

Internal Liquidity Determinants Analysis of Commercial Banking Industry of Jordan

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Abstract: - The study aims to determine the possible internal factors affecting the liquidity position of the commercial banking industry of Jordan. Several possible determinants are taken into account in the study including, profitability, credit growth rate, customer deposits, financial leverage, capital adequacy, and bank size. The secondary data covering the period 2008-2019, of 13 out of 15 listed banks at Amman Stock Exchange, is gathered and analyzed. In total, 1,092 observations are employed in the analysis to achieve the goals of the study. All hypotheses are tested under 95 level of confidence, which means 5 percent coefficient of significance. Descriptive statistics including the mean, standard deviation, and the minimum and maximum values, in addition to correlations, are employed in the analysis of data. Using correlation and regression methods in hypotheses testing, the study declares that profitability, capital adequacy, and bank size, each of which, has a significant positive impact on bank liquidity. In addition, the study finds that financial leverage and customer deposits have a negative significant effect on bank liquidity. Moreover, the study finds no significant impact of credit growth rate on bank liquidity.

Key Words: - Commercial Banks, Liquidity Determinants, Credit Growth Rate, Customer Deposits, Capital Adequacy, and Financial Leverage.

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1 Introduction

Liquidity is important as profitability is, because each of which may lead to collapse and bankruptcy of business organization. The global financial crisis of 2008, shed light for analyzing liquidity and its different determinants. Studying liquidity determinants can be accomplished using different methods. Using financial ratios in measuring the

Within the global crises of 2008, most banks of different countries showed a decline in liquidity, especially in USA and other western countries, and the commercial banking system faced a difficulty in liquidity creation. Some experts and authors mentioned that the difficult of liquidity creation faced by commercial banks of some western countries, is mainly due to low efficiency of markets, and financial problems of counterparties [9]. Some found

level of liquidity is preferable, and leads to good conclusions regarding liquidity decision. Despite that, some interested people believe that liquidity creation method in measuring liquidity may lead to better findings, than ratios method [9], but still the ratios method leads to reasonable conclusions, and it is followed in the current study for investigating the liquidity of Jordanian commercial banks.

that the liquidity of commercial banks declined during the crises by 8 percent [12].

The commercial banking industry is the most important economic sector affecting the efficiency and effectiveness of different production sectors. Commercial banks provide funds to other business organizations, and can finance the different investment prospective. The liquidity level of commercial banks is important, because when high level of liquidity is available to commercial banks,

banks will have more ability to finance other business organizations of other sectors, and can satisfy the funding needs of business organizations. In opposite when a low liquidity level is available to commercial banks, other business organizations will face difficulties to finance its investments.

The liquidity of commercial banking is a crucial issue for the economic growth of different countries all over the world. Commercial banking liquidity offers loans and help financing other firms of different industries. In addition, many new small businesses emerged when it offered loans and financing by commercial banks. Commercial banks can finance new and current business organizations, only when enough liquidity is available, but whenever there is a lack in liquidity of commercial banks, new businesses emerging will be less, and the investment process of the current firms will be below the average of normal situations. The emergence of new businesses and the growing investments create job opportunities for local and for foreigners of rare qualifications internally. In Jordan, there is a severe problem of unemployment, less investments, low attraction of foreign investments, high inflation, and low rate of economic growth. Therefore, commercial banks of Jordan can play a vital role in declining the negative effect of all of these bad economic indicators. Again, this can occur only when high level of liquidity is available to commercial banks. Therefore, the problem of the study is the possible internal determinants of liquidity level of Jordanian banks, and this problem can be better introduced through the following question. What are the internal determinants of liquidity of the Jordanian commercial banks?

The current study is important, where its importance is due to the importance of banking industry, and its required funding role to other productive aspects in different countries. The findings of the study are important to commercial bank managements, because commercial banks can make a balance between its liquidity and profitability, through deposit and credit policies. Following some policies, which keep banks liquid, and less risky, and avoiding some policies will improve the financial performance of commercial banks. Despite that, some aspects of its importance are indirectly mentioned above, but it deserves to be mentioned again following using a straightforward method. The importance of the study is stemmed from the importance of funds to investments.

