

# Bank Liquidity Risk and Performance: An Empirical Study of the banking system in Jordan

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## Abstract

The aim of this study to investigate the Lies in the difficulty of estimating the level of bank liquidity that commercial banks must keep them that guarantee the fulfillment of all its financial obligations, and at the same time enable them to maximize investments and profits. The study tested the relationship between bank liquidity risk and performance in commercial banks in Jordan.

**Keywords:** liquidity, performance, banking risk.

## 1. Introduction

Banking activity is distinct from another economic activities in diversity in products and services , banks as institutions, multi-product also features a field of activity change and perpetual renewal , whether at the level of the working mechanisms of internal ( formats new funding , new services, new technology ... etc. or at the level of the environment (new customers , emerging financial markets , new competitors ... etc. ) so is assessing the performance of banking institutions is an essential process and necessary for the continuation of the bank's activities and to confront the changes and continuing challenges.

There is no doubt that the objectives of the performance appraisal process varies according to the expectations of the beneficiaries from the performance reports, as depositors focuses, for example, to manage liquidity and the guarantee of deposits, while shareholders cares indicators of profitability, while bank's management Cares about ability of the bank to provide services to clients without exposing depositors' money to the unnecessary dangers. Regardless of the specific objectives for each beneficiary of these reports, the performance evaluation is "the process and make sure to check out the resources available to the bank may have been used in an efficient manner." More specifically, the performance evaluation is: " a comprehensive process using all the data, accounting and others, to assess the financial situation of the bank, and determine how they managed their resources through a period of time " at a strategic level, the performance evaluation is: " diagnosis of the strengths and weaknesses, this diagnosis contributes to construction and management decisions formulation of scheme assets and liabilities of the bank." management schemes assets and liabilities in the banks Focus on the areas of decision that directly affect on relationship the return and dangers, this relationship is characterized by contradictory to the goals of the bank and of achieving the greatest return without falling into the liquidity risk , or the risk of bankruptcy or losing the relationship with the depositors . Accordingly, the decision areas that affect this relationship is mainly in the areas of liquidity management , and investment policies , and the loans portfolio , management capital and commitments , and interest rate sensitivity , all of which represent areas of risk management for the bank . The management of this relationship in an efficient manner is the guarantee to continuation of the bank in achieving its objectives. The evaluation of this administration performance reflecting the advantages and disadvantages of this administration and the results of the evaluation process form the base for judging the performance of the bank in the present and in the future.

## 2. Background and Literature Review

### *Profitability Indicators*

Profit is the bottom line or ultimate performance result showing the net effects of bank policies and activities in a financial year.

Its stability and growth trends are the best summary indicators of a bank's performance in both the past and the future. Profitability is usually measured by all or part of a set of financial ratios. Key indicators include the return on average equity, which measures the rate of return on shareholder investment, and the return on assets, which measures the efficiency of use of the bank's potential.

Other ratios measure the profitability of a bank's core business (e.g., margin ratios,( the contribution to profit of various types of activities, the efficiency with which the bank operates, and the stability of its profits. Ratios are observed over a period of time in order to detect profitability trends. An analysis of changes of various ratios over time reveals changes in bank policies and strategies and/or in its business environment.

Numerous factors may influence a bank's profitability. In some cases, inflation may increase operating costs faster than income. Marking the value of assets to market requires that unrealized gains are recognized as income; since these gains are yet to be realized, this may negatively affect the quality of earnings. Given the traditional narrow margin on which banks operate, a change in the level of interest rates will trigger changes in the gross profit percentage. Because banks are influenced by the high level of competition in the banking sector, many have made significant investments in infrastructure- related assets - especially with regard to information

technology- as part of their competition strategy. Investments such as these have both increased the overhead cost of banking and negatively affected profitability.

Viewed in the context of the financial items to which they are related, operating ratios enable an analyst to assess the efficiency with which an institution generates income. Industry efficiency norms facilitate a comparison between individual banks and the banking system. A review of interest income in relation to loans and advances allows an analyst to determine the return on the loan assets. Similarly, a comparison of interest expenses and funding indicates the relative cost of funding. This process highlights the impact of monetary policy on the banking system and the effect that changes in official interest rates have on the profitability of a bank.

