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PERFORMANCE OF FIRMS HAVING LIQUIDITY RISK: EVIDENCE FROM PAKISTANI BANKS LISTED IN STOCK EXCHANGE

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ABSTRACT- The studyis carried out for the purpose to evaluate the association among the liquidity risk and the firm performance. The sample includes both conventional and Islamic banks operating in Pakistan. The financial sector of Pakistan is treated as the study population. The present study is carried out in the financial sector of Pakistan but it is difficult to include all the categories of financial sector. The study takes both conventional and Islamic banks working in Pakistan and listed in Stock Exchange. The study takes 5 Islamic (Meezan Bank, Al Barka Bank, Bank Islami, Dubai Islamic and SoneriMustaqeem Islamic Bank) and 5 conventional banks (Habib Bank, Allied Bank, United Bank, Bank Al Falah and Faysal Bank) as a sample of the study. The study uses the secondary sources for the data collection due to the fact that the variables of the study are secondary in nature. The data of these factors are gathered from annual reports which are collected from the official websites of the banks. The data time frame is from 2011 to 2018. This study select the model by using diagnostic tests (chow, hausman and buresh pagan tests). On the recommendations of diagnostic tests, this study takes the pooled OLS as a model. According to this model; net profit and loss and liquidity gap have significant effects while deposit ratio, cash ratio and liquidity risk have insignificant effects on the bank earnings.

Keywords: **Liquidity Risk, Performance, Non-Financial PSX, Panel Data**

I. LITERATURE REVIEW

Evaluated the role of liquidity risk and interest rate on the firm's value and profitability among the firm working in emerging market. The findings of the study argued that liquid asset ratio, loan to deposit ratio have negative effect on the firm value, also suggested that GDP and interest margin also have negative effect on the firm value among the listed Nigerian Banks. The findings also suggested that loan to deposit ratio having negative impact on the firm value while the liquid asset ratio possess positive relationship with the firm value. The findings also suggested that GDP and inflation are having positive relationship with the with firm value. The results of study suggested that liquidity risk have negative but significant effect on ROE.

According to (Khalid *et al.*, 2019), evaluated the issues causes by liquidity in the commercial banks of Bangladesh have faced the liquidity problems due to the fact that they did not managed this issue properly. The paper aims to empirically study the association among the financial performance and liquidity among the banking sector of developing economies. The investigation has been performed using panel data procedure for a sample of Dhaka stock market enlisted all commercial banks (31) during the year of 2010-2017. Their result showed that the variable liquidity is not having significant impact on ROA and ROE.

According to (Khan *et al.*, 2017)argued that the liquidity is the significant factor which drives the behavior of risk taking of banks and resultantly effects negatively the financial stability of financial system. These

type of risk taking procedures of banks were supported by competition and deregulation (Laeven *et al.*, 2016). The risk management and funding of banks have been affected highly by competition for deposits and the variety of funds needed by the customers in the capital and other technological up gradation (Akhtar *et al.*, 2011).

Abobakr and Elgiziry (2017)argued that different scholars evaluated the significance of firm having liquidity on their performance. DeYoung and Jang (2016)concluded three major points: issuing stable deposits which might not run, managing and maintaining liquidity to support short term financing and also managing the significant level of bank's equity financing which shows long term solvency and lower the chances of runs. According to (Abdul-Rahman *et al.*, 2017)the liquidity is having significant effects on bank risk taking behavior and performance as well. The risk of liquidity influences the bank performance as well as its status. Financial institutions might lose the surety and confidence of its investors if reserves are not conveniently given to them.
According to Jenkinson (2008) as cited in (Arif and Anees, 2012), the performance of organization can be assessed by service quality and their products, market performance, satisfying customers innovations in services and firm employees. The findings also suggested that loan to deposit ratio having negative impact on the firm value while the liquid asset ratio possess positive relationship with the firm value. A basic presumption of the theory held that the financial institution short term loans were attractive due to the fact that they would be reimbursed with profit getting from the bank commercial activities.
(Bonner and Hilbers, 2015) utilized data from 30 countries and argued that liquidity regulations become substitutes for productive liquidity management of bankers. The implication shows that it can help to mitigate the excessive risk-taking behavior of banks.

