-RESEARCH ARTICLE-

THE RELATIONSHIP BETWEEN FINANCIAL FAILURE PREDICTION AND LIQUIDITY: EVIDENCE FROM BANKS OPERATING IN THE FINANCIAL MARKET

Sanaa Hasan Hilo

Department of Materials Technology Management, Rusafa Institute
of Management, Middle Technical University, Baghdad – Iraq
Email: sanahasn75@mtu.edu.iq

─**Abstract**─

The present study seeks to examine the relationship between liquidity, treated as the independent variable, and financial failure, regarded as the dependent variable. A sample comprising five banks listed on the Iraq Stock Exchange has been selected for this investigation. These banks include the Iraqi Commercial Bank, North Bank for Finance, Union Bank of Iraq, Gulf Commercial Bank, and Middle East Bank. The variables are evaluated using financial indicators, and the research stems from a problem centred on the impact of liquidity utilisation on financial failure. Additionally, the study aims to investigate the nature of the association between the identified variables. To conduct the research methodically, four hypotheses have been developed regarding the effect of liquidity on financial failure. These hypotheses are subsequently examined using statistical techniques and the SPSS statistical software. The findings confirm the reliability of the asset ratio, as it demonstrates a stable and consistent trend among the selected banks throughout the period from 2011 to 2020. Furthermore, the outcomes indicate successful avoidance of financial failure in asset management practices. Nevertheless, deposit levels exhibit variation across the sampled banks. Accordingly, the study emphasises the necessity of ongoing evaluation of financial indicators within these banks. Such analysis is crucial for gaining a thorough understanding of a bank's standing relative to other markets, identifying areas of strength for enhancement, and recognising weaknesses that require corrective measures.

INTRODUCTION

Numerous banks encounter considerable demand for liquid assets, exposing them to substantial liquidity risks because of liquidity shortages. This scenario adversely affects their capacity to sell assets at fair market values, often necessitating significant discounts. Consequently, profits are forfeited to satisfy customer loan demands, thereby contributing to financial failure (Berger & Bouwman, 2009). Among the core functions banks perform within both the broader economy and a nation's financial system is the provision of intermediation and liquidity services. The process of financial intermediation—transforming short-term liabilities and demand deposits into long-term maturity assets, predominantly in the form of loans—renders banks particularly vulnerable to liquidity risk (Choudhry, 2022).

Adeniyi (2021) defines liquidity as the capacity of a bank to meet both anticipated and unforeseen cash and collateral requirements at a reasonable cost and without incurring unacceptable losses, thus supporting asset growth. A bank is deemed insolvent when the market value of its assets falls below that of its liabilities. Several factors may precipitate a bank's insolvency, including controlled mergers, closures, direct government interventions, or the failure to continue extending credit and issuing new loans to clients, which can rapidly disrupt operations. Elements such as fraud, undercapitalisation, safety, soundness, and liquidity are commonly recognised as contributing factors to bank failure (Abor et al., 2022).

Banks characterise liquidity risk as the probability of suffering economic losses either due to efforts to procure the cash necessary for operations or as a result of a shortfall in cash or its equivalents (Lysiak et al., 2022). This study identifies two primary forms of liquidity risk: market liquidity risk, which arises when a bank's assets cannot be quickly converted into cash at their actual value, and funding liquidity risk, which occurs when banks lack adequate funds and collateral to fulfil payment obligations to customers and counterparties. Both types of liquidity risk expose banks to the likelihood of substantial discounts (Bechtel et al., 2023). Moreover, a bank facing a liquidity crisis that fails to promptly meet its obligations to depositors and other creditors may be classified as cash-flow insolvent (Malala, 2022).

Liquidity is essential for banks as it enables them to respond to both anticipated and unexpected shifts in their financial condition and supports growth by providing the necessary funding. It is noteworthy that catastrophic liquidity spirals may emerge from market, funding, and liquidity risks, emphasising the criticality of managing liquidity risks effectively. A severe liquidity crisis, often termed a 'bank run', can occur when many depositors withdraw their funds simultaneously, thereby depleting the bank's resources. Such bank runs have the potential to cause the collapse of even fundamentally sound banks, which in turn could destabilise the wider economy (Challoumis & Eriotis, 2024).

Liquidity risk assumes particular importance because it may exacerbate market and credit risks, potentially transforming an isolated loss into a systemic, contagious crisis. Common measures of liquidity risk include liquidity ratios and liquidity gaps. The empirical evidence reviewed in this study suggests that no single metric is universally applicable across all research contexts. Additional approaches for assessing liquidity risk include the net stable financing ratio and the liquidity coverage ratio. This study also employs the loans-to-deposits ratio as a metric for measuring liquidity risk. Banks retain cash assets for four principal purposes: firstly, to satisfy customer requirements for routine transactions and ensure their cash reserves align with customer deposits and withdrawal demands; secondly, to comply with legal reserve obligations, necessitating the holding of sufficient cash; thirdly, to facilitate the clearing of cheques by maintaining adequate balances with financial institutions; and finally, to procure services from other banks (Blessing & Sakouvogui, 2023).

