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The Effect Of Liquidity Risk On Profitability By Using A Structural Regression Model: Study Of Its Application On A Sample Of Private Banks Listed In The Iraq Stock Exchange For The Period 2016-2020

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Abstract: This paper examines the impact of liquidity risk on a bank's profitability. Using the annual data of (4) Iraqi private banks listed on the Iraqi Stock Exchange for the period (2016-2020), the research problem was formulated, which refers to a question about the possibility of the impact of liquidity risk on the bank's profitability and to test the research hypothesis, a structural regression model was adopted. It was found that there is a significant and statistically significant relationship between liquidity indicators (loans to deposits and current assets to deposits) with the profitability index (return to deposits) as well as the indicator (loans to deposits) with the profitability index (return to assets). We recommend the need to balance between liquidity and profitability by maintaining sufficient liquidity, whether in the form of cash or balances with other banks to reduce the risk of liquidity, and to employ the largest possible amount of liquidity to achieve profitability, as well as diversifying investments in banks, the research sample to invest the high liquidity available to them. This reflects positively on profitability, in addition to the need for banks to encourage an increase in the volume of deposits.

Keywords: Liquidity risk, profitability, structural regression model.

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1. INTRODUCTION

By accepting deposits and granting loans, the banking sector serves as a conduit between units of financial surplus and units of financial deficit. As a result, it helps to the development of every country's financial system. The difficulty of harmonizing the bank's profitability, liquidity, and safety objectives is a dilemma that commercial banks encounter. If the bank focuses on profitability, it will sacrifice liquidity; however, if the bank focuses on liquidity, it will sacrifice profitability. As a result, management must strike a balance between profitability and liquidity goals by providing sufficient liquidity to meet deposit withdrawal and loan requests on the one hand. Investing the greatest amount of liquidity, on the other hand, to achieve the goal of profitability.

Liquidity risk is a critical risk that has grown in importance as a result of the global financial crisis in the United States of America in 2008, which was primarily caused by a credit crisis despite all of the strict controls and standards set by central banks on liquidity management, so this article came to illuminate the most important banking risks, It is the liquidity risk because it has a substantial impact on a bank's performance and profitability, especially since profitability is the primary goal pursued by bank management. The study focused on two key aspects of the banking industry: liquidity risk and profitability.

2. Methodology:

2.1 Article problem:

The ***Article*** problem is the importance of liquidity risk and its ability to influence the bank in taking appropriate decisions regarding granting credit or not, or when the bank is exposed to sudden withdrawals from time to time, especially if the bank's failure to manage liquidity risk leads to the bank's inability and then to his bankruptcy. Therefore, the article problem can be formulated in the following question:

What is the impact of liquidity risk on banking profitability?

2.2 The importance of Article

The importance of the article stems from the importance of its variables, as liquidity risk and profitability are prioritized in bank management due to their impact on bank performance, especially since the main goal of bank management is to reduce risk and increase profitability, and the research demonstrates the relationship between liquidity risk and profitability, and liquidity risk is one of the most severe risks that banks and financial institutions.

2.3 Goals of Article

a) Measuring liquidity risk in the same research banks and determining its impact on profitability as well as the possibility of minimizing the bank's repercussions.

b) Determining the profitability of the research sample banks based on their indicators and the significance of these indicators to the banks' long-term viability.

c) Determining the effect of liquidity risk indicators on profitability indicators in the research sample's banks.

2.4 Hypothesis of Article

The main hypothesis (at the level of significance (0.05), there is no statistically significant impact link between liquidity risk and profitability). It leads to the following set of sub-hypotheses:

A. The first sub-hypothesis (at the level of significance (0.05), there is no statistically significant effect association between the indicators of the independent variable (X1, X2, X3) and the indicator of the dependent variable (Y1).

B. The second sub-hypothesis (at the level of significance (0.05)., there is no statistically significant effect relationship between the indicators of the independent variable (X1, X2, X3) and the indicator of the dependent variable (Y2).

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C. The third sub-hypothesis (at the level of significance (0.05), there is no statistically significant effect relationship between the indicators of the independent variable (X1, X2, X3) and the indicator of the dependent variable (Y3).

2.5 Community and sample:

Private banks listed on the Iraq Stock Exchange represented the research community. The article sample was chosen at random and consisted of four banks: (The Bank of Baghdad was founded in 1992, the Middle East Bank in 1993, the National Bank of Iraq was founded in 1995, and the International Development Bank was founded in 2011) Because the goal of the study is to determine the impact of liquidity risk on profitability, the number of banks used has no bearing on the results because the effect between the article variables can be measured for just one bank, and the time period has no bearing on the results because the effect can be measured for only one year. As a result, four banks were chosen for a five-year study to obtain more accurate results.

2.6 Article sources:

In the academic aspect, it was based on Arab and foreign sources, while in the practical aspect, it was based on bank financial data. The findings of the statistical analysis were produced using the (Excel) program, the (SPSS) program, and the (AMOS) program, as shown in table 1. Indicators of the independent variable (liquidity risk), indicators of the dependent variable (profitability), and their symbols are shown in table (1).

Table 1: Indicators of liquidity risk, profitability, and their symbols

Liquidity Risk Indicators	code	profitability	Code
Cash and bank balances / total assets	X1	**Yield / Equity**	Y1
Total loans / total deposits	X2	**Return / Deposit**	Y2
Current Assets/Total Deposits	X3	**return/assets**	Y3

Source: Rose, peter S., (1999), "Commercial Bank Management", Irwin MC Grow Hill, U.S.A.p:158.

3. Theorotical part:

3.1 liquidity risk:

3.1.1 the issue of risk and liquidity risk.

