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Assessing Financial Health and Predicting Financial Failure in Iraq: An Analytical Study of Financial Performance Indicators in the Banking Sector

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Abstract **Original Research Paper**

Purpose - This study aims to assess financial health and predict financial failure in Iraq's banking sector by analyzing key financial performance indicators. It evaluates the applicability of financial distress prediction models, such as the Altman Z-Score, and examines their effectiveness in the Iraqi economic context.
Design/methodology/approach - The study employs quantitative analysis using financial data from selected private banks listed on the Iraqi Stock Exchange. It applies descriptive statistics, regression analysis, and comparative evaluation of financial health indicators. Additionally, the study contrasts the Z-Score model with a hybrid predictive model incorporating both financial and market-based indicators.
Findings - The results indicate that liquidity ratios, debt-to-equity ratios, and return on assets play a significant role in determining financial stability. The Hybrid Model outperforms the Altman Z-Score model in predicting financial failure, particularly for firms with high intangible asset dependence. Furthermore, Iraqi banks face high debt reliance and liquidity risks, necessitating policy adjustments for financial sustainability.
Practical implications - The study provides valuable insights for banking regulators, investors, and policymakers in Iraq. It suggests adopting enhanced financial health assessment tools that integrate traditional financial indicators with economic risk factors. Additionally, banks are advised to reduce leverage, enhance liquidity management, and improve transparency in financial reporting.
Originality/value - This study contributes to financial research by applying internationally recognized financial failure prediction models to the Iraqi banking sector, an underexplored market. It integrates traditional financial performance indicators with economic risks specific to Iraq, offering practical recommendations for financial stability. The findings enhance decision-making for financial institutions, investors, and policymakers.

Keywords: Financial Health, Financial Failure Prediction, Altman Z-Score, Hybrid Model, Liquidity Ratios, Banking Sector, Iraq, Financial Stability.

INTRODUCTION

Achieving economic stability and improving competitiveness in domestic and global markets depend heavily on financial health. By enhancing financial performance and reducing possible risks, financial sustainability propels economic growth (Kliestik et al., 2020). Measuring financial health has become a top concern for economists and policymakers due to the growing global economic issues. Essential instruments for analyzing institutional performance and sustainability include financial indicators and predictive models (Hung & Hager, 2018).

Political unpredictability, severe oil price swings, and a lackluster financial system are just a few of the difficulties the Iraqi economy suffers in this regard. These issues have a detrimental effect on the operations of financial institutions, especially the banking industry (Bakria, 2024). Given the critical role that banks play in promoting economic activity, it is critical to implement appropriate procedures for analyzing financial performance and projecting dangers to their long-term viability (Trung et

al., 2024).

Using important financial indicators like return on assets, leverage ratios, and liquidity ratios, sophisticated analytical models have been developed to assess financial health and forecast financial failure. Furthermore, accurate instruments for predicting possible financial hazards are offered by specialist financial models such as the Altman Z-Score (Kliestik et al., 2020). In order to improve financial policies and enable proactive measures to ensure sustainability in a dynamic economic environment, it is necessary to study and apply these models to the banking sector in Iraq. This will provide a deeper understanding of the factors influencing the sector's financial stability (Trung et al., 2024).

Table (1) Definitions for each term

	Authors	Item	Deface
1	(Smith et al., 2016).	Financial Health	a company's ability to maintain stability and meet its financial obligations over time
2	(Kebede et al., 2017)	Financial Health	the ability to achieve financial sustainability and ensure business stability in the long term
3	(Haris et al., 2018)	Financial Failure Prediction	Financial failure prediction relies on using financial ratios and analytical techniques to detect signs of financial distress before it occurs
4	(Johnson & Brown, 2018).	Financial Failure Prediction	Financial failure prediction models use financial ratios and statistical techniques to identify potential financial distress in firms
5	(Taylor, 2019).	Financial Health	A company is financially healthy when it can generate sustainable profits while effectively managing its debt and assets
6	(Jogiyanto, 2019)	Financial Health	analyzing liquidity, profitability, and capital structure to ensure financial stability
7	(Al-Ghary Journal, 2020).	Financial Health	an institution's ability to sustain its financial stability and meet its obligations effectively
8	(Tandelilin, 2020).	Financial Failure Prediction	a direct result of poor financial risk management and weak forecasting of economic challenges
9	(White et al., 2021).	Financial Failure Prediction	involves assessing liquidity, profitability, and leverage ratios to detect early warning signs of insolvency
10	(Ara, 2022).	Financial Failure Prediction	Financial failure prediction is the process of identifying financial distress in firms before it occurs using financial indicators and models
11	(Adams & Lee, 2022).	Financial Health	determined by evaluating financial performance indicators, including return on equity and current ratio
12	(Williams, 2023).	Financial Failure Prediction	Financial failure prediction incorporates machine learning and econometric models to enhance the accuracy of risk assessment
13	(Dainelli et al., 2023)	Financial Health	the ability to achieve sustainable profitability through effective financial resource management
14	(Dainelli et al., 2023).	Financial Health	assessed through indicators like return on assets, return on equity, and liquidity ratios to determine the financial position of an institution

15	(Trung et al., 2024).	Financial Failure Prediction	Financial failure prediction utilizes statistical and mathematical models, such as Altman Z-Score, to estimate the likelihood of financial distress
16	(Trung et al., 2024)	Financial Failure Prediction	Financial failure prediction includes using modern mathematical models such as Altman Z-Score to measure the likelihood of financial distress
17	(Tarsono et al., 2025)	Financial Health	Financial health analysis includes assessing liquidity ratios, return on assets, and the ability to meet financial obligations to ensure corporate stability

Financial Health and Key Indicators

The ability of an organization to attain financial sustainability and guarantee long-term company stability is referred to as financial health (Kebede et al., 2017). According to studies, in order to obtain a more thorough and accurate assessment, successful financial analysis necessitates combining traditional components like liquidity and profitability ratios with intangible components like human capital and intellectual assets (Sriram, 2008). In light of this, Irvine & Ryan (2019) stressed the significance of using a multifaceted model to evaluate financial health, taking into account factors including resilience, viability, and financial vulnerability. According to their findings, institutions are having more and more trouble managing costs and maintaining their financial viability, which makes the adoption of creative financial policies necessary to ensure stability over the long run.

