EFFECT OF LIQUIDITY RISK ON SHAREHOLDERS' WEALTH IN COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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ABSTRACT
Shareholders' wealth is among key decisions in a firm because it has a bearing on overall investor perception and firm value. There has been concern about declining value of shareholders' wealth among commercial banks listed at the Nairobi Security Exchange (NSE). Previous studies have linked financial risk to shareholders' wealth. Researchers however fail to agree on the magnitude and direction of the effect. It is not established how liquidity risk would affect shareholders' wealth of commercial banks listed at the NSE. The objective of this study was to establish the effect of Liquidity risk on Shareholders' wealth of Commercial Banks listed at the NSE. Descriptive research design was adopted. The target population was eleven commercial banks that had been constantly listed at the NSE from 2013-2019. A census was conducted to collect data from the eleven banks due to the smallness of the population. Data was collected using a checklist. Data was obtained from published financial statements and the Banking survey publications for seven years from 2013 to 2019. Data was analyzed using simple and multiple regression analysis with the help of SPSS version 25.0. Hypothesis was tested using t-statistic at 5% significance level. The study found that liquidity risk had a negative effect on shareholders' wealth (regression coefficient -0.556, p-value of 0.023). Firms that have high liquidity have more cash flow and are able to take investment opportunities and hence increase shareholders' value. Commercial banks should come up with ways of minimizing this risk.
Keywords: Liquidity risk, Shareholders' wealth, Commercial banks

INTRODUCTION

According to Drehmann and Nikolaaou (2013) liquidity risk refers to the risk of firms' inability to meet their liabilities as they arise. Banks should manage their inability to meet short term responsibilities to prevent them from becoming insolvent (Megeid, 2017). Saleh (2014) established that nearly every transaction in banking business bears liquidity risk implication. This makes liquidity the heart of the banking system. Therefore, it is essential for banks to ensure that they hold adequate liquidity provision to act as a remedy against the shortfall of liquidity which could trigger a systematic repercussion to the financial system (Saleh, 2014). Liquidity risk occurs when the management fail to plan for future uncertainties whereby the value of cash flows is affected by changing rates in the economy. When firms face liquidity issues it can sell off some of the assets to cater for their liabilities so as to prevent insolvency. Liquidity is very vital to every organization as it affects day to day running of any business. Therefore, banks must strive to maintain more assets than liabilities. Liquidity problems can lead to decline in share prices and also decline in return on investment which reduces the shareholders' value.

Central Bank of Kenya provide a policy that institutions should formulate a comprehensive and responsive liquidity policy statement that takes into account all on- and off-balance sheet activities and should be recommended by senior management and approved by the board of directors (Maina,2013). Similarly, every bank must have Liquidity risk management tools for identifying, measuring, monitoring and controlling liquidity risk (including the types of liquidity limits and ratios in place and rationale for establishing limits and ratios. It is a requirement that all banks should maintain a statutory minimum of twenty per cent (20%) of all its deposit liabilities, matured and short term liabilities in liquid assets (Wambu, 2013). CBK further provides that the institution can however develop its own higher minimum liquidity ratio based on size, complexity and the risk appetite (Wambu,2013).

Operational efficiency was used as a moderating variable and it refers to the capability of a business to reduce waste of time, energy and resources and at the same time manufacturing goods and services of high quality (Mannino *et al.*, 2008). Operational efficiency can be evaluated by return on total assets where a firm that has a high return on assets is operationally efficient and indicates that the firm is using efficient methods to curb inability to meet short-term obligations as they arise. It results in increased share prices indicating increased shareholders' wealth. In addition, if a firm has little return on assets, it means that the firm is inefficient and the organization will not be able to meet its responsibilities which are for a period of less than one year.

Shareholders' wealth refers to maximizing the return to shareholders mostly through financing projects that contribute to a positive NPV (Rao & Gutierrez, 2010). Shareholders' wealth mostly is reflected when the shareholders earn return in terms of dividends and capital appreciation. The more time it takes to collect a return, the lesser the worth shareholders put on that project. Additionally investors place a lower value on projects that carry great risk in getting returns such as dividends. Previous studies focused on profitability and financial performance and this necessitated this study to seek to determine effect of liquidity risk on shareholders wealth.