The ratios can also be used in a broader context. The cost and revenue structure of the banking system can be assessed by calculating and analyzing provisions to loans and advances; interest margin to gross interest income; investment income to investments; and overhead to gross income.

The value added by the banking system can be determined by calculating net income after taxes in relation to total average assets (i.e., the return on average assets) and net income after taxes in relation to owner equity (i.e., the return on equity).

*Liquidity definition:* Ability of a bank to meet financial obligation as they come due in the short term without disrupting the normal operation of the bank, Measured by: current ratio

$$CR = \text{Current assets} / \text{Current liabilities}$$

Basic indicator of short-term debt servicing and/or cash flow capacity. Indicates the extent to which current assets, when liquidated, will cover current obligations.

#### *Liquidity management*

**Liquidity management** is a key banking function and an integral part of the asset liability management process. Most banking activity depends on a bank's ability to provide liquidity to its customers. Most financial transactions or commitments have implications for a bank's liquidity. Banks are particularly vulnerable to liquidity problems, on an institution-specific level and from a systemic/market viewpoint.

The source of deposits (who supplies the funding) adds to the volatility of funds, as some creditors are more sensitive to market and credit events than others. Diversification of funding sources and maturities enables a bank to avoid the vulnerability associated with the concentration of funding from a single source. Bank liquidity management policies should comprise a risk management (Decision-making) structure, a liquidity management and funding strategy, a set of limits to liquidity risk exposures, and a set of procedures for liquidity planning under alternative scenarios, including crisis situations.

#### **Liquidity Risk Management Techniques**

The framework for liquidity risk management has three aspects: measuring and managing net funding requirements, market access, and contingency planning.

Forecasting possible future events is an essential part of liquidity planning and risk management. The analysis of net funding requirements involves the construction of a maturity ladder and the calculation of the cumulative net excess or deficit of funds on selected dates. Banks should regularly estimate their expected cash flows instead of focusing only on the contractual periods during which cash may flow in or out. For example, cash outflows can be ranked by the date on which liabilities fall due, by the earliest date a liability holder can exercise an early repayment option, or by the earliest date that contingencies can be called.

An evaluation of whether or not a bank is sufficiently liquid depends on the behavior of cash flows under different conditions. Liquidity risk management must therefore involve various scenarios. The "going-concern" scenario has established a benchmark for balance sheet-related cash flows during the normal course of business. This scenario is ordinarily applied to the management of a bank's use of deposits. A second scenario relates to a bank's liquidity in a crisis situation when a significant part of its liabilities cannot be rolled over or replaced - implying contraction of the bank's balance sheet. This scenario relates to many existing liquidity regulations or supervisory liquidity measures.

A third scenario refers to general market crises, wherein liquidity is affected in the entire banking system, or at least in a significant part of it.

Liquidity management under this scenario is predicated on credit quality, with significant differences in funding access existing among banks. From the perspective of liquidity management, an implicit assumption can be made that the central bank will ensure access to funding in some form.

The central bank in fact has a vested interest in studying this scenario because of the need it would create for a total liquidity buffer for the banking sector, and for a workable means of spreading the burden of liquidity problems among the major banks.

#### *Literature Review*

1. The Al-Zubi and Balloul (2005)

The study tested the relationship between market power and cost efficiency and performance of Jordanian commercial banks for the period from 1992 to 2002. The SFA used in the study according to the Cobb-Douglas function to estimate the cost efficiency points. The results of the study to the inability of the variable cost efficient to explain the performance of the Jordanian commercial banks, where the non-statistical relationship with performance measures for banks.

#### 2. Kour and Fayoumi (2007)

This Study has assessed the inefficiencies at the level of cost and profit (standard and alternative) for commercial banks of Jordan, using the method of Distribution Free Approach (DFA) in accordance with the function Cobb-Douglas and tests their relationship with the banks. Where the results are in favor of competition, and picked up the efficiency of the relationship with the profit performance is relatively strong, and gave an overview of the performance of the banks and the levels of efficiency.