Whenever, funding is available, more investments can be initiated, and more production institution can be created, because funding plays the most important role in activating investments. More investment leads to more economic growth, less unemployment, better economic and living well-being. High liquidity level of commercial banks means that more funding support, where commercial banks, in this case, can provide for productive entities inside the country, but low levels of liquidity leads to less investments, higher unemployment and less economic and living well-being for the different groups of people inside the country.

The objectives of the study can be summarized as follows. The first objective is to determine the level of liquidity of commercial banking industry of Jordan. The second objective is to determine the possible internal indicators of liquidity of Jordanian commercial banks. It takes into consideration some internal factors, where the managements of banks can exercise a large degree of control over these assumed determinants. The last objective of the study is to add more to the available literature with regard to the factors affecting the liquidity position of Jordan.

The remaining sections are structured as follows. Section 2 includes the related literature, and shows some of previous studies that carried out in the field of liquidity and the determinants of liquidity. The hypotheses of the study are presented in section 3, whereas section 4 shows the methods followed in the study. Section 5 shows the results and analysis, and section 6 reveals the conclusions of the study.

2 Review of the Literature

The key role of banks and other depository entities is the transformation of short-term deposits into long-term loans [11]. The financial obligations that banks may face require sufficient level of liquidity to meet these obligations when they do, with no losses. From this idea the term of liquidity risk comes, which refers to failure of banks to meet these obligations without cost.

The financial crises of 2008 began during the first half of 2007, as credit crisis and later transformed to liquidity crisis [6]. The decline in housing prices in of US caused an increase in mortgage lending that led to a liquidity crisis in 2007. The financial crisis led to bankruptcies, quasi-bankruptcies, in addition to a decline of financial performance of large banks and other financial

institutions. The crises later led to a deterioration of international stock markets, liquidity shortage of interbank markets, and later extended in 2010, to a sovereign debt crisis in some European countries, such as Greece, Spain, Portugal, Italy, and. Before the financial crisis began in the first half of 2007, new regulations for banks were in practice in the form of Basel II, but during the 2008 financial crisis, only banks that have enough levels of liquidity could resist the shortage in liquidity problems and continue meet its obligations. This causes Basel Committee on Banking Supervision (BCBS) to issue new banking regulations called 12 Basel III, where these new regulations give more attention to the management of capital, equity, and liquidity, and was introduced as a regulatory framework for banks, all over the world [7].

Basel Committee in Banking Supervision [1], defines liquidity as “the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses” [6]. Liquidity of banks is very important issue, where this importance comes from its role of transforming short-term deposits into long-term loans.

Banks face many problems in its operations that make a threat to its solvency. Examples of risks that banks may face include interest rate, market rate, off-balance sheet, foreign exchange, and other risks. Nevertheless, banks may continue subject to solvency risk, when a bank is unable to generate liquidity to pay its deposits [14]. Therefore, commercial banks’ managements are required to give more attention to liquidity, in order to be able to avoid losses that appear regarding payments of deposits when due. In the context of liquidity risk, Saunders et al (2006) distinguish between two sources of liquidity risk, the asset side source, and the liability side source. The assets side of the balance sheet may be an actual source of liquidity risk when a bank exercises what is called, off-balance sheet obligations. This occurs when a bank agrees for a contract to grant a loan, where based on this this type of contracts, customers receive an agreed amount, and the bank is required to offer the borrowed amount immediately on demand, where this type of contracts needs more liquidity. In addition, the liability side of the balance sheet may be another source of liquidity risk. This occurs when depositors withdraw a large amount of their deposits, where this causes a decline in liquidity. Because of that, banks can avoid such these difficulties and avoid incurring

additional cost, when banks keep enough levels of liquidity. When a bank faces such liquidity problems, whether it is an asset or a liability side cause, banks may use its reserves if sufficient, because rarely banks keep high amounts of liquid assets because these liquid assets generate no interests, or very low rate of interests. A bank facing a liquidity risk may borrow additional funds, or liquidate some of its current illiquid assets.

3 Prior Researches

The issue of bank liquidity is given enough attention since the appearance of 2008 financial crises, but before that time, bank liquidity had not been given the required attention in researches and studies. Still, the issue of commercial banks liquidity is below the required attention of authors and practitioners in the developing and Arab countries.