Nevertheless, when an entity fails to meet its debt interest payments, it may either enter formal bankruptcy proceedings or negotiate with creditors to restructure its debts, both of which constitute financial failure. Financial failure can be identified through several criteria, including financial indicators such as an inability to fulfil obligations or when liabilities surpass assets. A legal criterion also exists, whereby companies undergoing restructuring through a corporate debt restructuring committee are considered financially failed entities (Bulot et al., 2016). In order to identify critical financial indicators for assessing overall financial health, financial analysis tools are indispensable. Utilising such tools facilitates performance monitoring and enables informed decision-making based on available financial data (Mkalaf & Hilo, 2023). A bank is considered to have failed when the market value of its assets declines to the extent that it falls below the market value of its liabilities (Owusu & Alhassan, 2021). The repercussions of a bank's collapse can span social, political, financial, and economic domains. Berger et al. (2021) contend that a bank's failure adversely affects its client firms, as these clients lose access to financing, potentially leading to business cessation. Moreover, bank failures are typically associated with a sharp contraction in output and a rise in unemployment. The government has a vested interest in maintaining the financial stability of banks, as strong banks are widely regarded as fundamental to economic stability, rendering bank failure a critical topic for scholarly inquiry.

The present study aims to utilise liquidity as a predictive tool for financial failures across the period from 2011 to 2020. This enables the evaluation of bank liquidity and its impact on financial failure. The significance of this study lies in its contribution to enhancing the understanding of financial stability by analysing liquidity as a predictor of bank failures, thereby supporting the development of more effective risk management strategies. The findings may also provide valuable insights for regulatory bodies and policymakers regarding the necessity of maintaining adequate liquidity levels, potentially informing the formulation of improved regulations and policies aimed at preventing bank failures. Furthermore, the study offers guidance for investors,

empowering them to make more informed decisions by understanding liquidity's role in financial performance. Importantly, by focusing on the 2011–2020 period, the study supplies historical context to evaluate the influence of economic events on bank stability and enriches the academic literature concerning liquidity and financial failure, ultimately aiding in the creation of predictive models for crisis prevention.

The study is structured into several sections: the first provides a review of the relevant literature; the second outlines the methodology employed; the third presents the data and describes the selection of variables; this is followed by the analysis and discussion of results; and the final section offers the conclusions.

Research Gap

Numerous studies have explored the relationship between liquidity and banking institutions; however, there remains a need to address knowledge gaps, particularly within emerging and post-conflict economic systems. Existing research into fundamental approaches to liquidity risk management in developed markets, such as the study by (Li, 2019), does not adequately reflect the scarcity of similar investigations concerning Iraqi banking institutions. Given Iraq's unique financial circumstances, shaped by institutional reconstruction and macroeconomic instability, it is imperative to conduct specific research to better understand liquidity-performance dynamics in this context. Contemporary academic studies tend to focus on comprehensive frameworks for liquidity risk and their application in large, well-established institutions. Nevertheless, limited research exists concerning early warning indicators of bank distress linked to specific liquidity ratios, such as deposit measurement rates and comparisons of cash and deposit percentages, particularly within emerging market banking systems.

This lack of detailed research impedes the formulation of tailored liquidity strategies suited to institutions operating outside primary global financial hubs. While the Altman Z-score model has gained widespread acceptance in distress prediction across various industries, its application within Middle Eastern banking sectors, and specifically within Iraqi financial institutions, remains underexplored. Given that the model's predictive accuracy may vary according to institutional and national contexts, it is necessary to evaluate its effectiveness within Iraq's unique financial environment. This study seeks to address this research gap by assessing the performance of a modified Altman model in predicting financial distress among Iraqi banks.

Moreover, there is an evident lack of documentation regarding the practical application of theoretical liquidity management concepts within developing financial markets. This implementation gap is particularly significant for Iraqi banks, which must reconcile international regulatory standards with local market realities. Accordingly, the present study addresses multiple research gaps by examining the relationship between liquidity

metrics and financial failure indicators within Iraq's private banking sector. Through quantitative methods focusing on public banking institutions, the study aims to enhance academic understanding of banking stability in emerging markets, offering valuable insights to both scholars and financial practitioners operating within Iraq.

LITERATURE REVIEW

Liquidity

The Concept of Liquidity

Financial institutions successfully address their liquidity needs when they can promptly and affordably access sufficient funds either through the issuance of liabilities or the liquidation of assets. Furthermore, institutions may borrow from investors if they have secured their trust by fulfilling payment obligations punctually. Liquid assets equally play a vital role in meeting potential withdrawal demands. Consequently, three primary strategies to enhance a bank's liquidity are identified: asset sales, obtaining new loans, and issuing new shares (Oino, 2021). The central consideration lies in evaluating the effectiveness and cost associated with each liquidity source, which varies according to market conditions, the institution's strategic orientation, and the broader economic environment. Liquid asset sales depend on the existence of active markets, while the procurement of new loans is contingent upon the availability of credit facilities and competitive interest rates. Issuing new shares, however, requires a receptive market environment. Costs associated with issuing shares vary, as preferred shares generally entail higher expenses, whereas common shares may reduce short-term profitability, impacting shareholder value. As such, issuing new shares and retaining earnings are commonly viewed as long-term strategies for bolstering liquidity and solvency (Blessing & Sakouvogui, 2023).