Vazquez and Federico (2015)researched a higher amount of sample banks in america and European countries within the time 2001 to 2009. Furthermore, they argued that increased funding stability assessed by net secure funding ratio minimizes the likelihood of bank failures. They further described that just domestically smaller financial institutions are more subjected to liquidity chance while larger intercontinental banks tend to be more subjected to solvency risk due to higher leverage. This presumption would surely not posses during acommon economic crises.

II. RESEARCH METHODOLOGY

Population
The study is conducted by evaluating the association among the liquidity risk and performance of the firm. Banking sector of Pakistan was taken as the study unit for the data collection. Both conventional and Islamic banks operating in Pakistan listed in PSX was taken in the study scope. The financial sector of Pakistan is the population of the study
Sample Size
The study has used nonprobability sampling method for the selection of banks.This study has used convenient sampling technique which states the researcher can select the sample unit on the basis of data availability or accessibility. The study is based on the evaluation of liquidity risk and firm performance among the listed bank in Pakistan. for this purpose, the study has taken Islamic banks and conventional banks.The study has selected the banks on the basis of their size and life of firm (years of operations). So the study has adopted this methodology to take the proper sample. The method of taking banks on the basis of firm life and to be selected conveniently is supported by the study of (Mairafi *et al.*, 2018)who conducted a study on Malaysian banks. On the basis of this statement, five Islamic and five conventional banks are taken as a sample of the study.
Data Collection
The data of these factors can be obtained from the annual reports of banks. The time periodis 2011 to 2018 and data is secondary data.
Variables and Measurement
Dependent
Bank Earning.
The bank earning is the dependent variable**.** The profit before taxation to total assets was taken as the proxy of the bank's earning. The proxy has been adopted from Arif and Anees (2012).The bank earning in the current study is calculated as:

$$Y = \frac{Net\ Profit\ before\ Taxation}{Total\ Assets}$$

Independent

Deposits Ratio

The deposit ratio of bank is **in**dependent variable**.** The deposit was taken from the liability side of Balance Sheet. The proxy has been adopted from (Kamran *et al.*, 2019).The deposits in all types of accounts is the variable deposit of the study.

DE = $\frac{Total\ deposits}{Total\ Assets}$

Cash Ratio

This is another independent variable. Its proxy has been adopted from (Hassan *et al.*, 2019).it is estimated as:

Cash ratio = $\frac{Cash\ and\ Cash\ Balance}{Total\ Assets}$

Altman's Z-score

The Altman Z-Score (Named on Edward Altman, New York University professor) is a combination of five financial ratios to estimate the financial position of a company and also a tool to predict corporate bankruptcy. Though Altman planned to invent the Z-Score in the 1960s, the concept of trying to predict which companies would bankrupt was new in that time.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

T1 = CA-CL/TA
T2 = RE/ TA
T3 = EBIT/ TA
T4 = BV/ TL

CA = Current Assets
CL = Current Liabilities
TA = Total Assets
RE = Retained Earnings
EBIT = Earning before interest and taxes
BV = Book value of equity
TL = Total Liabilities

Net Profit and Loss

The net profit or loss of bank is the independent variable. The NPL is taken from the income statement of sample's bank. The proxy has been adopted from (Kimani *et al.*, 2014).The net profit and loss is estimated by:

