Measuring Bank liquidity and Its Impact on the Financial Efficiency of Commercial Banks: An Applied Study of the Middle East Bank

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The research discusses and analyses the topic, "Measuring Bank Liquidity and Its impact on the Financial Efficiency of Commercial Banks: An Applied Study of the Middle East Bank," for the period (2006-2015). The theoretical side of the two topics was framed by bank liquidity and the financial efficiency of the Banks. The analytical approach was used to analyse and measure bank liquidity and efficiency. In order to evaluate and measure the two variables of research, an analysis of correlation and the effect between them was conducted. ANOVA has been used to measure correlation, as well as the effect of bank liquidity results and financial efficiency ratios. The results of the statistical analysis revealed that there was no significant correlation between banking liquidity and financial efficiency. The correlation values were weak and insignificant, and their moral value was greater than the moral level 0.05. This is due to a number of factors discussed and analysed within the research.

Key words: *Bank Liquidity, Middle East, Financial Efficiency*

Introduction

Bank liquidity represents a protective line for banks against bankruptcy, as determining the real liquidity needs of the bank necessarily determines the actual costs to obtain them. The identification of excess liquidity accurately enables the bank to know the true size of the financial resources prepared for use. The topics of banking liquidity and the efficiency of the bank have been highlighted**.** The issue of banking liquidity was studied by clarifying its

components and how to accurately measure them, as well as by presenting its financial indicators which was represented by financial ratios. Also, the efficiency of the bank's work has been studied and measured by using the main ratios such as the degree of use of assets, the ratio of income to expenses, and efficiency of operations. In light of this, the research included a number of main axes, the first of which dealt with the methodology of research, the second axis included the theoretical framework of the research, which includes banking liquidity and efficiency Bank, while the third axis dealt with the practical framework, which included the results of the applied analysis. The fourth axis dealt with the conclusions and recommendations.

First - Research Methodology
Research Problem

The problem of research is that the bank usually obtains liquidity from the resources and the large opportunities available to it, which is very risky when this liquidity is low because it is affected by its financial ability to meet its obligations towards expected and unexpected deposits and withdrawals. This can lead the bank to declare bankruptcy, loss of depositors' rights, and failure to achieve its basic objectives of risk coverage. Banks can achieve a margin of profits, on the other hand, when liquidity is high, which affects the efficiency of the bank and the finances earned from the proceeds of credit and investment activity. This is because of the disruption of large amounts of money for lucrative investment opportunities.

Importance of Research

The study draws its importance from its address of the subjects of banking liquidity and financial efficiency, which are important topics. Banking liquidity and financial efficiency, if managed properly, will achieve its main objectives of liquidity, profitability and safety, as well as solve the problem of contradiction between these objectives to achieve the desires of customers, owners and regulatory authorities. The lack of sufficient liquidity to cover the requirements of depositors or to implement the bank's credit, investment and service plans, will expose it to financial risk.

Research Objectives (Research Purposes)

The main objective of the research is to test the relationship between bank liquidity and the financial efficiency of the bank, as well as to make recommendations and proposals to improve the management of liquidity, which contributes to enhancing financial capacity and increasing financial efficiency after determining how to measure both bank liquidity and the efficiency of the bank. The aim of this research is to identify the most important measures needed to address the increase in bank liquidity.

Research Hypothesis

The hypothesis that there is a correlation relationship and a significant effect between bank liquidity and the efficiency of the bank.

The Methodology Used

In order to challenge the research objectives, the analytical approach was used.

