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The impact of liquidity risk management on the performance of Albanian Commercial Banks during the period 2005-2015

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Abstract

This study is focused on liquidity risk analysis in order to identify if this risk affects the profitability of Commercial Banks operating in Albania. The paper includes the identification, the analysis and the management of this type of risk. Through numerical analysis it will be studied the quantitative effect of liquidity risk on the profitability of commercial banks in Albania during the period 2005-2015. Following the study, liquidity risk is expected to have a considerable effect on the profitability of Commercial Banks operating in Albania. The analysis is based on an empirical study with secondary qualitative and quantitative data. This study provides a contribution within the identification of liquidity risk factors that affect more the profitability of the Albania Banks and the finding of a scientific solution in order to manage this risk in a more efficient way. The recommendations derived from this study will serve to young researchers of academic area and professional field. Also, this paper will create new discussions on risk management instruments used in the Albanian banking system.

Keywords: Profitability, Liquidity risk, Commercial banks, Albania

1. Introduction

Over the past six decades since Markowitz's seminal paper of 1952 on portfolio selection, and most financial theories and models assumed markets were frictionless, thus, in traditional asset pricing models, liquidity plays no role at all because it is assumed away. The moment these conventions are relaxed, the world changes, though not in an expected way. The vast literature on liquidity and asset pricing argues that liquidity is indeed priced and contains both theoretical models and empirical findings detailing how an asset's liquidity affects expected returns.

During the recent global financial crisis several banks experienced some difficulties because they failed to manage liquidity in a prudent manner. Thus the crisis emphasized the importance of liquidity to the proper functioning of financial markets and the banking sector. Before the financial crisis, financial intermediaries were stable as funding was readily available and at low cost. The rapid reversal in market conditions illustrated how quickly liquidity can evaporate, and that illiquidity can reserve already earned profits as financial institutions are either forced to sell assets well below their market value or borrow at interest rates charges above their weighted return on assets.

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Though, insufficient liquidity is one of the major reasons for bank failures, holding liquid assets have an opportunity cost of higher return given that liquid asset has a low liquidity premium and, therefore, a lower return relative to illiquid assets.

The liquidity crisis significantly affected banks' operational environment. In response to the catastrophe, financial bodies such as the Basel Committee for bank supervision advocated for the active management of liquidity risk. Banks are required to hold a considerable position in liquid assets while, on the other hand they are required to be profitable for them to be sustainable. Despite the increased efficiency in many banks resulting from holding higher positions of liquid assets, profitability has severely suffered. Liquidity and profitability are inversely related, when liquidity increases profitability decreases and vice versa while on the other hand, there is a direct relationship between higher risk and higher return, hence the dilemma in liquidity management is finding a balance between liquidity and profitability. While it is generally agreed that there is a negative relationship between liquidity and bank profitability there is counter evidence which shows the need to consider the tradeoff between resilience to liquidity shocks and cost of holding less profitable liquid assets as the latter is assumed to impact on the bank's ability to take advantage of opportunities arising in the market which may result in increase in revenue, capital or ability to extend capital credit (Bordeleau and Graham 2010). A liquid financial institution has a smaller portion of its assets in long term loans and a greater proportion of its assets in short term securities that can be quickly liquidated into cash that can then be loaned out, however a highly liquid bank may mean lack of profitable projects to invest the money.

Liquidity management becomes a very important part in financial management decisions, where the liquidity management efficiency could be achieved by firms that manage a tradeoff between liquidity and profitability (Bhunia and Khan 2011). The impact of bank asset liquidity on profitability has of late attracted the interest of academic research, financial market analysts, bank management and bank monitors. Brunnermeier, Krishnamurthy, and Gorton (2013) notes that it's not the level of gearing that is important, but rather the proportion of debt that is comprised of short term demandable deposits. Brunnermeier et al. (2013) argue that if banks hold illiquid assets that are financed by short-term debt in periods when banks run behavior emerges; this may result in increased systemic risk.