#### 3. Idries Al-Jarrah and Philip Molyneux (2007)

The aim of this study to investigate the levels of efficiency of banks in Jordan, Egypt, Saudi Arabia and Bahrain during the period from 1992 to 2000. And use the method in which the curve flex Fourier-flexible (Ff) and the results of the study indicate that the average levels of cost efficiency was in the range of approximately 95%, and the average profit efficiency standard and alternative profit was up 66% and 57%, respectively. The results also indicated that the Jordanian Islamic banks are less efficient at the level of cost and profit.

#### 4. Al-Kour study (2008)

This study was aimed to estimate the inefficiencies in traditional commercial banks and Islamic Jordanian (fifteen banks) and for the period from 1993 to 2006, using the translog function and method of reducing Fortuitous parametric (SFA). The study results showed the presence of severe deviations from optimal, and a decrease in the levels of cost efficiency and profit efficiency and alternative standard. The results also show the enjoyment of Islamic banks with high levels of efficiency gain, but it is far from optimal with respect to efficient cost, which may be due to legislation and laws that oblige them to maintain high levels of liquidity, due to lack of financial instruments, short-term twins between liquidity and profitability in line with the law Islamic.

#### 5. Adnan Shafer study (2004)

This study aims to help Jordanian banks to apply the best practices regarding liquidity risk management through activating the proposed principles of liquidity management recommended by basil committee. The study tried to identify the degree of commitment by Jordanian banks, and answering the research problem's questions. The study concludes and recommends that banks should have general framework to manage liquidity risk and develop strategy, policies, and practices and they should have proper instruments to measure, follow, and control liquidity risk. Jordanian banks should publicly disclose information on a regular basis that enables market participants to make judgment about the soundness of their liquidity risk management framework and liquidity position. Supervisors should also regularly perform a comprehensive assessment of a bank's overall liquidity risk management framework and liquidity position to determine whether they deliver an adequate level of resilience to liquidity stress given the bank's role in the financial system.

#### 6. Evan gatev and Til Schuermann and Philip E. Strahan (2007)

Liquidity risk in banking has been attributed to transactions deposits and their potential to spark runs or panics. We show instead that transactions deposits help banks hedge liquidity risk from unused loan commitments. Bank stock-return volatility increases with unused commitments, but only for banks with low levels of transactions deposits. This deposit-lending hedge becomes more powerful during periods of tight liquidity, when nervous investors move funds into their banks. Our results reverse the standard notion of liquidity risk at banks, where runs from depositors had been seen as the cause of trouble.

#### 7. Douglas W. Diamond, Raghuram G. Rajan (1999)

Both investors and borrowers are concerned about liquidity. Investors desire liquidity because they are uncertain about when they will want to eliminate their holding of a financial asset. Borrowers are concerned about liquidity because they are uncertain about their ability to continue to attract or retain funding. Because borrowers typically cannot repay investors on demand, investors will require a premium or significant control rights when they lend to borrowers directly, as compensation for the illiquidity investors will be subject to. We argue that banks can resolve these liquidity problems that arise in direct lending. Banks enable depositors to withdraw at low cost, as well as buffer firms from the liquidity needs of their investors. We show the bank has to have a fragile capital structure, subject to bank runs, in order to perform these functions. Far from being an aberration to be regulated away, the funding of illiquid loans by a bank with volatile demand deposits is rationalized in the context of the functions it performs. This model can be used to investigate important issues such as narrow banking and bank capital requirements.

### 3. Research Methodology

Problem of the study

Lies in the difficulty of estimating the level of bank liquidity that commercial banks must keep them that guarantee the fulfillment of all its financial obligations, and at the same time enable them to maximize investments and profits.

**Research hypothesizes**

The main hypothesis:

**H<sub>0</sub>**: No statistically significant effect for liquidity on the performance of Jordanian banks.

Sub-hypothesizes:

**H<sub>01</sub>**: No statistically significant effect for Loan-deposit ratio (LTD) on the rate of return on equity (ROE) in Jordanian banks.