Laštůvková [9], carried out a study aiming to identify the factors influencing the liquidity of Czech, Slovak and Slovenian’s commercial banks. The objective of the study is to determine the impact of some possible internal and external factors on commercial bank’s liquidity. Secondary data covering the period 2001-2013, of a sample of Czech, Slovak, and Slovenian banks, had collected and analyzed. The multiple linear regression had employed in testing the hypotheses. The results showed that certain factors have a multiple effect on the different forms of liquidity, while other factors only affect specific forms of liquidity. The study also found that small banks are more sensitive to specific forms of liquidity, while the opposite, is the correct for large banks. In addition, the study reveals that the more flexible regulations, lead to more optimization.

Bansal and Bansal [2], investigated the determinants of liquidity for determining which among these affect liquidity of some Indian firms. The relevant secondary data, covering the period 1999-2008, of a sample consisted of 100 textile and chemical Indian enterprises. The stepwise regression had used in the analysis of data, and the results showed that cash flow, debt ratio, and free cash flows, are significant determinants of liquidity.

The purpose of Ben Moussa’s Study [3], was to identify the factors affecting the liquidity of Tunisian banks. The secondary data covering the period 2000-2010, of 18 Tunisian banks, had been collected and analyzed. Two measures of liquidity had used in the study including liquid assets to total assets, and total

loans to total deposits. Using both of the static and dynamic panel methods, the study demonstrated that financial performance, capital to total assets, opening costs to total assets, GDP rate of growth, inflation rate, and delayed liquidity, each of which has a significant impact on liquidity. Moreover, the study finds that the liquidity of Tunisian banks is not affected by each of bank size, loans to assets ratio, deposits to total asset, financial costs to total credits ratio, and bank size.

Lotto and Mwemezi [10], carried out a study to determine the most important determinants of bank liquidity. Secondary data covering the period 2006-2013 of a sample consisted of 49 banks of Tanzania had gathered and analyzed. Using the panel of regression, the study showed that capital adequacy, bank size, and interest rate margin, had a negative significant effect on bank liquidity. The study also demonstrated that each of the rate of inflation and the non-performing has a positive significant effect on the liquidity of commercial banks. Moreover, the study findings revealed that each of GDP, and GDP growth rate does not affect the liquidity of Tanzanian banks.

Bista and Basnet [4], analyzed bank liquidity of Nepal, as an attempt to determine the factors affecting liquidity. Secondary data covering the period 2002- 2018, due to 12 commercial banks in Nepal, had gathered and analyzed. The multiple regression method is used in hypotheses testing and other analysis of data. The results revealed that similarly, deposits, capital adequacy, remittances, and bank size are significant determinants of bank liquidity, and where deposits increase liquidity, the capital adequacy leads to liquidity reduction of commercial banks. The study also revealed that internal factors affect bank liquidity more than macroeconomic external factors. In addition, it revealed that at the long run, capital adequacy, bank size, and capital expenditures lead to an increase in bank liquidity, whereas deposits decrease liquidity of banks.

Nguyen and Vo [13], carried out a study related to bank liquidity and objected for examining the determinants of liquidity of 17 listed banks at the Vietnamese Stock Exchange, HOSE, HNX and UPCOM. The study used quarterly financial information covering the period 2006-2020. The required macroeconomic data regarding GDP and the rate of inflation had collected from International Monetary Fund and the General Statistics Office of

Vietnamese. The panel data method is used in the study, and it showed that total assets size, return on total assets, and credit growth are positively associated with liquidity of banks, whereas the interaction between bank size and return on total assets negatively affect the liquidity of listed banks at HOSE, HNX, UPCoM. The study recommended the managements of commercial banks to focus effective credit growth, developing the scale of total assets, and ensure high rate of return on total assets, to improve the position of liquidity.

Mohamad [11], prepared a study to identify the determinants of liquidity of Turkish commercial banks. In more details, the goal of the study was to identify the factors affecting the liquidity of conventional banks of Turkey. Secondary data covering the period 2005-2013, of 21 listed Turkish banks, had collected and used in the analysis. Both of the liquid to total assets, and liquid assets to customer deposits and funding, were used as measures of liquidity in the study. The ordinary least square method was used in testing the hypotheses of the study. The results showed that only bank capitalization has a positive significant impact on both measures of liquidity, but the loan loss reserves ratio positively affects liquidity only when it is measured based on the liquid assets to customer deposits and funding ratio, while bank size has a negative significant impact on the first ratio. The findings of the study also showed that profitability has a negative significant impact on liquidity only when bank liquidity is measured based on liquid assets to total assets ratio.