According to Lin and Lee (2011) Shareholders wealth can be valued by book value to market value ratio, stock prices and economic value added. This study measured shareholders' wealth using book value to market value ratio. This is because this ratio helps investors to know whether a firm is undervalued so that they can purchase shares or if the firm is overvalued so that they sell shares (Lin & Lee, 2011). When the ratio of book value to market value results to a value less than one, then it implies that the value of the market is less than the additional cost and thus the organizations shares can be bought because of the low value, while if the ratio is greater than one it implies that the organizations' earning is larger than the additional cost to the organization. Wambu (2013) conducted a study to establish the influence of liquidity risk on profitability of commercial banks in Kenya. The study used all forty-four banks in Kenya and collected data for 5 years from 2008 to 2012. The research used descriptive research design and collected secondary data. Profitability was measured using return on asset and liquidity risk using current assets to current liabilities ratio. The research established that a rise in liquidity risk resulted to an increase in profitability. This study focused on profitability whereas the current study focused on shareholders' wealth.

Alsyahrin *et al.* (2018) carried out a study to establish the influence of operational risk, inability to meet liquidity risk and financing risk towards Indonesian Sharia Bank's. This study used banks size as a moderating variable. The study established that operational risk, liquidity risk and financing risk had a major influence on banks financing and also found that bank size positively affected the relationship between the independent variables and bank's financing. This study used purposive sampling technique and bank size as the moderating variable whereas the current study used census sampling technique and operational efficiency as the moderating variable.

Adolphus (2008) carried out a study–to establish the influence of liquidity management practices of particular Nigerian banks by assessing the importance of funds purposes in bank selection administration, sources of property obligation discrepancy in banks, reasons for inability to convert assets to cash disaster, occurrence of treasury risk, adequacy or suitability of liquidity risk controlling systems, liquidity forecasting practices of Nigerian banks and level of liquidity coverage in banks. The widespread described circumstances of inability to convert to cash disaster and bankruptcy in Nigerian banking industry. This research established that businesses with great ability to convert assets to cash have bulk level of their savings in temporary resources that have worse reward than permanent resources. High ability to convert to cash is probably related to small profitability and low liquidity is probable to result to high profitability. Thus, businesses should always strive to retain an equilibrium amongst contradicting purposes of liquidity and profitability.

In a study by Bordeleau (2009), to examine the influence of liquidity on profitability of banks in US and banks in Canada for a period ranging 1997 to 2009, numerical procedures was employed to evaluate the influence of inability to meet short-term obligations on bank profitability. The outcomes of the research established a non-linear relationship occurs whereby viability is enhanced for financial institutions that embrace properties that can be converted into cash easily, though, there is a fact beyond which carrying additional assets that can be converted cash reduces profitability on banks, all also identical.. Carrying additional assets that can be converted to cash reduces profitability on banks. Theoretically, the examination conclusions concurred with the view that markets reward bank, to some degree for retaining assets that can be converted to cash results to a reduction in ability to meet short-term debts as they arise. Nevertheless, this value can ultimately be compensated by the alternative cost of retaining such relatively resilient easily converted assets to cash on the statement of financial position. Approximation outcomes delivered some indication that there was a relationship between assets that can be converted to cash easily and profitability influenced by the bank's commercial model and the risk of funding market difficulties.

Fu *et al.* (2014) undertook a study to examine the relationship between shareholders' worth and bank competence for 274 banks in 14 Asia-Pacific markets for a period ranging 2003 to 2010. The outcome showed stock returns positively affected earnings of the banks. However, the effect of cost efficiency on shareholders' worth takes a lot of time to be detected.

According to Chen *et al.* (2018) who carried out a study to assess the influence of liquidity risk management on performance of 12 distinct economies for a period ranging from 1994-2006, the study found that liquidity risk inversely affects performance of banks. Previous researches investigated influence of liquidity risk on performance which necessitated the current research to establish the influence of liquidity risk on shareholders' wealth of listed commercial banks at the NSE.

Similarly, Kijambi (2014) did a research on the aspects responsible for performance of domestic profit-making banks in Uganda. The research used all licensed banks in Uganda and collected data from income statement and balance sheet. The research used linear regression to examine the association among the factors affecting commercial banks performance. This research concluded that capital adequacy, interest income, inflation and operational efficiency were the aspects influencing performance of commercial banks'. These studies demonstrate that operational efficiency was considered as an independent variable by few researchers which necessitated this study to consider operational efficiency as a moderating variable.