Risk is defined as the possibility of future returns from investments fluctuating, i.e. the possibility of a different return achieved, the higher the risk. (Gangadhar& Babu,2003:4), At the banking industry level, the risk is defined as a decrease in the market value of an institution as a result of changes in the business environment (Shrieves & Dahl 1992: 441)

Liquidity refers to a bank's capacity to fulfill all of its commercial commitments in cash, as well as respond to credit requests and award new loans. , The liquidity of an asset refers to how easy it is to convert it into cash as quickly as possible and with the least amount of loss, and the liquidity of an asset can be defined as the ability to convert the asset into cash quickly and with minimal losses, and with minimal losses, the asset's selling price is close to the market price or its fair price. **(Diamond and Dybvig ,1983:402)**

Liquidity risk is defined as the risk of liabilities or chronic risk that affects a financial or banking institution that accepts deposits, and it is concentrated in the difference between the cash requirements to meet deposit withdrawals and loan increases, as well as the sources and costs of that liquidity. To invest in long-term assets, which results in a higher return but also increases the danger of a cash shortage **(Kumar etal,2013: 1)** For example, if a bank (X) obtains a deposit for a month at a given interest rate and invests it for three months, the bank may be exposed to the risk of not being able to secure another deposit for two months or not renewing the first deposit after a month when the deposit date is due. This is known as liquidity risk, and it is in addition to the risk of fluctuating interest rates **(Campello et al,2011:5)**

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. Internal and external variables also contribute to liquidity issues. Internal issues include a lack of liquidity planning, a skewed distribution of assets to various uses, and an abrupt shift in some commitments. External influences include both economic stagnation and catastrophic financial market crises (Han& Martin,2013: 350) If banks that specialize in electronic money transactions cannot verify that their balances are sufficient to cover repayment at any one moment, they may face a significant liquidity risk. Furthermore, this has a negative impact on profitability as well as exposure to liquidity risk (Yifru,2016:16)

It may force financial and banking organizations to borrow at high interest rates to meet immediate liquidity needs, reducing bank earnings. In fact, thanks to the borrowing ability of other banks to supply the liquidity required for their operations, banks seldom run out of cash**.** When a bank is unable to meet its financial obligations, whether in the form of granting new loans or meeting withdrawals from deposits, and in turn is unable to access new cash sources (actual or potential) of liquidity, insufficient liquidity results, and it is possible that the insufficiency of liquidity leads to the bank's financial solvency, the loss of many of its customers, and the bank's failure to compete. **(Korekov, 2015: 66)** The following points highlight the most major reasons of liquidity risk: (Musa, et al, 2012: 246)

A. The local bank is unable to receive the appropriate foreign cash in the timeframe and quantity required.

B. The misalignment of cash flows between the value of each currency and its cash flows out.

C. The difference in positions and foreign currency positions held.

D. Asymmetry in deposit maturities. A bank that borrows deposits for a year from linked deposits for three months will have a liquidity difficulty for nine months if it does not attract new deposits to match the value of the amount lent during the next nine months.

This sort of risk may be avoided by creating cash flow statements for each currency based on the due dates of the incoming and outgoing amounts in order to avoid dealing gaps that lead to a liquidity crisis.

3.1.2 Liquidity risk management

Because ignoring the management of liquidity risk has negative consequences for banks in general, and the management of liquidity risk in banks is affected with a high degree of importance, banks in various countries around the world face great challenges in how to manage liquidity risk and what procedures to follow to ensure the safety of banks and their ability to face crises. **(Brunnermeier & Yogo,2009:578)** Because failing to maintain budget liquidity may result in the bank's bankruptcy as a financial institution, and despite its importance, no theoretical or practical agreement has emerged regarding quantifying the liquidity risk or the cost of preserving liquidity, As a result, bankers and specialists are still interested in managing liquidity risk (Bank of France,2008:41) By discovering the risk, analyzing it, measuring it, determining the means to confront it, and then choosing the most appropriate means to confront it, liquidity risk management is defined as an integrated organization that aims to confront risks with the best means and the lowest costs. Which is carried out by bank administrations in order to establish boundaries for the negative consequences of these risks in their many forms and to keep them to a bare minimum, as well as to study, evaluate, and monitor risks in order to mitigate their negative effects on banks (Musa, et al., 2012: 26) Or it is the process of defining, identifying, measuring, monitoring, and controlling risks in order to confront and reduce them, and the method used by banks to reduce their exposure to liquidity risks is to increase the ratio of cash and quasi-cash, as well as increasing the percentage of marketable and selling assets and converting to liquidity quickly and without significant losses, such as government securities, or t (**Brunnermeier & Yogo,2009:579**). To avoid becoming immune to these dangers, the bank must try to comply to the so-called (partial reserves), which are calculated by removing a percentage of its average monthly deposits to be held with the Central Bank as a legal monetary reserve while preserving liquid cash. In addition to what the bank keeps in its accounts with the Central Bank or other banks for the purpose of delivering liquidity in a

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timely way, the bank keeps money in its safes to pay its commitments. Either by borrowing money fast from other banks or by selling assets such as easy-to-sell stocks with little losses (Cornett et al, 2011: 298).