4 Study Hypotheses

As a result of the review made to the related literature and the survey that made to the prior researches findings, several hypotheses are developed. Using the null form of hypotheses, these hypotheses are listed bellows as follows.

Ho1. The profitability of the commercial banks of Jordan does not affect the liquidity position of these banks.

Ho2. The rate of credit growth of commercial banks of Jordan does not influence the liquidity of these banks.

Ho3. The listed commercial banks of Jordan client deposits does not significantly affect the liquidity position of this group of banks.

Ho4. The Jordanian commercial banks' financial leverage does not significantly affect the liquidity position of these banks.

Ho5. Commercial bank's capital adequacy has no significant influence on the liquidity of commercial banks of Jordan.

Ho6. The liquidity position of the commercial banks of Jordan is not significantly affected by the bank size.

Ho7. There is no grouping effect of bank profitability, credit growth rate, client deposits, debt, capital adequacy, and bank size, on the liquidity position of commercial banks of Jordan.

5 Study Methodology

The population of the study includes the different non-Islamic banking enterprises of Jordan. In total, and by the end of 2020, there were 15 commercial banks listed at ASE, of these, 2 are Islamic, and the rest are 13 non-Islamic banks. The data due to each of these 13 non-Islamic banks had gathered and used in the analysis of data testing of hypotheses. The two working Islamic banks in Jordan were eliminated because the data of this type of banks is inconsistent with the data of non-Islamic commercial banks. The collected data covers a 12-year period (2008-2019), and it had collected using the annual reports of ASE.

The dependent variable of the study is bank Liquidity, whereas 6 variables are independent and thereafter examined with regard to their effect on liquidity. The independent variables of the study

include profitability, capital adequacy, credit growth rate, client deposit, financial leverage, and bank size.

The liquidity of banks means the ability of commercial banks to meet the obligation when they due. Table (1) shows how each of the dependent and independent variable, is measured. The table shows that commercial bank liquidity is the relationship of liquid assets to total assets (Mohamad, 2016). Profitability is measured using ROA as a good indicator for profitability, where ROA is computed by just dividing net income by total assets. Credit growth is computed using the equation available in table 1, as follows (Dao and Nguyen, 2020).

$$CRG = \frac{\text{Loans of the current year} - \text{Loans of the prior year}}{\text{Loans of the prior year}}$$

Based on this equation, the credit growth rate can be found by deducting the prior year loans from the current year loans, and the result of this subtraction process, is divided by the prior year loans. The financial leverage ratio gives an idea regarding the borrowed amounts of money, and the credit received by a bank, and it is computed through debt to equity ratio, which is simply the relationship of liabilities to equity. The calculation of capital adequacy ratio differs from Basel 1 to Basel 2, issued in 2004. In general, the computation of capital adequacy in this study is based on Tier 1 capital, so capital adequacy is used in this study as a ratio of shareholders' equity to total assets (Dao and Nguyen, 2020).

Table 1. Study Variables and Measurement

Variable	Variable Name	Label	Measurement Method
Dependent	Liquidity	LIQ	$\frac{\text{Loans}}{\text{Total Assets}}$
Independent	Profitability	ROA	$\frac{\text{Net Income}}{\text{Total Assets}}$
	Credit Growth	CRG	$\frac{\text{Loan Year } t - \text{Loan Year } t - 1}{\text{Loan Year } t - 1}$
	Client Deposits	DPS	$\frac{\text{Total Depsits}}{\text{Total Assets}}$
	Financial Leverage	FLR	$\frac{\text{Total Liadabilities}}{\text{Total Shareholders' Equity}}$
	Capital Adequacy Ratio	CAR	$\frac{\text{Shareholders' Equity}}{\text{Total Assets}}$
	Bank Size	BSZ	Logarithms of Total Assets

The regression model is designed to include the different variables as follows:

$$LIQ = a + bROA + cCRG + dDPS + eFLR + fCAR + gBSZ + E \quad (1)$$

Where, a , is a constant, indicating the level of liquidity when the value of the each independent variable equals zero, and each of b , c , d , e , f , and g , is also a constant referring for the corresponding variable slope. ROA is the rate of return on total assets, and CRG, refers for the rate of credit growth from year to year. Where DPS refers for deposits, FLR refers for bank financial leverage. Moreover, CAR denotes for capital adequacy, and BSZ refers for bank size.