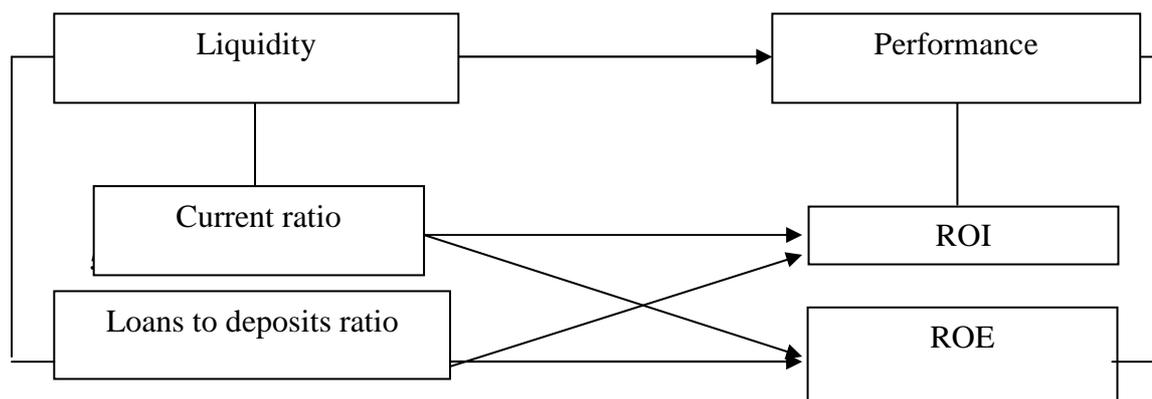
**H<sub>02</sub>**: No statistically significant effect for Loan-deposit ratio (LTD) on the rate of return on investment (ROI) in Jordanian banks.

**H<sub>03</sub>**: No statistically significant effect for current ratio on the rate of return on equity (ROE) in Jordanian banks.

**H<sub>04</sub>**: No statistically significant effect for current ratio on the rate of return on investment (ROI) in Jordanian banks.

**4. Research model**

We will consider in this research performance and performance indicators as (rate of return on investment, the rate of return on equity) as the dependent variable either liquidity or liquidity indicators will be considered as independent variables.



**Performance**

We will use two indicator (rate of return on investment and rate of return on equity) to measure the performance of the banks.

**Rate of return on investment**

This rate measures the extent of profitability achieved by the bank to invest its assets in its various activities. So-called-dropped the rate of return on total assets, and is calculated the rate of return on investment by dividing net income (net profit after tax) on total assets, as follows:

$$ROI = \text{Net profit after taxes} / \text{assets}$$

**Rate of return on equity**

Is calculated rate of return on equity by dividing net income (net profit after tax) on capital property (property rights), and this means that this rate measures the extent of management efficiency in the use of bank funds, and generating profits, and can be expressed in this rate as follows:

$$ROE = \text{Net profit after taxes} / \text{equity}$$

**Liquidity:** Liquidity means the overall economic sense: the money supply (M2), consisting of cash, demand deposits (M1), in addition to Fixed Deposits. According to this definition, graduated foreign deposits of non-residents of the concept of liquidity destruction.

The liquidity of the banking system, it means: the difference between the resources available to him, and the money used in various types of assets, within the balance imposed by the banking assets accepted. The banks are in a state of abundance of liquidity, when the available funds in excess of the bank's ability to lend, and the limits of the investment balanced in other budget lines, so are forced to invest these surpluses within liquid assets, such as securities, or in the form of balances with banks, or even idle balances with the Central Bank.

### Current ratio

We will use **current ratio** to measure liquidity in the banks.

The current ratio is a popular financial ratio used to test a bank's liquidity (also referred to as its current or working capital position) by deriving the proportion of current assets available to cover current liabilities.

The concept behind this ratio is to ascertain whether a company's short-term assets (cash, cash equivalents, marketable securities, receivables and inventory) are readily available to pay off its short-term liabilities (notes payable, current portion of term debt, payables, accrued expenses and taxes). In theory, the higher the current ratio, the better.

$$CR = \text{Current assets} / \text{Current liabilities}$$

### Loan-To-Deposit Ratio - LTD

A commonly used statistic for assessing a bank's liquidity by dividing the banks total loans by its total deposits. This number, also known as the LTD ratio, is expressed as a percentage. If the ratio is too high, it means that banks might not have enough liquidity to cover any unforeseen fund requirements; if the ratio is too low, banks may not be earning as much as they could be.

$$LTD = \text{Loans} / \text{Deposits}$$

## 6. The community and study sample

The community of study is the banking system in Jordan that consists of 23 banks.