Diversifying the bank's sources of funds, studying assets within the context of a monetary policy represented in maintaining a reasonable liquidity balance, liquid financial instruments in the financial market, daily auditing of the bank's liquidity conditions, maintaining a certain percentage of deposits, distributing financing, and diversifying financing decisions are all ways that liquidity risk is managed. granted to clients, diversifying the maturity periods of the installments, covering the liquidity shortfall through borrowing from the central bank or other banks, not focusing on a specific client or group of clients, and treating excess liquidity (Bank of France,2008:42). There are three methods for dealing with risk:

A. **Risk avoidance:** Banks and financial institutions refuse to take risk because they are afraid of losing money. For example, in financial institutions, the bank refrains from giving high-risk loans to avoid credit hazards or maintains a high liquidity ratio to prevent liquidity risk. Although avoiding danger is one of the strategies of dealing with it, it is regarded as a negative rather than a positive approach of dealing with risks, owing to advancements in financial and banking organizations.(Fiet,1995:551-552)

A. Risk reduction: In this strategy, financial and banking institutions monitor loan behavior in order to recognize warning indicators of difficulties with early payments and decrease liquidity risk by employing a policy of keeping appropriate cash balances and investing in short-term assets. (Karunaratne,2018:226-227)

B. Risk transfer: The risk is transferred through insurance, which is one of the methods for transferring risk from one party that does not want to carry it to another (the insurance firm) who agrees to take it in exchange for a fee. (Aldasoro & Ehlers,2017:15-16)

In addition to the preceding approaches, there is the risk-sharing technique, which entails assuming some risk and transferring part of it, as well as the hedging method, which varies from insurance in that it is a risk transfer with the possibility of profit sacrificed.

3.1.3 Liquidity risk indicators

One of the hazards that is difficult to quantify is liquidity risk. are the most important indicators used to quantify liquidity risk: **(**Koch & Macdonald, 2000: 137)

A. Cash and bank holdings as a percentage of total assets: This indicator reflects liquidity risk, and as it can be assessed by dividing cash assets and short-term investments by total assets, a rise in this indicator implies a decrease in liquidity risk in order to raise cash and cash balances with the bank or with other banks. Due to the increase in monetary assets and investments with which the bank must meet its numerous commitments, the rise in this indicator also suggests a decrease in liquidity risk.

B. The total loan-to-deposit ratio: a rise in this indicator indicates a significant liquidity risk, since a high loan-to-deposit ratio shows the bank's requirement for more funds to satisfy new lending demands.

C. The current asset-to-total-deposits ratio: a rise in this indicator suggests a reduction in liquidity risk, as it represents an increase in current assets.

3.2 Profitability:

3.2.1 The concept of Profitability

The main goal of a bank is to maximize the wealth of its owners, which is accomplished through the bank's ability to make profits (Aremu&etal,2013:150), and bank management strives to make the largest possible profit for the bank's owners, as the main criterion for management efficiency is the size of profits made. This is due to the fact that the primary goal of commercial bank administration is to maximize profits. Commercial banks maximize their profits by obtaining the largest amount of deposits and sources of funds at the lowest possible cost, then employing these resources in the form of credit

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facilities and financial investments that achieve the highest amount of profits at a low risk level and a relatively acceptable degree of liquidity (Ball etal,2015:230)

Profitability is defined as the relationship between the bank's profits and the loans and investments it makes , (Aremu&etal,2013:156) , (Northup) also defined profitability as the profit that a bank makes as a consequence of investing its money, which is a fair outcome of taking the risk (Northup, 2004: 193), while (Barad) described it as the capacity of a certain management to generate a profit from its usage Profit is typically assigned to assets, capital, or property rights, and a banker communicates the efficiency of the financial administration in investing the available capabilities of liquidity, business, and services (Barad,2010:108).

For the purposes of this study, profitability is defined as the compensation that the bank receives from investing its money over a specific period of time, as an acceptable compensation for taking the risk. There is a distinction between profit and profitability, as profit is defined by accounting as the increase in total revenues over total costs over a specific period, whereas profitability is defined economically as increasing total revenue over total costs (Trivedi,2010: 237)Profitability is the best tool in determining and choosing any project compared to profit (Lutz,2010,20), because profit in the concept of financial management is a test of efficiency and a measure of control, as well as a measure of the investment value for the owners, whereas profit is a product, i.e. Profit may not lead to profitability, in other words, banks with equal profits may differ in terms of profitability (Trivedi, 2010:237).

In many circumstances, the notion of return is confused with the concept of profits, as if they are synonymous, which is incorrect since the return is the return, compensation, or benefits that the investor earns from investing his money, and the return is the primary goal of the investment process (Brigham & Gapanski, 1988: 145). In banks, the return takes the form of a percentage-based interest rate, which is frequently computed on the basis of the loan balance over a specific time period, As a result, commercial banks must achieve appropriate profits, that is, profits that are not less than those achieved by other institutions that are subject to the same level of risk and distribute profits to owners after keeping a portion of them in the form of mandatory and voluntary reserves, various provisions, and profits that are not ready for distribution. (Bard, 2010:108)

It is difficult to strike a balance between supply and demand for bank liquidity at a specific point in time, and thus the bank must deal with liquidity deficits or excess liquidity on a continuous basis (Rose, 1999: 350), and the elements of return and risk are linked together in a direct relationship, which means that the higher the investor's ambition to achieve a return on his investment, the more he must prepare himself to bear higher degrees of risk, and vice versa (Cornett et al, 2011: 302).

However, the two goals of liquidity and profitability are incompatible, which means that obtaining one would need sacrificing the other. Increasing profitability necessitates investing more money in less liquid assets, which runs counter to the purpose of liquidity. Furthermore, keeping money in cash or semi-cash means increasing assets that are not achieving returns, or are achieving low returns, which contradicts the goal of profitability, and thus a balance must be created between liquidity and profitability, and the main goal that the commercial bank must strive for is to maximize profit, which is what the bank's owners target in the first place, while liquidity is targeted by depositors, It is achieved through Central Bank legislation that reduces the possibility of the commercial bank being exposed to financial hardship, and then liquidity becomes a constraint compared to the goal of profitability, and the bank can take into account the achievement of convenience and reconciliation between profitability and liquidity through its employment policies (Han& Martin,2013: 364)

Banks also seek to achieve a trade-off between return and risk from banking operations, which leads to maximizing returns and minimizing risks (Brigham & Gapanski, 1988: 151), and from the foregoing, it is clear that liquidity is important in avoiding the risk of bankruptcy and liquidation, as well as profitability for the sake of continuity. As a result, commercial banks must balance liquidity and

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profitability in order to maintain expansion and continuity.