Descriptive statistics including the mean, standard deviation, minimum value, and maximum value, are used in the analysis of collected data, whereas except for the last hypothesis, the simple linear regression method is used in testing the first six hypotheses, and the multiple linear regression method is used in testing the last hypothesis. The decision base of null hypotheses acceptance or rejection is based on the comparison between the computed and the tabulated t -value with regard to the first six hypotheses, and the comparison between the computed and the tabulated f -value regarding the last hypothesis. Underline this rule, the null hypothesis is accepted when the computed t or f -value is less than the corresponding tabulated one, where in opposite, the null hypothesis is rejected when the computed t or f -value, is higher than the tabulated. Another rule is used in the decision of null hypotheses acceptance or rejection, is the comparison between the computed and the predetermined coefficients of significance. Following this rule, the null hypothesis is accepted and its alternative is rejected, when the coefficient of significance is higher than the predetermined one, and in opposite, the null hypothesis is rejected and its alternative is accepted, when the computed one is less than the predetermined. In occasion, both decision criterion lead to the same decision.

6 Results and Analysis

The main objective of the study is to examine some internal possible factors affecting the liquidity of listed commercial banks of Jordan. As mentioned above, the simple linear regression method is used in testing the first 6 hypotheses, whereas the last hypothesis is tested using the multiple linear regression method.

Descriptive Statistics

The mean, as a measure of central tendency, and the standard deviation, as a measure of variation, in addition to the minimum and maximum values, are all descriptive statistics that are used for the different variables, and the outputs are shown in table (2). The table shows that the least liquidity ratio is 0.12, and the highest one is 0.52, at a 0.31 mean, and 0.084 standard deviation. In occasion, liquidity is measured using the debt ratio, where debt ratio is computed by dividing total liabilities by total assets. The liquidity of banks seems acceptable and within the range. Regarding profitability, zero is the least profitability ratio, whereas the highest is 0.03, where the highest value refers for low profitability of the entire industry. The mean of profitability is 0.012, with a standard deviation of 0.005. These values indicate that the commercial banks achieve low profitability. Asset utilization seems low also, where the least is 0.02, and the highest is 0.07, with a 0.053 mean, and 0.011 standard deviation. The rate of credit growth refers for a high rate of increase in credit. The least value of credit growth rate is -0.16, and the highest is 0.85, with a mean of 0.084, and 0.121 standard deviation. Higher credit than the average leads to higher bad debts therefore; the commercial banks of Jordan are required to adopt more conservative credit policy. The minimum value of client deposits is 0.48, and the maximum is 0.81, with a mean of 0.656, and 0.069 standard deviation. The client deposit is acceptable, and can be considered within the range. The least debt ratio is 3.53 and the highest is 12.32, with a mean of 6.579, and 1.589 standard deviation. The logarithms of total assets minimum value is 8, and the maximum is 10.42, with a mean of 9.238, and standard deviation of 0.429. Actually, except two banks, the assets of the remaining Jordanian commercial banks are low.

Table 2. Descriptive Statistics

	No. of Observations	Least Value	Highest Value	Mean	Standard Deviation
Liquidity Ratio	156	0.12	0.52	0.310	0.084
Profitability	156	0.00	0.03	0.012	0.005
Capital Adequacy	156	0.08	0.22	0.1358	0.027
Credit Growth Rate	156	(0.16)	0.85	0.084	0.121
Client Deposits	156	0.48	0.81	0.656	0.069
Debt Ratio	156	3.55	12.32	6.579	1.589
Long. Assets	156	8	10.42	9.328	0.429

To check whether the data can be used for analysis, the normal distribution, multicollinearity, and correlation tests are made. The results of these tests are appearing in table (3). The tolerance and Variance Inflation Factors (VIF) had computed to

ensure that the variables are not overlapped. The VIF for all variables is less than 10, suggesting the absence of overlapping variables (Gujarati, 2003, p. 496).