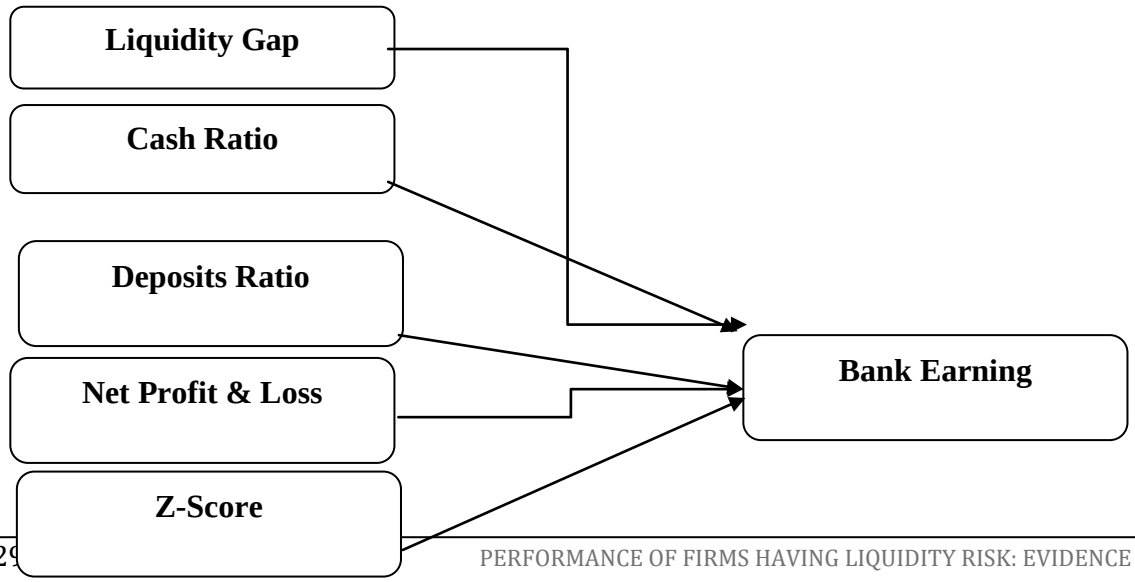
NP = $\frac{Net\ Profit\ after\ Taxation}{Total\ Assets}$

Liquidity Gap

The liquidity gap is the independent variable of the study. The data of the liquidity gap can be collected from the maturity of the assets minus liabilities of a firm. The proxy of variable has been taken from Khan and Syed, (2013) as cited in (Gweyi *et al.*, 2016).

LIG = $Total\ assets - total\ liabilities$

Conceptual frame work



Model

Panel Regression

The current study is conducted by evaluating the liquidity risk and performance. The data in the current study is panel in nature. The panel data regression is adopted to evaluate the effect of liquidity risk on the bank performance. The model of the current study has been justified from the study of Arifand Anees, (2012) as cited in (Effendi and Disman, 2017).The equation of the regression model is:

$Y= \beta_{0i,t}+\beta_1 LIG_{i,t}+\beta_2 CH_{i,t}+\beta_3 DE_{i,t}+\beta_4 NP_{i,t}+\beta_5 Z_{i,t}$

Y= Bank earning

LIG = Liquidity gap

CH = Cash Ratio

DE= Deposits Ratio

NP = Net profit and loss

Z = Z- score (liquidity risk)

a_0 = Intercept

B1= slop

Independent sample t-test

Themean score for the two independent samples such that the conventional bank as well as the Islamic banks were tested by using T test.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$$

With

$$Sp = \sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}$$

III. RESULTS &CONCLUSIONS

Table 4.1 Summary

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
BE	0.01170	0.0091	-0.0129	0.0301	0.0107
DR	0.6982	0.8050	0.0044	0.8856	0.2747
CR	0.0676	0.0683	0.0052	0.1476	0.0313
Z	1.2684	0.8976	0.4454	5.9711	1.0710
NPL	0.00866	0.00700	-0.0087	0.0203	0.0068
LG	1.01453	1.1260.	0.5591	4.23214	1.1642