3.2.2 Sources of profits (profitability)

Profitability is obtained by the commercial bank via a variety of sources, including: (Beedu, 2011: 48)

A. **Loan interest:** The bank's loan revenues are influenced by two factors. The first consideration is the magnitude of the loans. When the bank can devote a big portion of its cash resources to loans, it will be able to raise its cash earnings, knowing that the increase in loans would be accompanied by an increase in demand for them. The second component is the interest rate, which is not triggered since the interest rate is largely fixed and banks are not allowed to adjust it under Central Bank regulations.

B. **Interest and capital gains from investments:** the bank invests in loans, commercial papers, securities, and treasury bills, and investing in securities differs from investing in commercial papers and loans, because most banks take investment in securities as an alternative to cash, that is, instead of keeping With cash balances in its safes to meet liquidity requirements, it invests part of it in securities that generate a return that achieves the goal of profitability, and at the same time it can be easily converted into cash, which achieves the goal of liquidity, and this means that investing in bank credit has its main goal being profit, While investing in securities aims to achieve profitability and liquidity together.

C. **Fees for various banking services*:*** Commercial banks are paid a variety of fees in exchange for the increased services they provide to their customers, such as fees for trust or guardianship services, fees for lending-related services, fees for issuing letters of guarantee, money transfer fees, deposit and withdrawal fees, fees and commissions for documentary credits, and so on.

3.2.3 profitability indicators.

It assesses the bank's efficiency and effectiveness in creating profits, namely those earnings connected to certain bases such as sales, assets, and ownership rights. The following metrics are used to assess banking profitability: (Rose, 1999, 158).

A. Rate of Return on Capital Invested: This ratio measures what the owners receive in return for their investments in the bank's activity, which is the final measure of profitability, and it represents a measure of the bank's overall performance, including operational and financial performance, and it measures the rate of return on the money invested by the owners, which is the criterion for maximizing their wealth, so the return is right. Ownership is the end consequence of logical financial management judgments regarding the ideal financing structure and the suitable uses for this structure. This ratio is calculated by dividing net income by total equity.

B. Rate of Return on Deposits: This rate is used to assess the bank's effectiveness in creating profits from the deposits that it was able to secure, and it measures the share of each unit of deposit from the commercial bank's net profit after taxes, and it is calculated by dividing the net income by the total deposits.

C. Rate of Return on Assets: This ratio assesses management's capacity to make the best use of assets (assets) to maximize earnings, and it is compared to past years or the industry norm. The higher this ratio, the greater the bank's efficiency and capacity to employ its assets, and vice versa. Profit on total assets.

4. Practical Section:

4.1 Analysis of article indicators

A- Analysis of the indicators of the independent variable (liquidity risk):

Table (2) shows the analysis of liquidity risk indicators for the research sample banks for the period (2016-2020), which were in the form of three indicators (X1, X2, X3).

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Table (2) Analysis of liquidity risk indicators

banks	Baghdad					Middle east				
year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
X1	0.682	0.687	0.708	0.61	0.729	0.51	0.568	0.593	0.497	0.489
X2	0.236	0.204	0.207	0.187	0.183	0.452	0.309	0.22	0.347	0.319
X3	1.259	1.315	1.332	1.176	1.254	2.076	2.022	1.645	2.081	2.068
banks	Al-ahli					International development bank (Altanmiyah)				
year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
X1	0.635	0.662	0.721	0.562	0.494	0.456	0.449	0.411	0.413	0.503
X2	0.769	0.731	0.405	0.677	0.759	0.895	0.835	0.882	0.851	0.019
X3	3.469	3.187	2.663	2.42	2.054	1.864	1.764	1.748	1.668	1.334

Source: researcher depending on Table (1)

Table (2) indicates that the liquidity index (X1) for the research sample banks had an upward trend during the research period, except for a slight decrease in 2019 for the Bank of Baghdad and in 2019-2020 for the rest of the other banks, and this indicates the provision of cash and the presence of balances with other banks sufficient to cover the total assets . With regard to the indicator (X2), it witnessed a noticeable decline for banks (Baghdad, the Middle East, and the National Bank of Iraq), which means that total loans are constantly declining with the increase in total deposits, and therefore the decline of this indicator is evidence of a decrease in liquidity risk, and the mentioned indicator was unstable for the Development Bank It ranged between high and low over the years of research, but it decreased significantly in 2020 due to the increase in total deposits. As for the liquidity index (X3), its trend was upward in both Baghdad and the Middle East banks, and a slight decrease during the year 2020, which means an increase in current assets and a decrease in liquidity risks.

B. Analysis of the indicators of the dependent variable (profitability)

Table (3) explains the analysis of profitability indicators for the research sample banks for the period (2016-2020), which were in the form of three indicators (Y1, Y2, Y3).