Search Limits

- **Spatial boundaries**
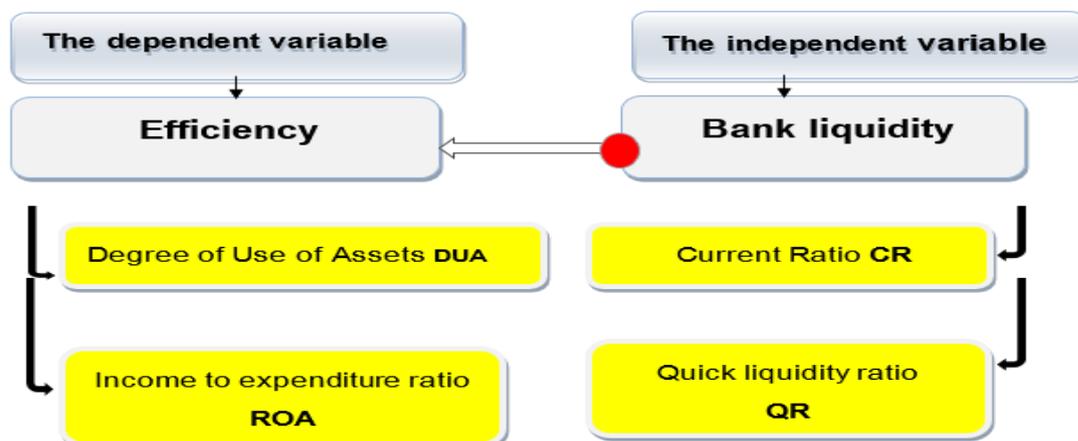The Middle East Bank (Iraq - Baghdad)
- **Time limits**
Search duration is between 2006-2015)

Research Plan

Based on the previous methodology (problem and hypothesis), the default outline of the research model can be drawn up as follows:

Figure 1. The default search outline

Second- Theoretical Framework

Liquidity means the ability of banks to pay their current liabilities on their due dates (Daoud, 2010: 21), and represents the availability of monetary value when needed, as well as the convertibility of assets into cash quickly and without any loss. The reason for this is that the purpose of maintaining liquid assets is to meet current liabilities or those within short period. Thus, liquidity is a relative concept that shows the relationship between cash and assets,

specifically the ease with each one may be converted to the other quickly and without high losses, and in regard to the liabilities to be met. Thus, it is not possible to determine the liquidity of any bank, except within the limits of its obligations (Ahmed, 2013: 302), so we can measure the liquidity in banks by the following ratios:

A- Current Ratio (CR)

It is the ratio of current assets to current liabilities or the ratio of total current assets to total current liabilities. This ratio is intended to measure the ability of banks to meet their obligations, and this ratio can be calculated by the following equation (Aries, 1974: 19):

$$CR = CA \setminus CL \times 100\ \% \qquad \ldots\ldots\ldots\ldots\ (1)$$

Whereas:

CR = Current Ratio   CA = Current Assets   CL = Current Liabilities

When the ratio is high, it indicates a high level of bank liquidity, as the standard that can be guided is within (1: 2). This is a normal criterion; because if the assets decline, banks will be able to meet their obligations.

B- Quick Ratio (QR)

It is the ratio of liquid assets to current liabilities, and it is a measure of the Cash ability of banks to quickly convert its assets into cash. This ratio is necessary, especially in banks, and it is extracted by the following equation (Aries, 1974: 25)

$$QR = LA \setminus CL \times 100\% \qquad \ldots\ldots\ldots\ldots\ (2)$$

Whereas:

QR = Quick Ratio   LA = Liquid Assets   CL = Current Liabilities

This ratio only includes liquid current assets (cash, short-term investments, receivables). The ideal ratio for the liquidity ratio is often 1: 1, where the value of the fast moving assets should be sufficient to cover the liabilities (Aries, 1974: 26).

Liquid assets can be calculated according to the following equation:

$$LA = SI + C + R \qquad \ldots\ldots (3)$$

Whereas:

SI = Short-Term Investments   C = Cash   R = Receivables

2- Financial Efficiency Index:

Efficiency is the net result of a number of policies and decisions, and therefore the study of this indicator provides a lot of useful evidence for the effectiveness of the operations of banks. There are many efficiency ratios. These ratios as a group enable analysts to assess the profits of the bank with respect to a certain level of revenue or assets, or in controlling expenses. Its high value means that banks are profitable (Moin, 2008, 33). The most important ratios used to measure the financial efficiency of banks are as follows:

A- Degree Asset Utilization (DAU)

This ratio shows the efficiency of banks in using their total assets for the purpose of generating revenues. This increase shows that banks use their assets at full capacity, and it is calculated by dividing total revenues on total assets through the following equation (Rose, Hudgins, 2008, 170):

AU = TR \ TA×100%   *…….……(4)*

Whereas:

Degree Asset Utilization   **TR** *= Total Revenue*   **TA** *= Total Asset*   **DAU =**

B- Income Expense Ratio (IER)

One of the best ratios used in the banking sector is to assess the management efficiency of banks in generating income and control expenditures. It measures the amount of income earned from a monetary unit of expenditure, and is calculated according to the following equation (Latif et al., 2016,28);