The body of literature on liquidity and corporate finance suggests that liquidity enhances governance standards, diminishes risk exposure, and reduces the cost of equity financing. Moreover, the relationship between liquidity and asset pricing indicates that liquidity improves market efficiency (Jain & Singla, 2022). Liquidity, in the context of commercial banking, refers to the institution's ability to meet all financial obligations. It cannot be encapsulated by a single ratio or figure. A deficiency in liquidity reflects an inability to meet commitments, thereby serving as a critical indicator of a bank's financial health. Liquidity can therefore be defined as "the ability to meet all payment obligations when due, in full, and in the required currency." It is intrinsically linked to cash flows, and failure to maintain liquidity results in illiquidity (Lavreniuk & Zhuravlev, 2023). Similarly, liquidity is described as "a company's ability to meet its due obligations, whether to external or internal parties" (Hasidi et al., 2024).

Excessive cash holdings, conversely, may impair performance and contribute to cash flow mismanagement (SUN, 2023). Effective liquidity management is pivotal in

shaping the financial performance of banks, underpinning their stability and success (Erinah Mudondo & Eric, 2024). Market liquidity, referring to the ease with which assets are traded without significantly affecting their prices, is notably robust in advanced economies such as the United States and the United Kingdom, where developed financial markets and abundant capital facilitate liquidity (Macchiavelli & Pettit, 2021). Conversely, a lack of liquidity risks undermining public confidence in the banking system. To be effective, liquid assets must be easily marketable, quickly convertible to cash without substantial losses, and redeemable prior to maturity (Ajayi & Lawal, 2021). Several theoretical frameworks concerning liquidity provision emphasise the role of modern financial intermediation in maintaining banking liquidity. These models predominantly focus on the liability side, considering the timing of depositors' withdrawal demands, their right to withdraw funds, and the investment of assets in various projects. This perspective underscores the importance of balancing both assets and liabilities to ensure liquidity, achieved through loan issuance, asset investment, and prioritisation of liquid assets (Berger & Bouwman, 2009).

Regarding off-balance sheet liquidity provision, emerging concepts have focused on instruments such as loan commitments and contingent liquidity demands (Basheer et al., 2021). From a banking standpoint, loan commitments are akin to illiquid loans, obliging institutions to provide funding upon demand. Nevertheless, they also resemble deposit accounts, as customers are entitled to withdraw funds up to a specified limit at any time. The expected income theory further stresses the management of the loan portfolio as a liquidity source, particularly through the handling of long-term loans. These loans ensure a continuous inflow of funds (Alshatti, 2015). Additionally, the theory advocates for the management of investment portfolios via laddering strategies to achieve self-liquidation and meet financial obligations, leveraging earnings and maintaining creditworthiness (Alagbe & Yinus, 2024). Thus, the income generated enables the timely repayment of loans and enhances profitability by deploying funds across diversified investment activities.

Liquidity Measurement

Table 1 outlines the indicators employed to measure liquidity, derived from various studies reviewed by researchers.

Table 1: Studies for Liquidity Measurement using Financial Percentages (Berger & Bouwman, 2009)

Used Indicators	Topic	References
Deposit Growth	Bank Liquidity Impact	An et al. (2022); Acharya and Mora (2015)
Cash to Deposit Ratio	Impact of Unstable Assets (TARP)	Jaatinen (2021); Duchin and Sosyura (2014); Cındık and Armutlulu (2021)

Cash to Assets Ratio	Bank Liquidity and Crisis Resolution	Tran et al. (2024)

Concept of Financial Failure

Financial failure within businesses represents one of the most extensively examined subjects in corporate finance. Recently, empirical approaches aimed at predicting financial failure and bankruptcy have garnered heightened attention from companies, largely attributable to the increasing availability of financial data, which significantly improves the ability to forecast financial distress in organisations. Amendola et al. (2011) asserted that early detection of indicators signalling potential financial failure is vital for ensuring financial stability, safeguarding stakeholders' interests, and protecting the broader economy. Predictive models are instrumental in identifying and mitigating potential risks. Furthermore, effective internal financial management, combined with careful consideration of external economic factors such as price volatility and political stability, plays a crucial role in determining financial health.

A comprehensive understanding of these external influences is essential for adopting an integrated approach to financial risk management (El Bachir et al., 2024). Accordingly, the analysis of historical and current cash flows facilitates the effective forecasting of future cash flows (Badamasi & Gbolagade, 2024). Consequently, the study of corporate bankruptcy prediction continues to attract increasing scholarly attention. Predictive modelling remains a core concern within finance, particularly in emerging economies, where credit risk assumes heightened significance. Credit risk, in this context, refers to the likelihood of default or a decline in market value, often arising from the deterioration of a bank's credit quality. A decline in creditworthiness reflects the debtor's inability to fulfil debt repayment obligations (Almansour, 2015).

Financial failure can stem from multiple causes, including inadequate financial control, excessive debt levels, economic recessions, and insufficient market research. Organisations must maintain financial discipline by frequently assessing their financial health and adapting strategic plans to changing circumstances in order to mitigate bankruptcy risks (Claessens & Kose, 2013). According to ISMAIL (2024) and Yaman and Güzyurdu (2024), businesses facing financial threats encounter operational difficulties, such as cash flow shortages, disruptions to supply chains, and heightened costs, which collectively hinder growth and separate the organisation from its sustainability objectives. Environmental fluctuations, particularly changes in economic cycles between growth, contraction, and recession, can adversely affect the predictive accuracy of failure models, resulting in diminished forecasting capabilities (du Jardin & Séverin, 2012). Financial performance analysis assists both financial and senior management by illuminating critical financial ratios. In particular, seven ratios significantly influence the assessment of financial performance. Taffler (1983) model

highlights that certain ratios substantially impact the model's outcomes and predictive strength (Gurbanzada, 2021).