Table 3. Variables Multicollinearity

Variable	multicollinearity	
	Tolerance	VIF
Profitability	0.856	1.168
Asset Utilization Efficiency	0.802	1.247
Credit Growth Rate	0.948	1.055
Client Deposits	0.839	1.191
Debt Ratio	0.759	1.318
Log. Assets	0.948	1.246

Hypotheses Testing

The simple linear regression method had employed in testing the first sixth hypotheses, whereas, the multiple linear regression method had used in the last hypothesis test. The different hypotheses are tested under 95 percent level of confidence, where this is equivalent to 5 percent coefficient of significance.

First Hypothesis

This hypothesis is initiated to enable testing whether bank profitability affects liquidity. Profitability is measured using ROA, where ROA is the ratio of net income to total assets. Using its null form, the hypothesis is listed again as follows.

Ho1. The profitability of the commercial banks of Jordan does not affect the liquidity position of these banks.

The test of the hypothesis shows that R equals 0.251, and R² equals 0.063, where the value of R² means that ROA explains only 6.3 percent of the

change taking place in liquidity. Table (4), shows the related coefficients and statistical values of the first hypothesis test.

According to the information included in the table, the outputs reveal that the computed t-value equals 3.224, and 0.002 coefficient of significance. Comparing the computed t-value with its corresponding tabulated one, which equals 1.96, the computed one seems higher than the tabulated. Moreover, comparing between the coefficient of significance with the predetermined one, that equals 0.05, the computed one seems less than its corresponding predetermined one. Because the computed t-value is greater than its corresponding tabulated, and because the coefficient of significance is less than its corresponding tabulated one, the null hypothesis is rejected, while its alternative one is accepted. This result means that profitability has a positive significant impact on bank liquidity.

Table 4. 1st Hypothesis Test

Model	B	Std. Error	Beta	T	Sig.
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Constant	0.257	0.018		14.345	0.000
Profitability	4.387	1.361	0.251	3.224	0.002
R = 0.251					
R ² = 0.063					
Adj. R ² = 0.057					

Second Hypothesis

The second hypothesis of the study was developed to enable examining whether the rate of credit growth of commercial banks of Jordan, affects liquidity. Credit growth is measured by deducting the attributed credit amount to the preceding year from the attributed credit amount of the most recent year, and then dividing the result of subtraction by the credit amount of the preceding or old year. The null hypothesis is listed as follows.

Ho2. The rate of credit growth of commercial banks of Jordan does not influence the liquidity of these banks.

The test of the hypothesis reveals that R equals 0.020, and R² equals zero. Because R² equals , then

the rate of credit growth completely doesn't contribute in explaining the change in liquidity. Table (5), shows the related statistics to the hypothesis.

The data in the table reveals that t-value equals – 0.252, and p-value is 0.802. This means that the computed t-value is less than the tabulated, which equals 1.96, and the computed p-value (sig.) is higher than the predetermined, which is equal to 0.05. Therefore, the null hypothesis is accepted, and its alternative is rejected. This result means that liquidity of banks is not influenced by the rate of credit growth.

Table 5. 2nd Hypothesis Test

Model	B	Std. Error	Beta	T	Sig
Constant	0.312	0.008		37.715	0.000
Credit Growth	-0.014	0.056	-0.020	-0.252	0.802
R = 0.020					
R ² = 0.000					
Adj. R ² = - 0.006					

Third Hypothesis

To enable testing whether client deposits affect liquidity of commercial banks of Jordan, this hypotheses is developed. The ratio of client deposits is the relationship of client deposits to total assets. The null form of the first hypothesis is again listed as appearing below.

Ho3. The listed commercial banks of Jordan client deposits does not significantly affect the liquidity position of this group of banks.

The test of the hypothesis reveals 0.211 value of R, and 0.045 value of R². The value of R² indicates that client deposits explains 4.5 percent of the change

in liquidity. Table (6), includes, among different values, the related coefficients of the third hypothesis test.

The table reveals that the computed t-value is – 2.678, and the computed coefficient of significance is 0.008. Because the absolute computed t-value is greater than the tabulated, and because the coefficient of significance is less than its corresponding predetermined, the null hypothesis is rejected, and instead the alternative one is accepted. In brief, the analysis indicates that liquidity level is negatively influenced clients deposits.