IER = TI \ TOE×100%   *…….… (5)*

Whereas:

=Income Expense Ratio   **TI** *= Total Income*   **TOE** *= Total Operating Expenses*   **IER**

Third- Practical Framework

The results of the account and the practical analysis of the banking liquidity and financial efficiency of the Middle East Bank can be obtained as follows:

1. Calculation and analysis of the Middle East bank's liquidity

The Bank's liquidity can be calculated and analysed by using the financial statements of the Bank, which are based on the above-mentioned equations. These results are shown in Table 1 as follows:

Table 1: Results of the Liquidity Ratio calculation for Middle East Bank (Million dinars)

LRR* (7+6)/ N=8 Once	QR (4/5)=7 Once	CR (3/5)= 6 Once	CL (5)	LA (1+2)=4	CA (3)	R (2)	C+SI (1)	Values General	No
1.02	0.97	1.07	259205	250652	278492	19520	231132	2006	1
1.07	1.03	1.10	345645	357009	381548	37645	319363	2007	2
1.06	1.03	1.08	495100	509982	533252	111682	398299	2008	3
1.01	0.94	1.08	471207	444688	510555	13944	430744	2009	4
0.92	0.76	1.08	484308	369857	521190	25947	343909	2010	5
0.98	0.79	1.16	516439	405521	601535	35807	369713	2011	6
1.09	0.92	1.25	626557	575058	781896	76150	498908	2012	7
1.05	0.86	1.23	567448	488861	697729	47735	422060	2013	8
1.35	1.09	1.60	374948	412350	600216	35724	349766	2014	9
1.3	1.11	1.49	395902	439048	588972	71164	325310	2015	10
1.09	Average								

Source: prepared by the researchers based on the final accounts of the bank
LRR: Liquidity Ratio **N**: The number of percentages is equal*

The above table shows that the rate of current (CR) in this bank is unacceptable in the years 2006 to 2010, and not in the years 2011 to 2015, because they are less than the standard (1:2) specified ratio. This ratio indicates the Bank's ability to pay its liabilities. This, however, varies annually due to the increase in current liabilities and current assets. Here, it is clear to us that there is an inverse relationship between the increase in current liabilities and the current ratio. More current liabilities than current assets will lead to lower trading, and the opposite is true.

As for the liquidity ratio (QR) at the Bank of the Middle East, it is acceptable only in the years 2014-2015. The remaining years are considered unacceptable because they are less than the standard (1: 1) ratio specified.

2. Calculation and analysis of the Middle East bank's Financial Efficiency

The Bank's Financial Efficiency can be calculated and analysed by using the financial statements of the Bank based on the above-mentioned equations. These results are shown in Table (2) as follows:

Table 2: Results of the Liquidity Ratio calculation for Middle East Bank (Million dinars)

ERR* % (6+5)/N=7	IER% (3/4)=6	DAU% (1/2)=5	TOE (4)	TI (3)	TA (2)	TR (1)	Values General	No
25.8	%45.4	%6.18	12524	5682	299385	18497	2006	1
47.8	%85.8	%9.78	18878	16196	406782	39766	2007	2
28.3	%48.7	%7.86	28800	14027	569667	44775	2008	3
28.3	%49.9	%6.69	24494	12230	557540	37342	2009	4
25.2	%44.8	%5.67	22507	10075	580125	32920	2010	5
46.4	%85.6	%7.13	25263	21625	668017	47641	2011	6
53.4	%100	%6.83	28316	28588	854173	58387	2012	7
42.7	%78.2	%7.17	31298	24467	785191	56324	2013	8
71.1	%137	%5.22	31164	42910	694051	36234	2014	9
13	%18.6	%7.46	35527	6620	686005	51180	2015	10
38.2	%69.4	%6.99	Average					

Source: prepared by the researchers based on the final accounts of the bank
ERR: Efficiency Ratios Rate   **N:** The number of percentages is equal to 2*

The above table shows that the results of the degree asset utilization (DAU) were different. The ratio ranged between 5.22% in 2014 and 9.78% in 2007 with an annual average of 6.99 % during the period of research in this bank.

The ratio of total income to total operating expenses (IER) was also mixed. The ratio ranged between 18.5% at the minimum during 2015 and 137% maximum during 2014 with an annual average of 69.4% during the period of research in this bank.