The progression towards financial failure typically unfolds across several stages. The initial stage, known as the emergence stage, is characterised by the appearance of minor financial issues, which management may either fail to address or inadequately resolve. This negligence often escalates into more severe financial difficulties, such as heightened risks and restricted access to external financing due to elevated leverage levels. Therefore, companies must work to enhance collateral for debt financing through asset-backed guarantees reflected in their balance sheets. Greater asset holdings increase the probability of a company's continued operation, indicating an inverse relationship between collateral levels and the likelihood of financial failure (Wahidin et al., 2021).

Financial flexibility is paramount, allowing companies to adapt to evolving conditions while achieving two primary objectives: firstly, to avert financial failure during periods of crisis, and secondly, to mitigate the adverse effects of underinvestment (Teng et al., 2021). The second stage, financial failure, is marked by a company's loss of control over its expenditures and inefficiency in managing its assets and liabilities (Youssef, 2024). During this phase, the organisation faces insufficient cash flows to meet its obligations and experiences a decline in market value. Financial distress formally begins once a company's cash flows shift from positive to negative (Mpora et al., 2025). The third stage, complete bankruptcy, involves the initiation of legal proceedings resulting from the company's inability to meet its debt obligations. At this critical juncture, the organisation's efforts to secure alternative financing fail, compelling the company to declare bankruptcy, a situation where total liabilities surpass total assets (Das, 2022). The final stage, termed final bankruptcy, is the formal declaration of bankruptcy through court proceedings, accompanied by a petition for asset liquidation (Kulawardena & Nissanka, 2022).

METHODOLOGY

Cash liquidity and the availability of near-cash assets constitute fundamental objectives for financial institutions, particularly banks. This necessity stems from the continuous requirement to maintain adequate cash liquidity levels to fulfil financial obligations as they arise, thereby preventing bankruptcy and anticipating potential financial distress before it materialises. Furthermore, maintaining appropriate liquidity levels facilitates timely decision-making processes, as liquidity directly influences a company's survival and ongoing operations. The study utilises various quantitative analysis techniques, including financial ratios, the arithmetic mean, and multiple linear regression, to process the data and analyse the findings. These methods enable the researchers to examine the relationship between liquidity and financial failure with precision. Additionally, this study contributes to the existing body of literature by offering new

insights into the impact of liquidity on financial failure within private banks in Iraq. The research model is presented as follows:

$$Y = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + E$$

The model for financial failure is expressed as follows:

Y = Financial Failure,
B_0 = Constant Term,
B_1 = Coefficient for Variable X_1,
B_2 = Coefficient for Variable X_2,
B_3 = Coefficient for Variable X_3,
X_1 = Deposit Growth,
X_2 = Cash to Deposits Ratio,
X_3 = Cash to Assets Ratio,
E = Random Error Term Associated with Observations.

Figure 1 presents the conceptual framework model employed in the current study.
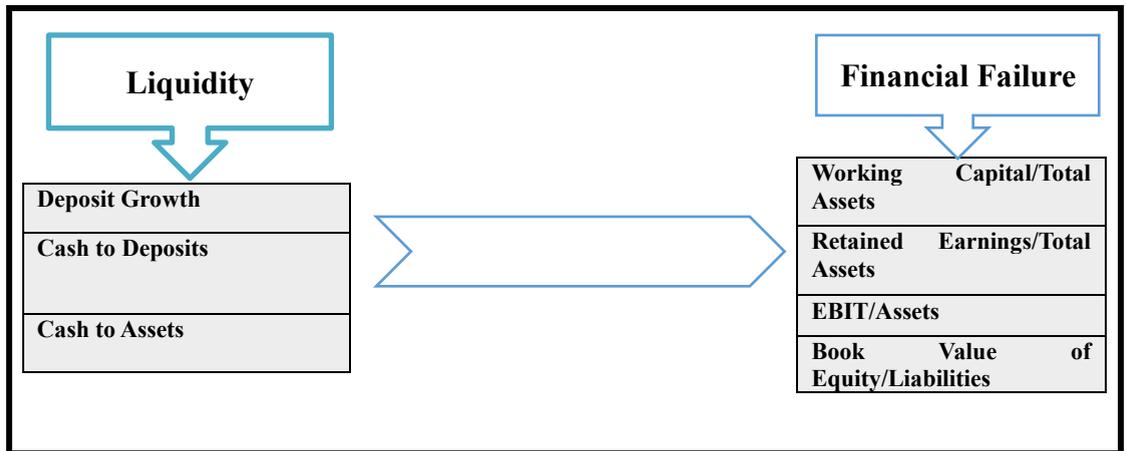

Figure 1: Conceptual Framework Model

Measuring Financial Failure

Global economic challenges have driven the adoption of scientific and pragmatic financial analysis methods that aid in predicting potential risks and assessing a company's financial position. These methods determine whether a company resides within a safe zone or is at risk of financial distress, potentially leading to financial failure or bankruptcy (Hilo & Mkalaf, 2022). Altman's revised model, developed in response to criticism of the original version for its unsuitability for non-industrial companies, offers an updated approach. The modified model excludes X5, which represents the sales-to-total liabilities ratio, as these indicators tend to be excessively large and vary significantly across industries, influenced by asset size (Kumajas, 2022).