Table 4.1 is the findings of descriptive statistics used in the study. The value of mean for bank earning is 0.01170 which means that average earning of bank is 1.1 percent which shows that the earning level is very low with minimum -0.0129 and maximum 0.0301 and standard deviation 0.0107. The value of mean for deposit ratio is 0.6980 which means that average deposit of bank is 69 percent which shows that the deposit level is high with minimum 0.0044 and maximum 0.8856 and standard deviation 0.2747. The value of mean for cash ratio is 0.0676 which means that average cash level of bank is 6 percent which shows that the cash level is very low with minimum 0.0052 and maximum 0.1476 and standard deviation 0.0313. The value of mean for liquidity risk (Z) is 1.2684 which means that average risk is 126 percent which shows that the bank lower level of liquidity risk with minimum 0.4454 and maximum 5.9711 and standard deviation 1.0710. The value of mean for net profit and loss is 0.00866 which means that average profit of bank is .8 percent which shows that the profit level is very low with minimum -0.0087 and maximum 0.0203 and standard deviation 0.0068. The value of mean for liquidity gap is 1.0145 which means that average liquidity gap of bank is more with minimum 0.5591 maximum 4.23214 and standard deviation 1.1642.

Table 4.2 Diagnostic tests

Test	Null	Alternate	p-value
Chow	Pooled OLS is appropriate	Fixed effect model is appropriate	0.3399
Bruesh Pagan	Pooled OLS is appropriate	Random effect	0.4633
Hausman	Random effect model is appropriate	Fixed effect	0.1992

In table 4.2 the result of specification test "chow test" is in favor of the selection of analysis model among the pooled OLS and fixed effect. The findings suggested 0.3399 which recommends the selection of pooled OLS model. Another specification test "bruesh pagan" test which was included to select model of analysis among the pooled OLS and random effect. P-value is 0.4633 which recommends the selection of pooled OLS model. The p-value of hausman test is 0.1992 which recommends the selection of random effect model for the data analysis.

Table 4.3 Multicollinearity

Variables	VIF	1/VIF
Deposit Ratio	2.65	.37
Cash Ratio	2.61	.38
Liquidity Risk	1.84	.54
Net profit and loss	1.72	.58
Liquidity gap	1.23	.81

The above model was included in the present study to evaluate the issue of multicollinearity in the data which has been used to evaluate the variance observed in the data. The value ranges from above 1 to 10.

Table 4.4 Model of the study (Pooled OLS)

Earning	Coefficient	Std error	t-value	p-value
Deposit Ratio	.0121085	.00369	3.28	.00
Cash Ratio	.0218014	.02715	.80	.42
Liquidity Risk	-.0002826	.00076	-.37	.715
Net profit and loss	1.359217	.1019	13.33	.00
Liquidity gap	1.65e-09	8.78	1.87	.06
Constant	-.0112656	.0030	-3.65	.001
R-square	0.57	P-value	.000	
F-value	51.38			

The study was carried out in banking sector. The aim of the present study is to check the effect of deposit ratio, cash ratio, liquidity risk, net profit and loss and liquidity gap on the bank earning. The model values showed the findings of pooled OLS to evaluate the variances in bank earning due to variables in the banking sector. R^2 show the value of .57 which exhibits that the deposit ratio, cash ratio, liquidity risk, net profit and loss and liquidity gap have 57 % variance in the earning. The f-value is 51.38 which express a significant model.

Heteroskedasticity
chi2(1) = 36.51
Prob>chi2 = 0.0000

The above test is the estimation of heteroskedasticity trend in the data. the findings of test show that data has the issue of heteroskedasticity so the final model should be use with robust standard error.