Table 6. 3rd Hypothesis Test

Model	B	Std. Error	Beta	T	Sig.
Constant	0.480	0.064		7.55	0.000
Client Deposits	- 0.248	0.096	- 0.211	- 2.578	0.008

R = - 0.21
R ² = 0.045
Adj. R ² = 0.038

Fourth Hypothesis

Financial leverage is measured through the relationship of total liabilities to total equity. To test the impact of leverage on bank liquidity, the fourth hypothesis is initiated. The null hypothesis is appearing below.

Ho4. The Jordanian commercial banks’ financial leverage does not significantly affect the liquidity position of these banks.

The test of the hypothesis shows that R equals 0.305, and R² equals 0.093. Therefore, financial leverage explains 9.3 percent of the change in liquidity. Table

(7), includes the different related statistics to the hypothesis test.

The table refers that the computed t-value equals - 3.979, and the computed coefficient of significance (p-value) equals zero. Since the absolute computed t-value is greater than the tabulated, and because the coefficient of significance is less than the predetermined, the null hypothesis is rejected, and its alternative is accepted. The result refers for that there is a negative effect of bank leverage on its level of liquidity.

Table 7. 4th Hypothesis Test

Model	B	Std. Error	Beta	T	Sig.
Constant	0.417	0.028		15.088	0.000
Fin. Leverage	- 0.016	0.004	- 0.305	- 3.979	0.000
R = - 0.301					
R ² = 0.093					
Adj. R ² = 0.087					

Fifth Hypothesis Test

Capital adequacy is measured through the relationship of total equity to total assets. The null hypothesis of the hypothesis is listed for the second time as follows:

Ho5. Commercial bank’s capital adequacy has no significant influence on the liquidity of commercial banks of Jordan.

The test of the hypothesis shows 0.299 coefficient of correlation (R), and 0.089 coefficient of determination (R²), where the value of R² means that capital adequacy of commercial banks of Jordan explains 8.9 percent of the change in liquidity. Table

(8), shows the related coefficients and statistical values of the fifth hypothesis test.

The table indicates that the computed t-value equals 3.89, and the computed coefficient of significance equals zero. Since the computed t-value is higher than the tabulated, and because the computed coefficient of significance is less than the predetermined, that equals 0.05, the null hypothesis is rejected, while its alternative is accepted. In other words, the test shows that there is a positive significant influence of capital adequacy on bank liquidity.

Table 8. 5th Hypothesis Test

Model	B	Std. Error	Beta	T	Sig
Constant	0.182	0.034		5.394	0.000
Cap. Adequacy	0.940	0.242	0.299	3.890	0.000
R = - 0.299					
R ² = 0.089					
Adj. R ² = 0.084					

Sixth Hypothesis

The base-10 natural logarithms of total assets, is the most common used measure of size. To determine

whether bank size affects its liquidity, the sixth null hypothesis is listed again as follows.

Ho6. The liquidity position of the commercial banks of Jordan is not significantly affected by the bank size.

The test of the hypothesis shows 0.283 coefficient of correlation (R), and 0.074 coefficient of determination (R²), where the value of R² means that a commercial bank size explains 7.4 percent of the change in liquidity. Table (9), shows the related coefficients and statistical values of the fifth hypothesis test.

The data in the table indicates that the computed t-value equals 3.658, and the computed coefficient of

significance equals zero. When the computed t-value is compared with its corresponding tabulated t-values, this comparison indicates that the computed t-value is more than the corresponding one, which equals 1.96. The comparison between the coefficient of significance and the predetermined one, which equals 0.05, shows that the computed p-value (sig.) is less than the predetermined, which equals 5 percent. Since the computed t-value is greater than the tabulated, and because the computed coefficient of significance is less than the predetermined, the null hypothesis is rejected, and its alternative is accepted. This result means that bank size positively affects liquidity.

Table 9. 6th Hypothesis Test Coefficients

Model	B	Std. Error	Beta	T	Sig.
Constant	- 0.210	0.142		- 1.475	0.142
Bank Size	0.056	0.015	0.283	3.658	0.000
R = 0.283					
R ² = 0.080					
Adj. R ² = 0.074					

Seventh Hypothesis

This hypothesis is initiated to enable testing the total impact of the entire group of the considered independent variables together, on the liquidity position. Therefore, the hypothesis examines the entire grouping effect of all independent variables, which had examined individually above. Multiple linear regression is used in testing this hypothesis. The hypotheses is again listed, as appearing below.