The revised analytical model, designed for non-industrial companies, is expressed by the following linear equation:

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Companies are classified into three categories based on the Z-score as follows:

- Safe Zone (Z > 2.60): This indicates that the company is unlikely to face bankruptcy.
- Unsafe Zone (Z < 1.10): This suggests a high probability of bankruptcy in the near future.
- Gray Zone (1.10 < Z < 2.60): This range indicates that the company may be at risk of financial distress, although bankruptcy is not guaranteed (Al-Najjar & Jawad, 2023).

Research Hypothesis

The research hypotheses are formulated based on the conceptual framework model presented in Figure 1, as outlined below:

H1: *Is there an amoral effect of liquidity on working capital/total assets?*
H2: *Is there an amoral effect of liquidity on retained earnings/total assets?*
H3: *Is there an amoral effect of liquidity on EBIT/assets?*
H4: *Is there an amoral effect of liquidity on the book value of equity/liabilities?*

The scope of the current study encompasses five banks in Iraq, which are listed on the stock market, as outlined in Table 2. These banks include the Iraqi Commercial Bank, Shamal Finance, Iraqi Union Bank, Gulf Commercial Bank, and Middle East Bank. Table 3 presents an analysis of the financial status of the selected banks, providing insight into their performance. The primary aim of this study is to offer valuable insights into the relationship between liquidity and financial failure through its various variables. Consequently, the findings hold significant value for investors, policymakers, and other stakeholders with an interest in the performance of the banking sector. Moreover, referring to Table 3, which presents the descriptive statistics of the variables, there is noticeable instability and fluctuation within the research variables. This can be attributed to the significant variations observed between the highest and lowest values, along with the high standard deviation and arithmetic mean.

Table 2: Description of the Iraqi Private Banks

No.	Bank Name	Coded	Established	Registered at the Stock Market	Share Capital/ Billion ID
1	Commercial Bank of Iraq	BCOI	1992	2004	250,000,000,000
2	North Bank	BN	2003	2006	300,000,000,000
3	Gulf Commercial Bank	BGUC	1999	2004	300,000,000,000
4	Union Bank of Iraq	BUOI	2004	2006	252,000,000,000

5	Iraqi Middle East Investment Bank	BIME	1993	2004	250,000,000,000

Table 3: Descriptive Statistics of the Variables (Annual Reports and Publish Financial Accounts of the Respective Commercial Banks. All the Monetary Values are Millions ID)

Variables	Mean	S.D	MIN	Max
Deposit Growth	0.2676	0.56628	0	3.51
Cash to Deposits	0.3532	0.17310	0.04	0.59
Cash to Assets	3.5574	4.64006	0.25	24.26
Working Capital/Total Assets	0.8742	0.12334	0.48	1
Retained Earnings/Total Assets	0.0246	0.02612	0	0.10
EBIT/Assets	0.0196	0.02157	0	0.09
Book Value of Equity/Liabilities	0.9412	0.55395	0.21	2.37

RESULTS AND DISCUSSION

As illustrated in Model 1, the first main hypothesis was evaluated using ANOVA analysis. The results of this analysis, conducted through the assessment of correlation relationships, reveal a correlation coefficient of 0.224. Furthermore, the F-value was calculated to be 2.533, with a significance level of 0.118. These findings suggest a weak, statistically significant relationship between the independent and dependent variables, leading to the rejection of the hypothesis. ANOVA serves as the method for assessing the secondary hypothesis, as shown in Model 2. The results for the second primary hypothesis are presented through correlation relationships, with a correlation coefficient of 0.216, an F-value of 2.344, and a significance level of 0.132, as indicated in Tables 4 and Table 5. These findings suggest a weak yet statistically significant correlation, which leads to the rejection of the hypothesis.

Table 4: Model Summary: Effect of Liquidity on Financial Ratios

Model	Dependent Variable	R	R²	Adjusted R²	Sig. F Change
1	Working Capital / Total Assets	0.224	0.050	0.030	0.118
2	Retained Earnings / Total Assets	0.216	0.047	0.027	0.132
3	EBIT / Total Assets	0.188	0.035	0.015	0.192
4	Book Value of Equity / Liabilities	0.329	0.108	0.090	0.020*

The analysis presented in Model 3 evaluates the third research hypothesis using ANOVA. This hypothesis is examined through correlation relationships, as shown in Model 3, with the correlation coefficient calculated as 0.188, an F-value of 1.752, and a significance level of 0.192. These results suggest a weak but potentially significant relationship, leading to the rejection of the hypothesis. Similarly, ANOVA analysis is used to assess the fourth hypothesis in Model 4. The evaluation of this hypothesis is based on correlation relationships, employing the correlation coefficient as outlined in

Model 4. The correlation coefficient is 0.329, the F-value is 5.825, and the significance level is 0.020, as shown in Table 5. The strong relationship between the independent and dependent variables leads to the acceptance of the hypothesis.