**Table (1): Arranging banks in Jordan by total facilities for 2007**

Bank	Ranking 2007	Facilities (millions dinars)
Arab Bank	1	2089.00
Housing Bank for Trade and Finance	2	1590.40
Jordan Kuwait Bank	3	979.00
Bank of Jordan	4	695.30
Jordan Islamic Bank	5	692.36
Jordan Ahli Bank JAB	6	662.37
Rafidain Bank	7	508.53
Cairo Amman Bank	8	496.67
Capital bank	9	489.30
Bank Aletihad	10	455.50
Jordan Investment&FinanceBank	11	311.36
Islamic International Arab Bank PLC	12	306.00
HSBC bank	13	298.12
Arab Banking Corporation	14	252.00
Arab JordanInvestment bank	15	235.00
Bank Audi	16	189.00
Standard Chartered	17	181.16
Egyptian Arab Land Bank	18	164.12
Society General	19	154.69
Blom bank	20	120.00
Jordan Commercial Bank	21	99.00
National Bank of Kuwait	22	79.20
Citibank N.A.	23	46.10
Total		11094.27

**Source: Association of Banks in Jordan.**

The sample of study is:

Arab bank

Housing Bank for Trade and Finance

Justification for the choice of the two banks because they give the highest in the facilities in Jordan and them the biggest two bank in Jordan.

**Statistical methods used to test the research hypotheses** (regression analysis).

**Regression analysis:** is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'Criterion Variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. Most commonly, regression analysis estimates the conditional expectation of the dependent variable given the independent variables – that is, the average value of the dependent variable when the independent variables are fixed. Less commonly, the focus is on a quantile, or other location parameter of the conditional distribution of the dependent variable given the independent variables. In all cases, the estimation target is a function of the independent variables called the **regression function**. In regression analysis, it is also of interest to characterize the variation of the dependent variable around the regression function which can be described by a probability distribution.

**7. Test of research hypotheses**

We will test the hypotheses by regression analysis According to the following equation:  $y = a + b(x)$

Will accept an error rate less than (5%)

**1. Test the effect of current ratio (CR) on return on investment (ROI)**

Table (2): Current ratio 2008-2012

Arab bank(1000s JDs)			
current ratio	current liabilities	current assets	year
1.157207368	19171048	22184878	2008
1.174573129	19298285	22667247	2009
1.17081124	19532813	22869237	2010
1.16477434	20107961	23421237	2011
1.166392315	20036905	23370892	2012
Housing Bank for Trade and Finance(JDs)			
current ratio	current liabilities	current assets	year
1.169064666	4519566069	5283664999	2008
1.154799202	5123864965	5917035175	2009
1.144099126	5655732177	6470718243	2010
1.137037022	5889334069	6696390870	2011
1.130849852	6044962647	6835945114	2012

Source: annual reports

Table (3): (ROI) for Arab bank 2008-2012

ROI	Net profit after taxes	assets	year
0.015831127	360,174	22,751,002	2008
0.010824438	250,039	23,099,491	2009
0.006221642	145,085	23,319,408	2010
0.010994343	263,001	23,921,485	2011
0.010929092	261,341	23,912,416	2012

Source: annual reports

Table (6): (ROI) for Housing Bank for Trade and Finance 2008-2012

ROI	Net profit after taxes	assets	year
0.018657816	101,322.75	5,430,579.04	2008
0.010929198	66,562.51	6,090,337.74	2009
0.01323978	88,437.24	6,679,660.44	2010
0.01441377	100,002.30	6,937,969.69	2011
0.013264139	94,064.33	7,091,627.61	2012

Source: annual reports

Regression equation for CR and ROI (Arab bank):

Intercept (a) = 0.462326518

Slope (b) = -0.386857287

$y = 0.462326518 - 0.386857287(x)$

$ROI = 0.462326518 - 0.386857287(CR)$

When CR=0, ROI=0.462326518

When CR=1, ROI=0.075469231

$R^2 = 0.559717812$  that means the change in ROI is 0.559717812 resulting from the change in CR