Ho7. There is no grouping effect of bank profitability, credit growth rate, client deposits, debt, capital adequacy, and bank size, on the liquidity position of commercial banks of Jordan.

Table (10) shows the main coefficients and values of the 7th hypothesis test. The table reveals that the correlation coefficient (R) equals 0.486, and the determination coefficient equals 0.236, which means that the variables that are taken into

consideration in the study explain in total 23.6 percent of the change occurring at liquidity.

Considering the table, it shows that f-value equals 7.659, and the computed p-value is zero. The comparison between the computed and the tabulated f-value reveals that the computed is greater than the tabulated. Moreover, the comparison of the computed coefficient of significance with the predetermined one (p-value), which equals 0.05, reveals that the computed is less. Because of the results of these two types of comparison, the null hypothesis is rejected, and the alternative one is accepted. This result means that the group of independent variables, including profitability, rate of credit growth, client deposits, debt, capital adequacy, and bank size, when taken together as one unit, they have a significant effect on bank liquidity.

Table 10. 7th Hypothesis Test

Model	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig.
Regression	0.262	6	0.044	7.659	0.000
Residual	0.849	149	0.006		
Total	1.11	155			

Model	B	Std. Error	Beta	T	Sig.
Constant	-0.477	0.290		-1.643	0.102
Profitability	2.717	1.359	0.156	2.000	0.047
Credit Growth Rate	0.032	0.051	0.046	0.619	0.537
Client Deposits	-2.11	0.095	-0.173	-2.223	0.028
Financial Leverage	0.012	0.016	0.217	0.717	0.475
Log. Assets	0.067	0.015	0.339	4.542	0.000
Capital Adequacy	1.380	0.925	0.439	1.491	0.138

Therefore, when the constants of the multiple regression model are solved, the solved model appears as follows.

$$LIQ = - 0.477 + 2.717ROA + 0.032CRG - 2.11DPS + 0.012FLR + 1.38CAR + 0.067BSZ - 1.831 \quad (2)$$

6 Findings and Conclusions

The main objective of the study is to examine some internal factors that may affect the liquidity position of commercial banks of Jordan. The related literature review and the findings of prior researches had considered carefully. Moreover, the appropriate secondary data related data was collected through the website of ASE, and analyzed using descriptive statistics, and the hypotheses were tested using both of the simple and multiple linear regression methods. Several possible indicators of liquidity were analyzed in the study including, bank profitability, rate of credit growth, financial leverage, capital adequacy, customer deposits, and bank size. Using the simple and multiple linear regression methods, the results showed several beneficial findings, especially for the managements of commercial banks of Jordan.

Based on hypotheses testing, the study finds that profitability, capital adequacy, and bank size, each of which, has a positive significant impact on liquidity position of banks. This means that, as the bank profitability is higher, as its liquidity is better, and as the bank equity ratio is greater, as its liquidity is higher or better. Moreover, a bank with higher equity ratio to total assets, are in better liquidity situation. Because the study finds that bank size has a positive impact on liquidity, and because bank size is measured by natural logarithms of total assets, then

maintaining more total assets leads to better level of liquidity.

Based on hypotheses testing, the study also finds that financial leverage and client deposits, each of which, has a negative impact on liquidity position of banks. This means that more borrowing to finance the assets of banks, leads to low liquidity. Despite that more customer deposits are assumed to improve liquidity, but the study shows a different finding. This is because more client deposits leads to more lending transactions, because banks pay interests for depositors, therefore, to cover the cost of client deposits, and to earn more profits, commercial banks grant more loans to customers, and this is why deposits leads to less liquidity. More deposits received by a bank leads to more credit granted to customers by the same bank, and because granting more credit needs for easy credit policy, where this will increase bad debt, because more customers will find themselves unable to pay the principal, nor the interests. With regard to rate of credit growth, the study finds no significant impact of this variable on commercial banks' liquidity. The findings of the study are in consistence with Bansal and Bansal (2012), Lotto and Mwemezi (2018), Nguyen and Vo (2021), Mohamad, (2015), et al.

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