Musembi (2018) did a study to determine the influence of liquidity risk factors on financial performance of listed commercial banks at Nairobi Securities Exchange in Kenya. Descriptive research design was used. The target population of the study was 11 listed commercial banks at the NSE. Primary data was collected using a questionnaire. The study adopted stratified random sampling and found that liquidity risk positively affects performance. This study adopted a dependent variable which was performance whereas this current research employed shareholders' wealth as dependent variable. Similarly, this study did not use any moderating variable while the current study used operational efficiency as a moderating variable on the relationship between financial risk and shareholders' wealth of listed commercial banks.

Akram (2014) carried a study to examine the effect of liquidity on rewards of shares, the research defined inability to meet short term liabilities from market perspective as the ability of stocks to be traded in the stock market with minimum bid-ask spread. The study established that the wider the spread the higher the existence of liquidity risk in the market thus affecting tradability of the stocks which implied that a reduced trading led to less stock returns due to investors. This definition of liquidity based on the flow of funds to the stock market was first articulated by Amihud and Mendelson (1986) who established there exist a relationship between market liquidity and stock returns. The current research examine the impact of liquidity risk on shareholders' wealth of listed banks at the Nairobi Securities Exchange with regard to returns that shareholders' will get from the investment.

Mwangi (2014) carried out a research to determine the influence of liquidity risk management on financial performance of banks in Kenya. The study used descriptive research design and the population was 43 banks in Kenya. Data was collected ranging from 2010-2013 and concluded that liquidity risk management negatively affects financial performance. Omondi and Muturi (2013) carried a study to find out the aspects influencing listed companies' financial performance at Nairobi Securities Exchange in Kenya, descriptive research design was employed. The study sampled 29 listed organizations using purposive sampling technique. Secondary data was collected from financial statements. Data was analyzed using Inferential and descriptive statistics and this study concluded that operational efficiency, leverage, company size, liquidity and company age significantly affected company's performance. These studies reveal that operational efficiency has not been used to moderate the relationship of variables and necessitated the current research to investigate how operational efficiency moderates the relationship between financial risk and shareholders' wealth of commercial banks listed at the NSE.

The objective of the study was to determine the effect of liquidity risk on shareholders' wealth of commercial banks listed at the NSE. The hypothesis was that there is no statistically significant relationship between liquidity risk and shareholders' wealth of commercial banks listed at NSE.

METHODOLOGY

The study adopted descriptive research design since it facilitated in choosing and grouping of the components and features of objects. The study covered all the 11 commercial banks listed at the NSE. NSE was considered as the context of the study since firms listed there are required by International Financial Reporting Standards No. 7 to disclose all their financial statements which are published in the NSE handbook. NSE is located in Nairobi. This study aimed at commercial banks listed at the NSE because they contribute to Kenyan economy in terms of taxes, job creation, wealth creation and credit access. Census technique was used since the population was small. Data was collected using a checklist. Descriptive and Inferential statistics were used to analyze data. Simple and Multiple linear regression analyses were then conducted using SPSS software version 25.0 in order to address study objective. Assumption of linear

regression model of multicollinearity, homoscedasticity, normality and autocorrelation were tested before analyzing the data.

RESULTS AND DISCUSSIONS

Test for Normality

Shapiro-Wilk Test and coefficient of skewness were used to test for normality (Aczel & Sounderpadian, 2002). The p-value of Shapiro Wilk Test was 0.972 which is greater than 0.05 (insignificant) hence a conclusion that the residual was normally distributed. The Skewness value was also 0.289 which is between -3 and +3 indicating that the residual of the variable was normal and unbiased.

Multicollinearity Test

Incidence and degree of multicollinearity if any was tested using Variance Inflation Factor (VIF). The VIF value was 1.025 less than 10 therefore, multicollinearity was absent. Multicollinearity may lead to wrong results due to its effect of inflating the predictor variables (Cooper & Schindler 2003).