Fourth- Statistical Analysis of Correlation and Regression between Bank Liquidity Values and Financial Efficiency

The researchers used the statistical program SPSS to estimate the correlation relationship, the effect between bank liquidity ratio and financial efficiency, and estimate of Pearson correlation coefficient, while also determining the level of statistical significance of that relationship.

SPSS program was also used to find simple linear regression model parameters and some statistical indicators needed to measure the amount, direction and effect of each variable by using the analysis of variance table (ANOVA).

1.   The results of the correlation analysis between bank liquidity and financial efficiency

Table (3) shows all the required linkages between the LRR and the ERR of the Middle East Bank as follows:

Table 3: Analysis of variance ANOVA for Bank Liquidity and Financial Efficiency in the Middle East Bank

Correlations			
Statistical significance	**Bank liquidity**	**Independent variable** dependent variable	
A weak correlation relationship has no statistical significance	0.293 *	**Pearson correlation**	**Financial Efficiency**
	0.206	**Moral value**	

The above table shows that the correlation between ERR and LRR was insignificant. Because the significance of Sig was greater than the statistical significance 0.05, we conclude that there is a weak correlation Statistical significance between ERR and LRR.

2.   The Results of the Analysis of the Linear Relationship between the Values of Bank Liquidity and Financial Efficiency

We've been drafting a linear relationship between the real values of bank liquidity as an independent variable (Xi) and financial efficiency as a dependent variable (Yi). The regression equation was as follows:

$Yi = α + βXi$ $(ERR)= a+β(LRR)$

Table 4: Results of Measuring the Effect of Banking Liquidity on the Financial Efficiency of the Middle East Bank

ANOVA Analysis							
The result	**Darban Watson**	**R^2**	**The result**	**Values Morality**	**T calculated value**	**Regression**	
There is no relationship effect statistically significant	1.9	0.29	No relationship has a significant effect	0.96	0.04	1.87	T value
				0.41	0.86	36.93	Regression coefficient

The previous table shows that the value of t test is 0.04 and its (sig) value is equal to 0.969, which is greater than the level of significance 0.05. Therefore, we conclude that the regression model used is not affected by the value of R2, which is equal to 0.29. This means that the LRR ratios were able to account for 29% of the differences in the ERR, and the remainder was due to other variables not included in this model. The value of the Darban Watson test, which is equal to 1.9, is close to 2. This value indicates that there is no problem of self-correlation in the regression model. It is of note that the value of the constant limit parameter of the regression model is 1.873, and the value of t test for it is 0.040, which is not statistically significant, since its moral value (sig) is 0.969. The LRR effect parameter in the regression model was equal to 36.934, and the value of t test for it was 0.867, while the moral value (sig) was 0.411, which is greater than the moral level 0.05. Therefore, we conclude that there is no significant relationship effect with LRR in the ERR.

Conclusions and recommendations
Conclusions

A. The financial performance assessment process for banks is one of the main processes for measuring the financial position of banks. Financial performance can be assessed through the main financial indicators (banking liquidity, financial efficiency). Each indicator has a set of ratios through which this indicator can be measured.

B. The results of the analysis of the liquidity index show that there is an inverse relationship between the increase in the current liabilities and the trading ratio. The higher the current liabilities to the current assets the lower the trading rate and vice versa. Therefore, this indicator is a tool to measure liquidity and assess the bank's ability to meet its obligations immediately.

C. The results of the applied analysis showed that there was no correlation relationship, and a significant effect between the LRR and the financial efficiency ERR, because the Sig

value was greater than the statistical significance level (5%). Therefore, the hypothesis, which states that there is a correlation and has a significant effect between bank liquidity and financial efficiency, has not been proven. The reasons for the lack of moral impact are due to the existence of abnormal ratios in both bank liquidity and financial efficiency.

Recommendations

A. The bank liquidity index and the financial efficiency index should be calculated annually through a number of financial ratios and disclosed in the annual financial reports of the Middle East Bank, because it is important to know the financial position of the bank and the ability of the bank to meet its obligations and to face risks in order to protect it from the risk of not being able to fulfil its financial and contractual obligations towards the owners of the deposit campaign and others.

B. Setting a minimum amount of bank liquidity in the Middle East Bank to ensure that the bank's funds are not lost in lucrative investment opportunities, so that it can improve its financial ability in the face of financial risks.

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