Table (3) Analysis of profitability indicators

banks	Baghdad					Middle east				
year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Y1	0.095	0.036	0.02	0.039	0.093	0.049	0.002	0.007	0.001	0.006
Y2	0.032	0.013	0.007	0.014	0.024	0.056	0.002	0.005	0.001	0.006
Y3	0.022	0.009	0.005	0.01	0.018	0.022	0.001	0.003	0.0003	0.003
banks	Al-ahli					International development bank (Altanmiyah)				
year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Y1	0.096	0.02	0.022	0.045	0.028	0.071	0.056	0.034	0.023	0.043
Y2	0.171	0.032	0.029	0.046	0.059	0.062	0.047	0.028	0.015	0.016
Y3	0.048	0.01	0.011	0.018	0.028	0.029	0.023	0.014	0.008	0.011

Source: by the researcher depending on Table (2)

Table (3) The profitability index Y1) reached its highest level in 2016 for all banks in the research sample, which means that these banks achieved the highest profitability level in terms of (return to

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equity) in the said year, and the lowest value of the index was in 2017 and 2018 for Al-Ahly bank Iraqi and Baghdad, respectively, and the lowest value in 2019 for Middle East and International Development Bankers. With regard to the indicator (Y2), it fluctuated between high and low throughout the research period for the sample banks. As for the (Y3) index, the index recorded the highest rise in 2016 for banks (the Iraqi National Bank, International Development and the Middle East), and the index recorded the lowest rate in 2019 for the bank (International Development and the Middle East) and in 2017 for the National Bank of Iraq. As for the Bank of Baghdad, the trend was The indicator is descending during the years (2016-2018), which indicates the inability of the bank to optimally invest the assets available to it, and this indicator has increased in the years (2019 and 2020), which means an improvement in the investment of assets of the bank during these years.

4.2 Statistical Analysis:

4.2.1 Descriptive Statistics

Table (4) Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
X1	20	.411	.729	.569	.106
X2	20	.019	.895	.474	.291
X3	20	1.176	3.469	1.919	.632
Y1	20	.001	.096	.039	.029
Y2	20	.001	.171	.033	.038
Y3	20	.0003	.048	.014	.012

Source: Researcher by depending on SPSS

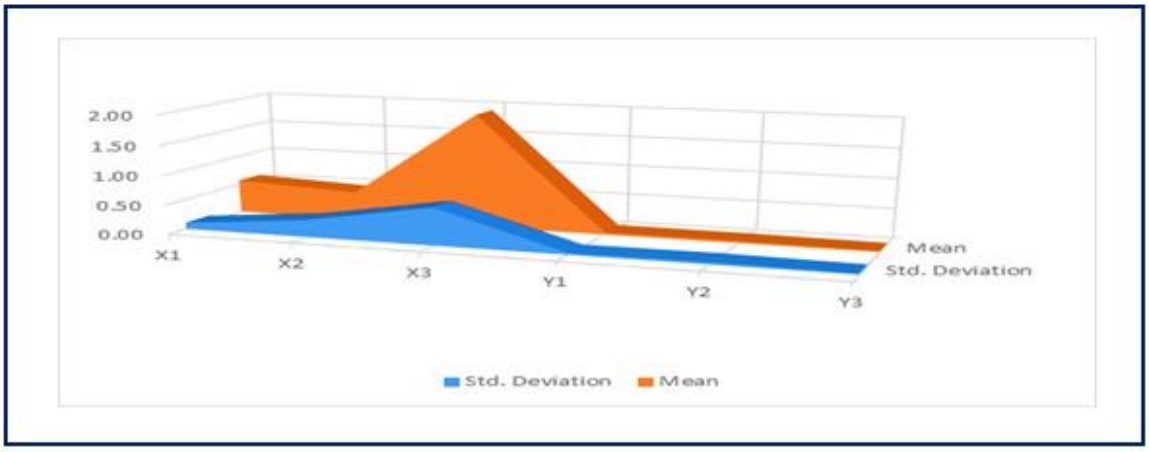

Figure (1): Descriptive Statistics and standard deviation

Source: researcher depending on Excel

The descriptive statistics for the research variables with a total of 20 observations are shown in Table (4) and Figure (1), with the arithmetic mean of the independent variable X3 reaching (1.919), the highest value among the variables in terms of the arithmetic mean, and the standard deviation being (.632) Furthermore, the variable's minimum and highest values were (1.176) and (3.469), respectively. It was followed by the variable order X1, which had an arithmetic mean (0.569) and a standard deviation of 0. (.106)As for the minimum and maximum values, they were (.411) and (.729), respectively. And it came in third place in terms of the value of the variable arithmetic mean X2, which amounted to (0.474) with a standard deviation of (.2910), as for the variables Y1 and Y2, the arithmetic mean for them reached (0.039) and (0.033), respectively, with a standard deviation that ranged between (0.299) and 0.0378),

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and the lowest value of the arithmetic mean was for the variable Y3, which amounted to (0.014) and with a standard deviation of (0.012), and the minimum and maximum value were (0003.) and (0.048), respectively.

4.2.2 Correlation between variables

Table 5 Correlation between variables

		X1	X2	X3
Y1	Pearson Correlation	.228	.130	-.035
	Sig. (2-tailed)	.334	.585	.885
	N	20	20	20
Y2	Pearson Correlation	.006	.514*	.613**
	Sig. (2-tailed)	.981	.020	.004
	N	20	20	20
Y3	Pearson Correlation	-.023	.504*	.371
	Sig. (2-tailed)	.925	.023	.108
	N	20	20	20
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: By researcher using SPSS