Table 5: ANOVA Summary: Effect of Liquidity on Financial Ratios

Model	Dependent Variable	Regression SS	Residual SS	Total SS	df Regression	df Residual	F	Sig.
1	**Working Capital / Total Assets**	0.037	0.708	0.745	1	48	2.533	0.118
2	**Retained Earnings / Total Assets**	0.002	0.032	0.033	1	48	2.344	0.132
3	**EBIT / Total Assets**	0.001	0.022	0.023	1	48	1.752	0.192
4	**Book Value of Equity / Liabilities**	1.627	13.409	15.036	1	48	5.825	0.020*

Referring to the results and accompanying discussions, it can be concluded that the Iraqi Commercial Bank ranked first in terms of performance, followed by Gulf Commercial Bank in second place. This highlights the importance for the sampled banks to regularly analyse their financial indicators, as they offer a comprehensive overview of a bank's performance relative to others in the market. By identifying strengths to enhance and weaknesses to address, banks can implement corrective measures to improve their performance. Additionally, North Bank for Finance and Investment recorded the lowest performance levels among the sample banks. This signals the need for the bank to identify its shortcomings and adopt a new strategy to improve its performance. The research further emphasized the importance of balancing long-term investments with short-term investments for all the banks in the sample.

CONCLUSION

The present study sought to investigate the relationship between liquidity (independent variable) and financial failure (dependent variable) in five banks listed on the Iraq Stock Exchange: Iraqi Commercial Bank, North Bank for Finance, Union Bank of Iraq, Gulf Commercial Bank, and Middle East Bank. The methodology involved examining financial indicators derived from the research question regarding liquidity's impact on financial failure. Four hypotheses were formulated to explore this relationship, and statistical tests were conducted using SPSS software. The findings revealed that the liability-to-asset ratio showed stability for the banks from 2011 to 2020, while varying deposit levels highlighted the need for continuous analysis of financial indicators to better understand each bank's market position and identify areas for improvement. The analysis also showed fluctuations and instability in the research variables, particularly

in the growth of deposits, the cash-to-deposit ratio, and the cash-to-assets ratio for the sample banks. The statistical analysis suggested that the banks experienced similar fluctuations and instability concerning financial failure.

Due to the weak relationships observed in the hypothesis tests, the first three main hypotheses were rejected, while the fourth hypothesis was accepted. Furthermore, the study found variable levels of deposits, which are crucial for the banks' survival and continued market presence. The study emphasised the significance of monitoring financial indicators and encouraged companies to adopt these indicators as they offer vital information for improving banks' decision-making processes. It also highlighted the importance of raising awareness among banks and stakeholders about the value of financial failure prediction models in assessing a company's financial health early, preventing financial failure, and facilitating timely corrective actions.

REFERENCES

Abor, J. Y., Mensah, S., Kusi, B. A., & Mathuva, D. (2022). Explaining Banking Failures in Africa. In J. Y. Abor & C. K. D. Adjasi (Eds.), *The Economics of Banking and Finance in Africa: Developments in Africa's Financial Systems* (pp. 455-490). Springer International Publishing. https://doi.org/10.1007/978-3-031-04162-4_14

Acharya, V. V., & Mora, N. (2015). A crisis of banks as liquidity providers. *The journal of Finance*, *70*(1), 1-43. https://doi.org/10.1111/jofi.12182

Adeniyi, O. (2021). *The Effect Of Profitability On The Liquidity Of Commercial Banks In Nigeria.* https://docs.neu.edu.tr/library/8518960659.pdf

Ajayi, J. A., & Lawal, Q. A. (2021). Effect of liquidity management on banks profitability. *Business & Management Compass*(2), 220-237. https://ideas.repec.org/a/vrn/journl/y2021i2p220-237.html

Al-Najjar, S. M., & Jawad, M. K. (2023). Application of Z–Score and Z-3 Score Models to Evaluate the Financial Situation of the Modern Sewing Company: A Case Study. *International Journal for Humanities & Social Sciences (IJHS)*(2), 46-57. https://doi.org/10.69792/IJHS.23.2.6

Alagbe, E., & Yinus, S. (2024). Impact of Liquidity Management on the Profitability of Nigeria Listed Deposit Money Banks. *Journal of Accounting, Finance, and Contemporary Management Research*, *1*(1). https://jafacomar.lautech.edu.ng/index.php/jafacomar/article/view/3

Almansour, B. Y. (2015). Empirical model for predicting financial failure. *American journal of economics, finance and management*, *1*(3), 113-124. https://www.researchgate.net/publication/331166366

Alshatti, A. S. (2015). The effect of the liquidity management on profitability in the Jordanian commercial banks. *International journal of business and management*, *10*(1), 62. https://doi.org/10.5539/ijbm.v10n1p62

Amendola, A., Bisogno, M., Restaino, M., & Sensini, L. (2011). Forecasting corporate bankruptcy: empirical evidence on Italian data. *EuroMed Journal of Business*, *6*(3), 294-312. https://doi.org/10.1108/14502191111170132

An, H., Wang, H., Delpachitra, S., Cottrell, S., & Yu, X. (2022). Early warning system for risk of external liquidity shock in BRICS countries. *Emerging Markets Review*, *51*, 100878. https://doi.org/10.1016/j.ememar.2021.100878