Regression equation for CR and ROI (Housing Bank for Trade and Finance):

Intercept (a) = -0.096985789

Slope (b) = 0.096835458

$y = -0.096985789 + 0.096835458(x)$

$ROI = -0.096985789 + 0.096835458(CR)$

When CR=0, ROI=-0.096985789

When CR=1, ROI=-0.000150331

$R^2 = 0.265404906$  that means the change in ROI is 0.265404906 resulting from the change in CR

Correlation between CR and ROI

**Correlation between CR and ROI in Arab bank is:**

-0.748142909 that mean correlation is strong and the relationship between CR and ROI is **reverse** (when CR increases, the ROI well decrease).

Error rate: 5.22708E-10, it is very less than (5%) that means the correlation between CR and ROI is real.

Correlation between CR and ROI in Housing Bank for Trade and Finance is 0.515174637 that mean the relationship between CR and ROI is direct (when CR increases, the ROI well increase).

Error rate: 2.70425E-09, it is very less than (5%) that means the correlation between CR and ROI is real.

## 2. Test the effect of current ratio (CR) on return on equity (ROE)

Table (4): (ROE) for Arab bank 2008-2012

ROE	Net profit after taxes	equity	year
0.100608555	360,174	3,579,954	2008
0.065778861	250,039	3,801,206	2009
0.038315426	145,085	3,786,595	2010
0.068965345	263,001	3,813,524	2011
0.067433946	261,341	3,875,511	2012

Source: annual reports

Table (5): (ROE) for Housing Bank for Trade and Finance 2008-2012

ROE	Net profit after taxes	equity	year
0.106279313	101,322.75	953,362.82	2008
0.063887106	66,562.51	1,041,877.05	2009
0.078420804	88,437.24	1,127,726.74	2010
0.086311101	100,002.30	1,158,626.15	2011
0.089870529	94,064.33	1,046,664.96	2012

Source: annual reports

Regression equation for CR and ROE (Arab bank):

Intercept (a) = 3.112319814

Slope (b) = -2.609037934

$y = 3.112319814 - 2.609037934(x)$

ROI = 3.112319814 - 2.609037934 (CR)

When CR=0, ROE=3.112319814

When CR=1, ROE=0.50328188

$R^2 = 0.603035605$  that means the change in ROE is 0.603035605 resulting from the change in CR

Regression equation for CR and ROE (Housing Bank for Trade and Finance):

Intercept (a) = -0.205909643

Slope (b) = 0.253548663

$y = -0.205909643 + 0.253548663(x)$

ROE = -0.205909643 + 0.253548663(CR)

When CR=0, ROE=-0.205909643

When CR=1, ROE=0.4763902

$R^2 = 0.060881187$  that means the change in ROE is 0.060881187 resulting from the change in CR

**Correlation between CR and ROE**

Correlation between CR and ROE in Arab bank is:

- 0.776553672 that mean correlation is strong and the relationship between CR and ROE is **reverse** (when CR increases, the ROE will decrease).

Error rate: 4.7082E-08, it is very less than (5%) that means the correlation between CR and ROE is real.

Correlation between CR and ROE in Housing Bank for Trade and Finance is 0.246741134 that mean the relationship between CR and ROE is direct (when CR increases, the ROE will increase).

Error rate: 1.18541E-08, it is very less than (5%) that means the correlation between CR and ROE is real.

**Test the effect of Loan-To-Deposit Ratio (LTD) on return on investment (ROI)**

Table (6): (LTD) for Arab bank 2008-2012

LTD	year
0.7167	2008
0.668	2009
0.623	2010
0.599	2011
0.572	2012

Source: annual reports

Table (7): (LTD) for Housing Bank for Trade and Finance 2008-2012

LTD	year
0.622048	2008
0.534624	2009
0.509317	2010
0.517615	2011
0.567757	2012

Source: annual reports

Regression equation for LTD and ROI (Arab bank):

Intercept (a) = -0.010813508

Slope (b) = 0.034249278

$$y = -0.010813508 + 0.034249278(x)$$

$$ROI = -0.010813508 + 0.034249278(LTD)$$

$$\text{When } LTD=0, ROI = -0.010813508$$

$$\text{When } LTD=1, ROI = 0.02343577$$

$R^2 = 0.334385638$  that means the change in ROI is 0.334385638 resulting from the change in LTD