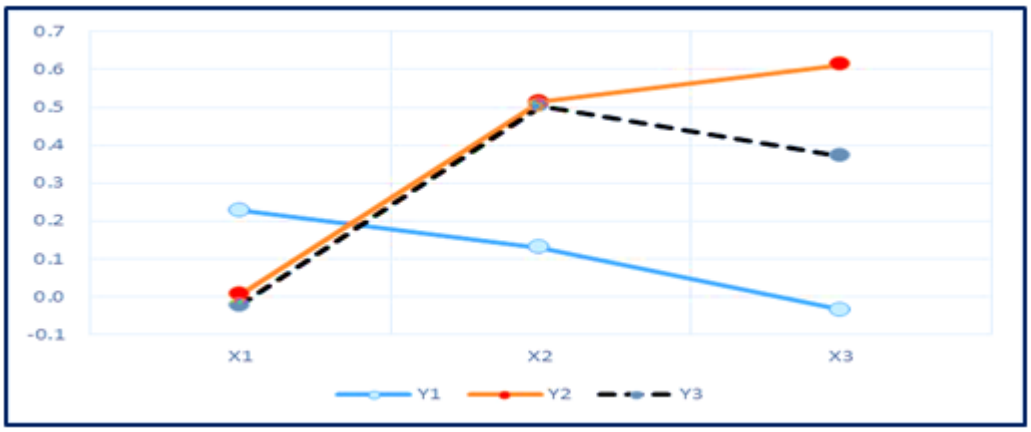

Figure (2) Correlation between variables

Source: By researcher using SPSS

Pearson's correlation coefficients between the independent and dependent variables are shown in Table (5) and Figure (2). We can see from the table that the correlation of X1 and X2 with the variable Y1 is positive but unimportant, since the correlation coefficients for X1(0.228) and X2(0.13) have probability values of (0.334) and (0.585), respectively. The connection between X3 and Y1 was negative, weak, and non-significant, with a correlation coefficient of (-0.035) and a probability value of (0.885) at the level of significance (0.05).

Concerning the correlation of the independent variables with the dependent variable Y2, the correlation of X1 with Y2 was insignificantly positive, as the correlation coefficient reached (0.006) with a probability value of (0.981) at the level of significance (0.05), whereas the correlation of X2 with Y2 was positive and significant, as the coefficient reached Correlation (.5140) with a probability value of (0.02) at the level of significance (0.05). (0.01).

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The correlation of the independent variables with the dependent variable Y3 was insignificant negative correlation for X1 and Y3 and insignificant positive correlation for X3 and Y3, as the correlation coefficients for X1 and X3 were (-0.023) and (0.371), respectively, while the correlation between X2 and Y3 was positive. At the level of significance, significant was (0.504) with a probability value of (0.023). (0.05).

4.2.3Regression analysis

To put the study hypothesis to the test, the following regression equation was generated for the influence of the independent variables (X1,X2,X3) on the dependent variables (y1,y2,y3):

A. Examining the impact of the independent factors (X1, X2, and X3) on the dependent variable y1.

The regression connections for the influence of liquidity indicators (X1,X2,X3) on the profitability indicator Y1 (return / equity) are shown in Figure (3) and Table (6).

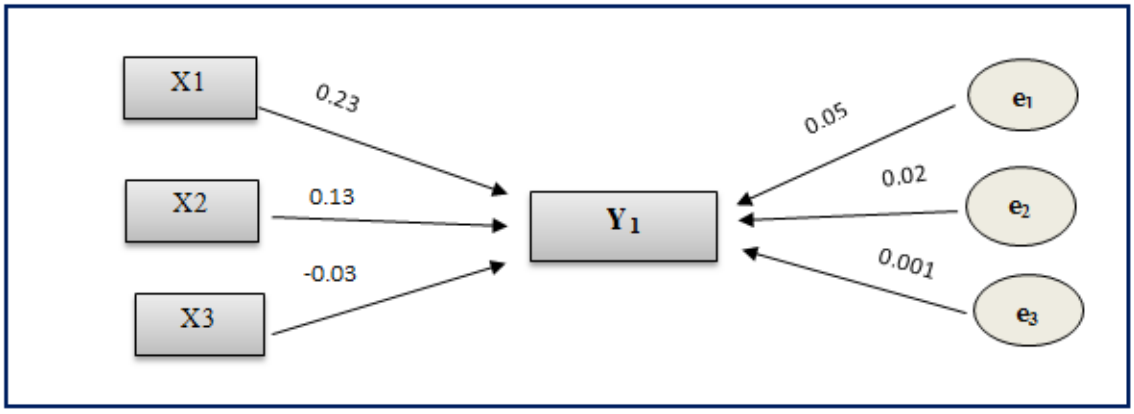

Figure (3) Regression x_1,X_2,X_3 on y1 diagram

Source: researcher depending on Excel

Table (6) Regression X_1,X_2,X_3 on Y_1

Dependent variable	Independent variable	R^2	Coefficients	T	Sig.	Decision The
Y1	**X1**	**.05**	**.23**	**.992**	**.334**	There's no Effect
Y1	**X2**	**.02**	**.13**	**.556**	**.585**	There's no Effect
Y1	**X3**	**.001**	**-.03**	**-.147**	**.885**	There's no Effect

Source: By researcher using SPSS

From Table (6), the t-test shows the insignificance of regression for the effect of X1 on y1. The calculated t-value was (0.992) with a probability of (sig 0.334) at the level of significance (0.05). As for the effect of X2 on y1, the effect coefficient was (0.13) and it was not significant, as the calculated t-value was (0.556) with a probability of (sig0.585.) at the level of significance (0.05). As for the effect of X3 on y1, it was also insignificant, as the calculated t-value was (-0.147) with a probability of (sig 0.885) at the level of significance (0.05).

From the above results we conclude that the regression equations are not significant for the effect of the independent variables X1,X2,X3 on the dependent variable y1. Therefore, we do not reject the first sub-

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null hypothesis which states (there is no significant and statistically significant relationship between the independent variables and the dependent variable Y1).