Badamasi, M., & Gbolagade, L. O. (2024). Financial Management Practices and Performance of Small and Medium Enterprises in Katsina State, Nigeria. *FUGUS Journal of Public Administration and Management*, *3*(1), 148-166. http://www.doi.org/10.36349/fujpam.2024.v3i01.013

Basheer, M. F., Waemustafa, W., Hidthiir, M. H. B., & Hassan, S. G. (2021). Explaining the endogeneity between the credit risk, liquidity risk, and off-balance sheet activities in commercial banks: a case of South Asian economies. *International Journal of Monetary Economics and Finance*, *14*(2), 166-187. https://doi.org/10.1504/IJMEF.2021.114032

Bechtel, A., Ranaldo, A., & Wrampelmeyer, J. (2023). Liquidity risk and funding cost. *Review of Finance*, *27*(2), 399-422. https://doi.org/10.1093/rof/rfac020

Berger, A. N., & Bouwman, C. H. (2009). Bank liquidity creation. *The review of financial studies*, *22*(9), 3779-3837. https://doi.org/10.1093/rfs/hhn104

Berger, A. N., Li, X., Morris, C. S., & Roman, R. A. (2021). The Effects of Cultural Values on Bank Failures around the World. *Journal of Financial and Quantitative Analysis*, *56*(3), 945-993. https://doi.org/10.1017/S0022109020000150

Blessing, H., & Sakouvogui, G. (2023). Impact of liquidity and solvency ratios on financial performance: a comprehensive analysis. *Indonesia Auditing Research Journal*, *12*(3), 102-115. https://doi.org/10.35335/arj.v12i3.208

Bulot, N., Salamudin, N., Abdoh, W. M. Y. M., Yusuf, N. H. M., & Mutallib, H. A. (2016). Indirect Financial Distress Costs: Evidence from Trading and Services Sector. Proceedings of the 1st AAGBS International Conference on Business Management 2014 (AiCoBM 2014), Singapore. https://doi.org/10.1007/978-981-287-426-9_49

Challoumis, C., & Eriotis, N. (2024). The historical view of banking system in greece during the financial crisis. *Journal of Ecohumanism*, *3*(8), 991–1011. https://doi.org/10.62754/joe.v3i8.4776

Choudhry, M. (2022). *The principles of banking*. John Wiley & Sons. https://books.google.com.pk/books?id=77GAEAAAQBAJ&dq=Choudhry,+M.+(2022)

Cındık, Z., & Armutlulu, I. H. (2021). A revision of Altman Z-Score model and a comparative analysis of Turkish companies' financial distress prediction. *National Accounting Review*, *3*(2), 237-255. https://doi.org/10.3934/NAR.2021012

Claessens, M. S., & Kose, M. A. (2013). Financial crises explanations, types, and implications. http://dx.doi.org/10.2139/ssrn.2295201

Das, D. (2022). Assessing financial distress and its association with leverage, liquidity and profitability: Evidence from textile industry of Bangladesh. *International Journal of Research and Review*, *9*(11), 451-462. https://doi.org/10.52403/ijrr.20221161

du Jardin, P., & Séverin, E. (2012). Forecasting financial failure using a Kohonen map: A comparative study to improve model stability over time. *European Journal of Operational Research*, *221*(2), 378-396. https://doi.org/10.1016/j.ejor.2012.04.006

Duchin, R., & Sosyura, D. (2014). Safer ratios, riskier portfolios: Banks′ response to government aid. *Journal of Financial Economics*, *113*(1), 1-28. https://doi.org/10.1016/j.jfineco.2014.03.005

El Bachir, M. M., Mili, K., Bengana, I., & Benaouali, I. (2024). Predicting Financial Failure in Algerian Public Insurance Companies Using the Kida Model. *Journal of Applied Data Sciences*, *5*(2), 508-519. https://doi.org/10.47738/jads.v5i2.212

Erinah Mudondo, D. M. E., & Eric, M. (2024). The effect of liquidity risk on the financial performance of banking institutions in Kampala Metropolitan. http://ijeais.org/wp-content/uploads/2024/5/abs/IJAMR240521.html

Gurbanzada, E. (2021). Financial performance evaluation and bankruptcy prediction. *Economic and Social Development: Book of Proceedings*, 993-1000. http://dx.doi.org/10.1016/j.aebj.2014.05.010

Hasidi, M. H., Baheri, J., & Hajar, K. I. (2024). Financial performance evaluation using profitability and liquidity ratio analysis. https://doi.org/10.37641/jimkes.v12i4.2742

Hilo, S., & Mkalaf, K. (2022). Bankruptcy prediction: evidence-based experiences in the banks. Proceedings of 2nd International Multi-Disciplinary Conference Theme: Integrated Sciences and Technologies, http://dx.doi.org/10.4108/eai.7-9-2021.2314783

Ismail, M. A. K. M. (2024). Enterprise Bank Relationship: Islamic Finance And The Financial Failure Of Companies In Mauritania. https://doi.org/10.47832/2717-8293.28.12

Jaatinen, L. (2021). Intelligent financial distress prediction: recent contributions and their response to the problems of classic prediction methodologies. https://urn.fi/URN:NBN:fi-fe2021111855878