Table 4.5 Pooled OLS (Robust)

Earning	Coefficient	Std error	t-value	p-value
Deposit Ratio	.0121085	.0012	9.99	.00
Cash Ratio	.0218014	.0158	1.37	.177
Liquidity Risk	-.0002826	.0022	-1.24	.223
Net profit and loss	1.359217	.1665	8.16	.00
Liquidity gap	1.65e-09	7.46	2.21	.033
Constant	-.0112656	.0010	-10.73	.00
R-square	.86	P-value	.000	
F-value	4.4			

R^2 show the value of .86 which exhibits that the deposit ratio, cash ratio, liquidity risk, net profit and loss and liquidity gap have 86 % variance in bank's earning. The f-value of the model is 4.4 which express a significant model.

Independent Sample t-test

	Levene's Test for Equality of Variances		**t-test**		
	F	**Sig.**	**t**	**df**	**P-value**
Liquidity Risk	20.194	.000	1.789	43	.081
			1.639	22.985	.115
Performance	13.825	.001	-7.830	43	.000
			-8.297	39.274	.000

The table showing the findings taken from the independent t-test which has an objective to check the difference among the findings taken from the liquidity risk and performance. The t-values of liquidity risk is 1.789 and 1.639, for performance -7.830 and -8.297. The t-values supports alternate hypotheses and concluded that there is a significant difference for the case of performance and no significant difference for liquidity risk. The findings of the study is consistent with the study conducted by Khan (2017) who argued that due to the different kind of services and products offering by Islamic and conventional banks, it is significant that the perception of liquidity risk will be seen different among them. The Islamic banks are not preferring the liquidity as they are working on non-interest basis so they are not in favor of keeping majority of the funds on hand while the conventional banks are not interested to invest their funds on profit and loss sharing but they are interested in profit only which makes them to invest their funds only in the profit generation chances (Majid, 2003) as cited in (Arif and Anees, 2012). The conventional banks are taking care of having such level of liquidity to fulfill the claims of depositors.

Any financial institution might faces a circumstance in which it needs to offer an extensive number of its illiquid resources to meet the financing necessities (maybe to decrease the use in conformity with the prerequisite of bank's capital adequacy), the rapid sale risk may emerge. Banks confront liquidity risk in the event that they are not eliminating the firm's benefits at a reasonable cost. When the cost of benefits stays unstable due to fatigued sale terms, while selling any of the bank's benefits riskily. This action of the management carry disasters and a reasonable decrease in the firm income. The group statistics and independent sample tests of the for the comparison of the banks in the study is given below.

Group Statistics

	cat	N	Mean	Std. Deviation	Std. Error Mean
LR	1	20	1.5802	1.45671	.32573
	0	25	1.0191	.52683	.10537
PERF	1	20	.0026	.00477	.00107
	0	25	.0191	.00836	.00167

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
LR	Equal variances assumed	20.194	.000	1.789	43	.081	.56108	.31357	-.07130	1.19346
	Equal variances not assumed			1.639	22.985	.115	.56108	.34235	-.14714	1.26931

PERF	Equal variances assumed	13.825	.001	-7.830	43	.000	-.01646	.00210	-.02070	-.01222
	Equal variances not assumed			-8.297	39.274	.000	-.01646	.00198	-.02047	-.01245

IV. RECOMMENDATIONS

- The policy makers should adopt official supervision, capital regulations and restriction on the activities of banks to improve their performance. It is also expected that financial firms should assume the deterministic and practical scenarios with respect to interest rate risk. It is vital that banks develop the regulatory insights in the management of interest rate risk appetite of the banks, thereby avoiding ineptitude and poor financial performance which negatively affects its returns. However, in order to initiate effective decisions, managers have to understand the interplay of the risk factors in the external and internal context, content, process and forces for and against financial performance.
- From the findings, it has been recommended for the policy makers that they should evaluate the trade-off among keeping the opportunity cost of having low yielding assets and also the monitoring to liquidity shocks. The policy makers should adopt official supervision, capital regulations and restriction on the activities of banks to improve their performance
- Finally, the present study was conducted on the bank's earning with respect to the liquidity risk management and its role in their performance. In addition future work can also be conducted by extending the factor to economic factors and its effect on the performance

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