B. Examining the impact of the independent variables (X1,X2,X3) on the dependent variable Y2 Figure (4) and Table (7) depict the regression associations for the impact

C. of liquidity indicators (X1,X2,X3) on the profitability indicator Y2 (return / deposits).

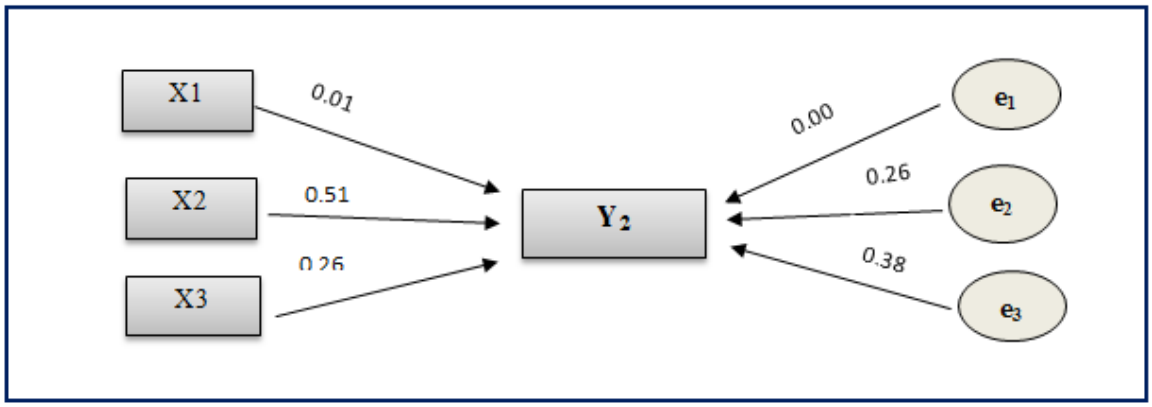

Figure (4) Regression X_1,X_2,X_3 on y_2 diagram

Source: researcher depending on Excel

Table (7) Regression X_1,X_2,X_3 on y_2

Dependent variable	Independent variable	R^2	Coefficients	T	Sig.	Decision The
Y1	X1	.001	.01	024	.981	There's no Effect
Y1	X2	.26	.51	2.543	.020	Theirs in Effect
Y1	X3	.38	.61	3.292	.004	Theirs in Effect

Source: By researcher using SPSS

From Table (7), we notice that the effect of X1 on y2 is not significant. The calculated t-value was (0.24), with a probability of (sig. 0.981) at the level of significance (0.05). Therefore, we do not reject the null hypothesis which states that there is no significant and statistical relationship between the independent variable X1 and the dependent variable Y2. As for the effect of both variables X2 and X3 on the variable Y2, it was significant, as the value of the coefficient of determination R2 for the effect of X2 on y2 was (0.26), which means that the regression equation explains 26% of the change in y2 and this change occurred due to the change in X2 and the rest of the change of 74% occurred due to factors other than variable X2. Impact factor ratio (0.51) and this ratio indicates that an increase in (total loans / total deposits) by one unit will increase (return / deposits) by (51%), and the calculated t-value reached (2.54) with a probability of (sig 0.02.) when Significance level (0.05). As for the value of the coefficient of determination R2 for the effect of X3 on y2 it amounted to (0.38), and the ratio of the impact factor was a positive value of (0.61) that is, the more (current assets / total deposits) increased by one unit, the (return / deposits) increased by (61%). The calculated t was 3.292) with a probability of (sig 0.04), which is significant at the level of significance (0.05). Therefore, we reject the second null

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hypothesis, which states (there is no significant and statistically significant relationship between the independent variable X2, X3 and the dependent variable Y2).

D. Examining the impact of the independent factors (X1, X2, and X3) on the dependent variable Y3. The regression associations for the influence of liquidity indicators (X1,X2,X3) on the profitability indicator Y3 (return / assets) are shown in Figure (5) and Table (8).

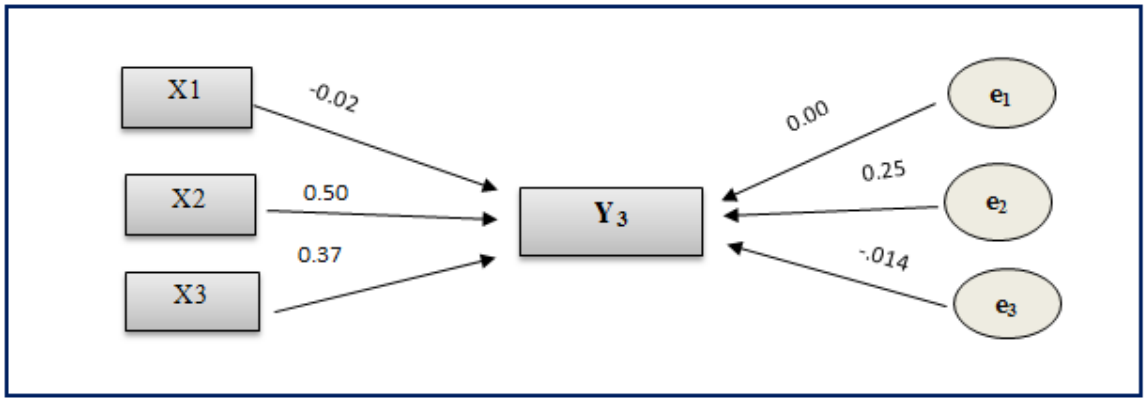

Figure (5) Regression X_1,X_2,X_3 on y_3 diagram

Source: researcher depending on Excel

Table (8) Regression X_1,X_2,X_3 on y_3

Dependent variable	Independent variable	R^2	Coefficients	T	Sig.	Decision The
Y_3	X1	.001	-.02	-.096	.925	There's no Effect
Y3	X2	.25	.50	2.477	.023	Theirs in Effect
Y3	X3	.14	.37	1.693	.108	There's no Effect

Source: By researcher using SPSS

Table (8) shows the insignificance of the effect of both X1 and X3 on Y3, as the calculated t-value was (-0.096) with a probability (sig 0.925) for X1 calculated t-value (1.693)) with a probability of (sig 0.108) at the significance level (0.05), which means that no The significance of the estimated model. Therefore, we do not reject the null hypothesis which states that there is no significant and statistically significant relationship between X1, X3 and Y3. As for the effect of X3 on Y3: the value of the coefficient of determination R2 reached (0.14), which means that (14%) of the changes in the dependent variable Y3 are due to the change in the independent variable X3, and that (86%) of the change is due to factors other than The independent variable X3. As for the effect coefficient of X3 on Y3, it was a positive value of (0.37), and this effect is not significant according to the t-test, as it reached.