There is a lot of literature that leads to the fact that liquidity crunch was the main cause of the 2009/10 global financial crisis yet very little is known about the nexus between bank performance and liquidity. Of the few studies that have looked at the bank liquidity and bank performance nexus most of them took a theoretical approach and the few studies that attempted to empirically test this phenomenon used net interest margin as the indicator for bank profitability. The linkage between net interest margin and liquidity is unsettled. Maudos and Guevara (2004), and Saunders and Schumacher (2000) found a significant positive relationship between market liquidity risk and net interest income. Drakos (2003) and Hesse (2007), on the other hand, found a negative relationship between net interest margin and liquidity. However, Maudos and Solis (2009) found an insignificant relationship between net interest margin and market liquidity. The researcher investigated the effects of funding liquidity and market liquidity on bank performance utilizing net interest margin as the measure of performance. The evidence was based on South African banks from 1998 to 2014. The paper is organized in the following manner. Section 2 constitutes a brief discussion of literature and the empirical

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framework as applied in this article. Section 3 presents the estimation method and empirical results. Finally, conclusions and recommendations are presented and policy implications are drawn in section 4.

2. Literature review

Liquidity though not a new phenomenon in finance literature has no universally accepted definition. Adler (2012) asserts that the lack of agreed-upon definition emanates from the fact that the concept of liquidity arises from different economic perspectives. Liquidity can be defined in the context of how easy a security can be traded and in the context of how easy one can obtain funding to trade a security, the former being called market liquidity and the latter being funding liquidity. Ideally, market and funding liquidity are complementary since the easier it is to trade security means the easier it is to get funds to trade securities.

According to European Central Bank (ECB) (2010) bank performance is described as the bank's capacity to generate sustainable profits. The main drivers of bank performance are indicated by Bikker (2010) as costs, efficiency, profits and market structure.

2.1 Bank Liquidity on Bank Performance

There are a very limited number of studies that were specifically carried out to investigate the impact of liquidity on bank performance. Surprising most of these few studies were done on manufacturing companies. Some writers found a positive relationship between Bank liquidity and performance; some found a negative relationship while others found both results and a few found no relationship at all. The debate is still rampant. Kosmidou, Tanna, and Pasiouras (2005) realized that the ratio of liquid assets to customer and short term funding is positively related to ROA and statistically significant. Also, they found a significant positive relationship between liquidity and bank profits. Kosmidou (2008) examined the determinants of performance of Greek banks during the period of EU financial integration (1990-2002) using an unbalanced pooled time series data set of 23 banks and found that less liquid banks have lower ROA. This is consistent with their previous findings like Bourke (1989) who found out that there is a positive relationship between liquidity risk and bank profitability. Recently, Olagunju, David and Samuel (2012) found out that there is a positive significant relationship between liquidity and profitability. They concluded that there is a bi-directional relationship between liquidity and profitability where the profitability in commercial banks is significantly influenced by liquidity and vice-versa.

Assuming that banks only hold liquid assets as a requirement is, in itself, perfidious or a deliberate ignorance of knowledge of how banks function. Shen, Chen, Kao, and Yeh (2010) assert that in market-based financial system liquidity risk is positively related to net interest margin an indication that banks with high levels of illiquid assets receive higher interest income. Conflicting to their earlier establishment on the relationship with net interest margin, they realized that liquidity risk is negatively related to return on average assets and also inversely related to return on average equity. They pointed out that banks incurred higher funding cost in the market if they have illiquid assets as they had to raise the money in the market to meet the funding gap. They also discovered that there is no relationship between liquidity

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risk and performance in a bank based financial system as the banks play a major role in financing; therefore they are not affected by liquidity risk. Ben Naceur and Kandil (2009) in their analysis of cost of intermediation in the post capital regulation period which included; higher capital-to-assets ratios, an increase in management efficiency, an improvement of liquidity and a reduction in inflation found out that Banks' liquidity does not determine returns on assets or equity significantly.

Therefore conclusions about the impact of banks' liquidity on their profitability remain ambiguous and further research is required.

3. Methodology and model of the research

The study analyze 40 observations, which include quarterly data from 2005 to December 2015. The data used are secondary data published by the Bank of Albania:

1. *Profit before tax (PBT)* which is a dependent variable and it is expressed in Million Lek (Albanian Currency).

2. *Deposits* is the level of customer deposit to be collected from the liability side of the statement of financial position. It is an independent variable and it is expressed in Million Lek.

3. *Cash* includes "cash and balance with the central bank". It is an independent variable and it is expressed in Million Lek.

4. Liquidity Gap (GAP) is obtained from the table of maturity of assets and liabilities. The liquidity gap for one month will be taken. Gap is an independent variable and it is expressed in Million Lek.

In order to determine the effect of liquidity risk management on banks profitability the Ordinary least squares *(OLS)* methode is used through applying the statistical program *Eviews* on the quantitative data published by the Bank of Albania for the period 2005 - December 2015.