Jain, M., & Singla, R. (2022). Role of leverage and liquidity risk in asset pricing: evidence from Indian stock market. *Vilakshan - XIMB Journal of Management*, *19*(2), 128-141. https://doi.org/10.1108/XJM-08-2020-0088

Kulawardena, L., & Nissanka, K. (2022). Future of Microfinance Institutions in Sri Lanka; Prediction of Financial Distress Using Altman's Z-Score. *22*(12), 27-39. https://doi.org/10.9734/AJEBA/2022/v22i1230610

Kumajas, L. I. (2022). Financial distress perusahaan transportasi di Indonesia sebelum dan saat pandemi COVID-19. *Jurnal Informasi, Perpajakan, Akuntansi, Dan Keuangan Publik*, *17*(1), 19-38. https://doi.org/10.25105/jipak.v17i1.8698

Lavreniuk, V., & Zhuravlev, O. (2023). Bank Liquidity Management at the Macro and Micro Levels. *Problemy Ekonomiky*(2), 213-223. https://doi.org/10.32983/2222-0712-2023-2-213-223

Li, Q. (2019). The impact of liquidity risk of commercial banks on systematic risk of banking industry: study of 16 listed commercial banks. *Modern Economy*, *10*(3), 645-665. https://doi.org/10.4236/me.2019.103044

Lysiak, L., Masiuk, I., Chynchyk, A., Yudina, O., Olshanskiy, O., & Shevchenko, V. (2022). Banking Risks in the Asset and Liability Management System. *Journal of Risk and Financial Management*, *15*(6), 265. https://doi.org/10.3390/jrfm15060265

Macchiavelli, M., & Pettit, L. (2021). Liquidity Regulation and Financial Intermediaries. *Journal of Financial and Quantitative Analysis*, *56*(6), 2237-2271. https://doi.org/10.1017/S0022109020000654

Malala, J. (2022). Deposit Protection Schemes in Effective Bank Resolution Regimes: Kenya's Experience. In *Bank Insolvency Law in Developing Economies* (pp. 99-123). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003173984-6

Mkalaf, K. A., & Hilo, S. H. (2023). Using the Tobin Q model to evaluate the impact of credit risks on the bank's market value during the corona pandemic. *Journal of Islamic Accounting and Business Research*, *14*(6), 973-988. https://doi.org/10.1108/JIABR-08-2022-0201

Mpora, E. B., Katabaazi-Bwengye, A., Atukunda, E., & Dan, N. R. (2025). The effects of financial distress on financial performance: An empirical analysis of SMEs in Sheema, Buhweju, Rubirizi, and Bushenyi districts. https://doi.org/10.5897/AJBM2024.9587

Oino, I. (2021). Bank solvency: The role of credit and liquidity risks, regulatory capital and economic stability. *Banks and Bank Systems*, *16*(4), 84-100. https://doi.org/10.21511/bbs.16(4).2021.08

Owusu, F. B., & Alhassan, A. L. (2021). Asset-Liability Management and bank profitability: Statistical cost accounting analysis from an emerging market. *International Journal of Finance & Economics*, *26*(1), 1488-1502. https://doi.org/10.1002/ijfe.1860

SUN, S. (2023). Financial Flexibility and Investment Efficiency: Based on the Empirical Data of Listed Companies in the New Generation of Information Technology Industry. *Pacific International Journal*, *6*(1), 98-103. https://doi.org/10.55014/pij.v6i1.316

Taffler, R. J. (1983). The Assessment of Company Solvency and Performance Using a Statistical Model. *Accounting and Business Research*, *13*(52), 295-308. https://doi.org/10.1080/00014788.1983.9729767

Teng, X., Chang, B.-G., & Wu, K.-S. (2021). The Role of Financial Flexibility on Enterprise Sustainable Development during the COVID-19 Crisis—A Consideration of Tangible Assets. *Sustainability*, *13*(3), 1245. https://doi.org/10.3390/su13031245

Tran, D. V., Hussain, N., Nguyen, D. K., & Nguyen, T. D. (2024). How do depositors respond to banks' discretionary behaviors? Evidence from market discipline, deposit insurance, and scale effects. *International Review of Financial Analysis*, *93*, 103205. https://doi.org/10.1016/j.irfa.2024.103205

Wahidin, D., Akimov, A., & Roca, E. (2021). The impact of bond market development on economic growth before and after the global financial crisis: Evidence from developed and developing countries. *International Review of Financial Analysis*, *77*, 101865. https://doi.org/10.1016/j.irfa.2021.101865

Yaman, S., & Güzyurdu, F. (2024). Exploring the Impacts of Financial Failure Risk on Sustainable Growth Policies: Evidence from the BIST Sustainability Index Companies [Finansal Başarısızlık Riskinin Sürdürülebilir Büyüme Politikaları Üzerindeki Etkileri: BIST Sürdürülebilirlik Endeksi Şirketlerinden Kanıtlar]. *Ekonomi Politika ve Finans Araştırmaları Dergisi*, *9*(2), 230-253. https://doi.org/10.30784/epfad.1431693

Youssef, M. E. M. M. (2024). *Predicting Bankruptcy And Financial Failure In the Egyptian listed companies: The Importance Of Cash Flow Statements* UNS (Sebelas Maret University)]. https://digilib.uns.ac.id/dokumen/detail/120255/