with that situation banking managers should pay attention to their credit department and credit customers more keenly.

Contribution of Research

This study has significant contribution in existing literature with the addition of risk perspective in Pakistani banking environment. In past, different researches have been conducted related to performance, efficiency and profitability of commercial banks in local industry. In this study, according to researcher's limited knowledge, risk factor has been ignored in Pakistani banking industry. For this intention and to fulfill the aim of this study i.e. to examine the impact of bank as well as country specific variables on the risk behavior of selected commercial banks in Pakistan, following objectives has been focused;

1. To assess the relationship between bank specific factors such as bank size, portfolio composition (PC), operating leverage (OL), return on equity (ROE) and the risk taking of selected commercial banks in Pakistan.
2. To determine the relationship between macroeconomic indicators such as GDP growth rate, inflation (CPI), Banking Strength (Z-score), market share (MSD) and risk behavior of chosen Pakistani conventional banks.

Credit risk and operational risk has been considered in this research as proxies of risk taking in Pakistani banking industry. Lending credit is the main service of banks, and as a result of, there are the chances of occurring non performing credit. Due to this lending activity of banks, it is inherent for banks to face different kinds of exposures. Banking firms have to bear many straightforward or cyclical operational victims and risks due to wrong management of inside practices, techniques, employees, and sometimes from outside circumstances. So, management of these two exposures is necessary as well as other categories of exposures.

Policy Implications

- Pakistani commercial banks should give more importance to their CAR according to the guidelines of SBP to stand in the era of financial crises.
- Bank managers should invest in more advanced technologies, introduce training schemes for their staff and backup structures to mitigate the possibilities of risk.
- To manage their credit clients more efficiently, banks should take care of credit installments till the last repayment of loan.

Limitations of the Study

It is a common fact that, all researches have some limitations and future directions. Limitations of this study are discussed below;

- This study has the first limitation that, due to limitation of time only credit risk and operational risk has been examined on all selected Pakistani banks under the course of this research.
- This research has small sample size and only analyzed commercial banks of Pakistan under the head of public, private, Islamic and foreign banks.
- This research has undertaken by only consider correlation matrix and OLS regression model. Forthcoming researcher can extend this research by employing various other models.

Recommendations for Future Research

- As discussed above, this study has only examined credit and operational risk. It is a recommendation that, future researches can also add more risks such as market risk, liquidity risk, systematic risk, regulatory risk as dependent variables.
- Future researchers can enlarge the sample size by adding other banks like microfinance banks and development institutions as well.
- Other researchers can also apply different other tools of analysis to perform this research.
- Forthcoming researchers can also conduct a comparison study by adding other countries with the usage of same criterion.

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