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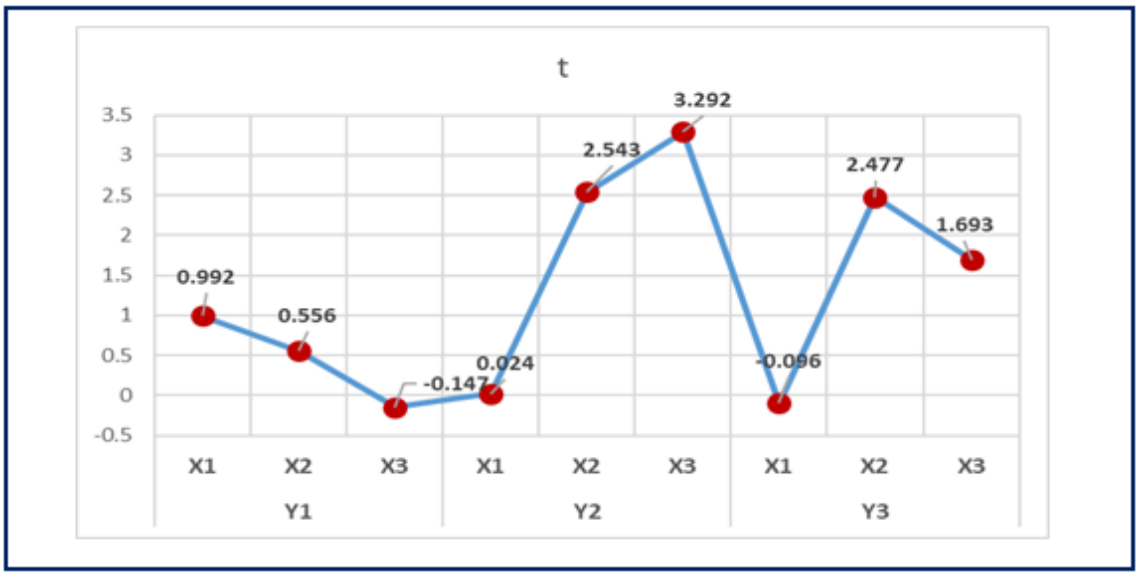

Figure (6) Testing value for t

Source: researcher depending on Excel

Figure (6) depicts the estimated regression models' t-test values for the influence of the independent variables (X_1,X_2,X_3) on the dependent variables (Y_1,Y_2,Y_3). The relevance of three models of regression connections between the independent variables X2 and X3 and their influence on the dependent variable may be seen in the image. The estimated t-values for Y2 and Y3 were (2.543) and (3.292), respectively, as was the significance of the regression relationship for the influence of the independent variable X2 on the dependent variable Y3 (2.477). The other models, on the other hand, were not significant at the 0.05 level of significance.

Conclusions:

1. Based on the analysis of the liquidity risk indicators, we conclude that, despite fluctuations in these indicators, there is a decrease in liquidity risk during the research period, as the banks in the research sample did not experience a severe shortage of liquidity, with the exception of the International Development Bank, which experienced a relative increase in liquidity risk during the research period without affecting the volume of liquidity required to meet the bank's responsibilities.

2. Based on the analysis of profitability indicators, we conclude that the low return on deposits for the research sample banks in the recent years of the study (2019 and 2020) is due to the low volume of deposits, as well as the stability and rise of profits in general in order to diversify investment sources and not rely solely on deposits, as well as their investments in Coin sale auction.

3. We find that there is no statistically significant impact association between the independent variable indicators (X1, X2, X3) and the dependent variable indicator (Y1).

4. There is a statistically significant effect relationship at the level of significance (0.05) between the indicators of the independent variable (X2, X3) and the indicator of the dependent variable (Y2), in addition to the absence of a statistically significant effect relationship at the level of significance (0.05) between the indicators of the independent variable (X1) and the indicator of the dependent variable (Y2) (0.05).

5. There is a statistically significant effect relationship at the level of significance (0.05) between the indicator of the independent variable (X2) and the indicator of the dependent variable (Y3), in addition to the absence of a statistically significant effect relationship at the level of significance (0.05) between the indicators of the independent variable (X1, X3) and the indicator of the dependent variable (Y3) (0.05).

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Recommendations:

1. The requirement to strike a balance between liquidity and profitability by retaining adequate liquidity, whether in the form of cash or balances with other banks, to limit liquidity risk and to use the greatest amount of liquidity feasible to achieve profitability.

2. The need for banks, the research sample, to encourage an increase in the volume of deposits in order to increase the profits resulting from them, through non-price competition, that is, by providing additional services that encourage depositors to deposit, in addition to the need for the bank's assets to be used optimally in order to increase profitability.

3. The importance of diversifying investments in banks, according to the study sample, in order to invest the high liquidity accessible to them, which has a good impact on profitability.

4. The research sample banks' need to adopt policies and procedures for managing liquidity risk in a way that enables the provision of adequate liquidity to satisfy the bank's commitments, as well as the appropriate investment of the residual portion.

5. Adherence to the Central Bank's rules and directions in connection to the Basel Committee's judgments expressed in the sufficiency of capital and attempting to boost credit giving while diversifying assets.

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