A regression model is employed in order to analyze the relation between Deposits, Cash, GAP and Profit before tax:

$$Y_i = \beta_0 + \beta_1 X_i + u_i$$

As the study has more than one independent variable a multiple regression model should be employed. The regression equation will be:

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 X_i + \beta_3 X_i + \ldots\ldots + \beta_n X_i + u_i$$

Based on the above equation and the variables used in this study, the econometric equation for the model is specified as following:

- Hypothesis:

$$PBT_t = \beta_0 + \beta_1 Deposits_t + \beta_2 Cash_t + \beta_3 GAP_t + u_i$$

1. Analysis and data interpretation

To test the hypothesis of this research the following variables are analyzed:

a. dependent variables (Profit before tax) ; and

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b. independent variables (Deposits, Cash and GAP).

The model is based on the analysis of a multiple regression equation and statistical program Eviews is applyed on the data. The results of the tests are presented in the following tables.

Hypothesis : Liquidity risk has an impact on the Profit Before Tax of commercial banks in Albania.

$PBT_t = \beta_0 + \beta_1 Deposits_t + \beta_2 Cash_t + \beta_3 GAP_t + u_i$

Table 1. Results for the hypothesis

Method: Least Squares

Date: 10/24/16 Time: 12:35

Sample: 2005 2015

Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12056.21	5164.209	2.334571	0.0523
DEPOSITS	0.011833	0.004911	2.409358	0.0468
CASH	-0.087097	0.029607	-2.941756	0.0217
GAP	-0.023336	0.030127	-0.774585	0.0269

R-squared	0.613968	Mean dependent var	9060.000
Adjusted R-squared	0.448526	S.D. dependent var	3579.853
S.E. of regression	2658.445	Akaike info criterion	18.88416
Sum squared resid	49471306	Schwarz criterion	19.02885
Log likelihood	-99.86287	Hannan-Quinn criter.	18.79295
F-statistic	3.711074	Durbin-Watson stat	2.278222
Prob(F-statistic)	0.039531		

Source: Author's computation, 2016

The established multiple linear regression equation becomes:

PBT = 12056.21 + 0.011833 Deposits – 0.087097 CASH - 0.023336 GAP

F-statatistic, which measures the common importance of the explanatory variables, is statistically significant at the 5 % level, according to the corresponding value of probability 0,039531. According to this, the model used is appropriate. Results show that the coefficient Deposits is statistically significant at the 5% level with a probability of 0.0468 and implies a positiv correlation between the variables. Keeping all other coefficients constant, an increase of 1 unit in the variable Deposits will lead to an increase in the variable PBT by 0.011833 units.

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The regression analysis shows that the probability of CASH coefficient is 0.0217 and it is statistically significant at the 5 % level. Keeping all other coefficients constant, an increase of 1 unit in the variable CASH will lead to a decrease in the variable PBT by 0.087097 units.

Results show that the coefficient GAP is statistically significant at the 5% level with a probability of 0.0269 and implies a negativ correlation between the variables. Keeping all other coefficients constant, an increase of 1 unit in the variable GAP will lead to a decrease in the variable PBT by 0.023336 units.

Adjusted R^2 0.448526 (44,85%) suggests that 44.85% of the total variation in PBT of commercial banks in Albania is explained by joint variations in the independent variables.

4. Conclusion and recommendations

This paper studies the impact of liquidity risk management on the profitability of commercial banks in Albania during the period 2005-2015. To analyze the relationship between liquidity risk management and profitability of banks secondary data published by the Bank of Albania were collected for 16 commercial banks operating in Albania during the period 2005-2015. Profit before tax was used as indicators to measure the profitability of banks and Deposits, Cash and Liquidity Gap (GAP) as indicators of liquidity risk. Statistical program Eviews was applied on the collected data to test the hypothesis of this research.

The results of the regression analysis indicate that the correlation between BPT and Cash is statistically significant. Keeping all other coefficients constant, an increase of 1 unit in the variable CASH will lead to a decrease in the variable PBT by 0.087097 units.

Also the results of the regression analysis show that there exist a negative correlation between Deposits and PBT and GAP and PBT and this correlations are statistically significant.

Keeping all other coefficients constant, an increase of 1 unit in the variable Deposits will lead to an increase in the variable PBT by 0.011833 units.

Keeping all other coefficients constant, an increase of 1 unit in the variable GAP will lead to a decrease in the variable PBT by 0.023336 units.

Based on these results the commercial banks in Albania should be more focused on liquidity risk management, especially on the GAP.

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