Heteroskedasticity Test

This study used P-P plot to determine if the residuals had constant variance because they are best in the presentation of spread of residuals. The results indicated no specific pattern and the widths were neither increasing nor decreasing as the variables rise. Therefore, heteroskedasticity is absent.

Autocorrelation Test

Autocorrelation was tested by use of Durbin Watson (DW) statistic using SPSS version 25.0. The Durbin Watson value for the model was 2.136. Since the value is between 2 and 2.5, it implies absence of autocorrelation. This implies that the variance of the error term in a certain bank was not related to that of another bank or period, hence the model could be relied upon in estimation and forecasting of outcome.

Liquidity Risk and Shareholders' Wealth

Liquidity risk was measured in terms of total loan to total deposit ratio. Operational Efficiency was measured using net income and average total assets while shareholders' wealth was measured using book value and market value of equity. Descriptive statistics such as mean, standard deviation, range, minimum and maximum for liquidity risk, operational efficiency and sharehlders' wealth were carried out. The summary of descriptive statistics is shown in Table 1.

Liquidity risk had a mean of 0.3183, a maximum of 0.5500 and a minimum of 0.1150, a measure that is above the CBK set minimum of 0.2. This implies that on average, commercial banks complied with liquidity statutory requirements as regulated by the CBK. As shown in Table 1 above, the mean for shareholders' wealth as measured by Tobin's Q was 0.5389 for all the listed commercial banks which represents the average commercial banks shareholders' wealth. Liquidity risk had the highest dispersion from the mean and this could imply that it would have a higher effect on shareholders' wealth. Operational Efficiency had a mean of 0.0293 and a standard deviation of 0.0338 implying less deviation from the mean showing that an increase in net income and average total assets affects the relationship between liquidity risk and shareholders' wealth.

Pair Wise Correlation between the Study Variables

Correlation determines the direction of a relationship between any two variables (Table 2). Liquidity risk and shareholders' wealth had a correlation coefficient of -0.26 with a p-value of 0.019<0.05 hence there was a statistically significant negative relationship between shareholders' wealth and Liquidity risk of Commercial banks listed at the NSE. This implies that an increase in liquidity risk would result to a statistically significant decrease in commercial bank's shareholders' wealth as measured by Tobin's Q. This may be attributed to banks advancing more loans which are compensated with higher deposit and thus in case of short term obligations banks can be able to settle them.

Multiple Linear Regression

This study determined the significance of liquidity risk on shareholders' wealth of commercial banks listed at the NSE. A multiple linear regression was used to examine the relationship between liquidity risk and shareholders' wealth. A multiple linear regression analysis is represented in Table 3.

Table 1: Descriptive statistics

	LR	OE	SHW
Mean	0.3183	0.0293	0.5389
Range	0.4350	0.2781	0.8800
Minimum	0.1150	0.0019.	0.1100
Maximum	0.5500	0.2800	0.9900
Standard Deviation	0.1037	0.0338	0.2286

Where: LR-liquidiity risk, OE-Operationak efficiency, SHW-Shareholders' wealth

Table 2: Pearson correlation between study variables

Variables	SHW	LR
SHW	1	-0.26
LR	-0.26	1

Table 3: Coefficients estimates of liquidity risk and shareholders' wealth

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.08	0.281		3.85	0.000
Liquidity risk	-0.556	0.239	-0.252	-2.328	0.023

R^2=0.174

Table 3 above shows that the regression coefficients of Liquidity risk was -0.556 with a p-value of 0.023<0.05 hence Liquidity risk had a negative and statistically significant effect on shareholders' wealth. The R^2 of the model was 0.174 indicating a model where 17.4 % of the changes in shareholders' wealth could be accounted for by the predictor variable, while 83.6% of the changes would be attributed to other factors not included in the model and the error term. This means a unit increase in liquidity risk would result to 0.556 units decrease in Shareholders' wealth holding other factors constant. Therefore, the null hypothesis was rejected and this implied that there is a statistically significant relationship between liquidity risk and shareholders' wealth.

The findings of this study implies that a bank that holds more deposit is likely to meet its short term obligations as they fall due. When the banks hold more short term assets, shareholders' wealth will decrease since most of the assets will be used to settle liabilities. These findings concur with those of Akram (2014) on effect of liquidity risk on stock returns. Therefore, banks should come up with a strategy of holding more assets than liabilities. These results concur with financial distress theory and Capital asset pricing theory. That is if banks are unable to meet their obligations they can become bankrupt and if banks hold more of risky assets there is a possibility of getting low returns which will reduce shareholders' wealth.