Regression equation for LTD and ROI (Housing Bank for Trade and Finance):

$$\text{Intercept (a)} = -0.011120517$$

$$\text{Slope (b)} = 0.04583451$$

$$y = -0.011120517 + 0.04583451(x)$$

$$ROI = -0.011120517 + 0.04583451(LTD)$$

$$\text{When } LTD=0, ROI = -0.011120517$$

$$\text{When } LTD=1, ROI = 0.034713993$$

$R^2 = 0.54824314$  that means the change in ROI is 0.54824314 resulting from the change in LTD

### Correlation between LTD and ROI

Correlation between LTD and ROI in Arab bank is 0.578260873 that mean the relationship between LTD and ROI is direct (when LTD increases, the ROI well increase).

Error rate: 7.38607E-06, it is very less than (5%) that means the correlation between LTD and ROI is real.

Correlation between LTD and ROI in Housing Bank for Trade and Finance is 0.740434426 that mean the relationship between LTD and ROI is direct (when LTD increases, the ROI well increase).

Error rate: 5.33879E-06, it is very less than (5%) that means the correlation between LTD and ROI is real.

### 3. Test the effect of Loan-To-Deposit Ratio (LTD) on return on investment (ROE)

Regression equation for LTD and ROE (Arab bank):

$$\text{Intercept (a)} = -0.074041272$$

$$\text{Slope (b)} = 0.223773396$$

$$y = -0.074041272 + 0.223773396(x)$$

$$ROE = -0.074041272 + 0.223773396(LTD)$$

$$\text{When } LTD=0, ROE = -0.074041272$$

$$\text{When } LTD=1, ROE = 0.149732124$$

$R^2 = 0.338124227$  that means the change in ROE is 0.338124227 resulting from the change in LTD

Regression equation for LTD and ROE (Housing Bank for Trade and Finance):

$$\text{Intercept (a)} = -0.056390635$$

$$\text{Slope (b)} = 0.256862694$$

$$y = -0.056390635 + 0.256862694(x)$$

$$ROE = -0.056390635 + 0.256862694(x)$$

$$\text{When } LTD=0, ROE = -0.056390635$$

$$\text{When } LTD=1, ROE = 0.200472059$$

$R^2 = 0.576116636$  that means the change in ROE is 0.576116636 resulting from the change in LTD

### Correlation between LTD and ROE

Correlation between LTD and ROE in Arab bank is 0.581484503 that mean the relationship between LTD and ROE is direct (when LTD increases, the ROE well increase).

Error rate: 6.09621E-06, it is very less than (5%) that means the correlation between LTD and ROE is real.

Correlation between LTD and ROE in Housing Bank for Trade and Finance is 0.759023475 that mean the relationship between LTD and ROI is direct (when LTD increases, the ROE well increase).

Error rate: 4.08744E-06, it is very less than (5%) that means the correlation between LTD and ROE is real.

### Conclusions

This study investigates the causes of liquidity risk and the relationship between bank liquidity risk and performance for 2 banks over the period 2008-20012. The model is estimated through fixed effects regression. In the bank liquidity risk and performance model, we regard liquidity risk as an endogenous determinant of bank performance, and apply panel data instrumental variables regression to estimate this model.

During the test of the correlation coefficient and Regression analyze and test hypotheses of the study reached the following conclusions:

1. There is statistically significant effect for Loan-deposit ratio (LTD) on the rate of return on equity (ROE) in Jordanian banks, and the relationship between LTD and ROI is direct.
2. There is statistically significant effect for Loan-deposit ratio (LTD) on the rate of return on investment (ROI) in Jordanian banks and the relationship between LTD and ROI is direct.

3. There is statistically significant effect for current ratio (CR) on the rate of return on equity (ROE) in Jordanian banks.
4. There is statistically significant effect for current ratio (CR) on the rate of return on investment (ROI) in Jordanian banks.

Will reject the main hypothesis and accept the alternative hypothesis:

H<sub>1</sub>: there is statistically significant effect for liquidity on the performance of Jordanian banks.

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