Test of the Moderating Effect

Operational efficiency was hypothesized as a moderating variable. Moderation implied an interaction effect, where introducing a moderating variable changes the direction or magnitude of the relationship between the two variables. The test of significance of the moderating variable is presented in Table 4. The results in Table 4 above show that model 1 is significant at 5% significance level without the interaction effect that it had a t-statistic of 3.765 and a p-value of 0.000<0.005. Model 2 had a t-statistic of 2.348 and a p-value of 0.022<0.05 also significant at 5% significance level. Model 2 accounts for more variance in the interaction between operational efficiency and liquidity risk. The R squared change had a p-value of 0.003<0.005 indicating that there is potentially significant moderation of operational efficiency on the relationship between liquidity risk and shareholders' wealth. The effect of the interaction between liquidity risk and operational efficiency is negative. This implies that with a high level of liquidity risk the shareholders' wealth will decline. Therefore, operational efficiency influences the relationship between shareholders' wealth and liquidity risk. Similarly, the effect of liquidity risk on shareholders' wealth is influenced by operational efficiency.

Table 4: Model summary

Model	Coefficients	Std error	t-statistic	p-value
Model 1				
(Constant)	0.31	0.082	3.765	0.000
OE	1.26	0.764	1.649	0.103
LR	0.499	0.183	2.731	0.008
Model 2				
(Constant)	0.201	0.086	2.348	0.022
OE	4.657	1.326	3.513	0.001
LR	0.994	0.237	4.194	0.000
OE.LR	-17.772	5.810	-3.059	0.003

R^2 for model 1=0.104. R^2 for model 2=0.206

Table 5: Anova Summary

Model	R	R^2	Adjusted R^2	F change	Sig F change
1	0.322	0.104	0.08	4.290	0.017
2	0.454	0.206	0.173	9.358	0.003

The results in table 5 above indicate that operational efficiency alters the relationship between liquidity risk and shareholders' wealth. The regression equation for the two models are:

Model 1

$$Shareholders' wealth = 0.310 + 1.260E + 0.499LR \ldots\ldots (2)$$

Model 2

$$Shareholders' wealth = 0.201 + 4.657OE + 0.994LR - 17.773OE * LR \ldots\ldots (3)$$

The adjusted R^2 of the model without moderation was 0.08 whereas the adjusted R^2 of the model with interaction effect between liquidity risk and operational efficiency was 0.173 signifying there is an increase in the adjusted R^2. This implies that operational efficiency adds a predictive value to the model. Therefore, operational efficiency had a negative effect on the relationship between liquidity risk and shareholders' wealth. This implies that an increase in operational efficiency will result to a negative effect of liquidity risk on shareholders' wealth.

DISCUSSION

Liquidity risk was noted to exert adverse and statistically significant influence on shareholders' wealth of listed commercial banks where it had a coefficient of -0.556 and a p-value of 0.023 at 5% significance level. This concurs with modern portfolio theory and financial distress theory whereby banks should diversify their resources in order to minimize risk and have enough assets necessary to settle their obligations as they arise.

CONCLUSION

Liquidity risk had an adverse and statistically significant effect on shareholders' wealth hence the null hypothesis that liquidity risk has no statistically significant effect on shareholders' wealth of commercial banks was rejected at 95% degree of confidence. This may be attributed to chances of customers borrowing loans which result to higher chances of non-performing loans. This affects shareholders' wealth in terms of decrease in dividends paid to shareholders. This implies that banks hold less assets which in turn results to them not meeting short term obligations as they fall due.

RECOMMENDATIONS

The Central Bank of Kenya should do a banking sector analysis on the ratios that affect shareholders' wealth and optimal levels of liquidity to be maintained by commercial banks. In addition, commercial banks should come up with strategies aimed at improving liquidity levels that will help the banks settle short-term debts as they arise and this will improve shareholders' wealth. Finally, commercial banks should emphasize on refining their operational efficiency so as to minimize liquidity risks and this will improve shareholders' wealth.

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