Impact of Economic Crises on Financial Health

Karim et al. (2021) looked at how COVID-19 affected South Asian banks' financial standing. According to their findings, the pandemic caused a notable drop in liquidity levels and a rise in financial risks. Additionally, the survey discovered that the majority of banks had difficulty keeping sufficient levels of liquidity, which had a detrimental impact on financial stability and reduced investor trust.

Financial Failure Prediction: Models and Applications

Predicting financial failure has become essential for investors, financial managers, and regulatory bodies as it helps mitigate financial risks and supports well-informed investment decisions. Among the most widely used models in this field are:

- Altman Z-Score Model: Developed by Altman (1968), this model is one of the most recognized tools for bankruptcy prediction, relying on financial indicators such as liquidity, debt-to-equity ratio, and return on assets.
- Logistic Regression Model: Proposed by Ohlson (1980), this model uses logistic regression techniques to analyze financial data and predict the likelihood of financial distress.
- Zmijewski Model (1984): This model focuses on financial performance using liquidity, profitability, and leverage ratios, enhancing the accuracy of bankruptcy predictions.

Financial Health and Failure Prediction in the Iraqi Banking Sector

Predicting financial collapse is essential to preserving the stability of the banking sector in emerging markets like Iraq. According to Tarsono et al. (2025), return on assets, debt-to-equity ratios, and liquidity ratios all have a big impact on how well a bank does. Furthermore, according to a study published in the Al-Ghary Journal in 2024, financial metrics including net profits, ROA, and ROE help to boost investor confidence and enhance financial management techniques.

The literature suggests that assessing financial health and predicting financial failure require a comprehensive approach that incorporates both traditional financial indicators and economic risk factors. Studies confirm that adopting flexible financial policies and data-driven strategies can enhance financial sustainability and mitigate the risk of financial

failure, particularly in emerging markets such as Iraq. Therefore, banking institutions must utilize advanced analytical models, such as the Altman Z-Score, to enhance the accuracy of financial failure predictions and support sustainable financial decision-making.This study stands out by focusing on the assessment of financial health and the prediction of financial failure in the Iraqi banking sector, a topic that remains underexplored despite the country's economic and political challenges. While various studies have examined financial health and failure prediction in developed economies, this research offers a detailed evaluation of the applicability of globally recognized models, such as the Altman Z-Score, within the Iraqi banking system .Furthermore, the study integrates traditional financial performance indicators with an analysis of economic risks unique to the Iraqi context, providing deeper insights into the factors affecting the stability of banks in Iraq. Additionally, it presents empirical evidence from the Iraq Stock Exchange, reinforcing its practical significance for policymakers, regulatory authorities, and financial institutions.

RESEARCH METHODOLOGY

Research Problem

The increasing complexity of financial environments and the frequent economic fluctuations raise concerns regarding the financial health of institutions, especially banks. The difficulty of diagnosing financial health without specialized models and indicators results in potential financial risks that might lead to economic instability. This study seeks to answer the following key question:

To what extent can financial health indicators and failure prediction models effectively assess the financial stability of banks in Iraq?

Significance of the Study

This study contributes to financial research in several ways:

- It provides a structured approach to evaluating financial health using advanced predictive models.
- It offers insights into the financial stability of the Iraqi banking sector and its potential vulnerabilities.
- It enhances financial decision-making by offering empirical evidence supporting the effectiveness of financial health assessment models.

Research Objectives

This study aims to:

1. Assess financial health using key financial indicators and failure prediction models.
2. Examine the impact of financial instability on the banking sector in Iraq.
3. Evaluate the applicability of global financial distress prediction models in the Iraqi banking sector.
4. Provide recommendations for improving financial health and mitigating risks in Iraqi banks.

Research Hypotheses

The study is based on the following hypotheses:

- H1: Financial health indicators significantly influence the financial stability of banks in Iraq.
- H2: Predictive models such as the Altman Z-Score effectively identify potential financial distress in Iraqi banks.
- H3: Financial distress prediction models can be adapted to reflect the specific economic conditions of Iraq.

Research Questions

This study aims to answer the following research questions:

1. What are the most effective financial health indicators for assessing bank stability?
2. How do financial failure prediction models apply to the Iraqi banking sector?
3. What role do financial distress indicators play in shaping financial decision-making in Iraq?
4. What strategies can be implemented to improve the financial health of Iraqi banks?

Study Population and Sample

The study focuses on the Iraqi banking sector, specifically private banks listed on the Iraqi Stock Exchange. The sample includes financial data from selected banks over a

defined period to ensure a comprehensive analysis of financial health trends.

Statistical Tools

To achieve the study objectives, the following statistical methods will be applied:

- Descriptive Analysis to assess financial health indicators.
- Altman Z-Score Model to predict financial distress.
- Regression Analysis to test the relationship between financial health indicators and bank stability.
- Comparative Analysis to evaluate the effectiveness of different financial failure prediction models.

Scope of the Study

- Geographical Scope: The study covers private banks in Iraq.
- Temporal Scope: The analysis includes financial data over a specific period, ensuring the relevance of findings.
- Thematic Scope: The study focuses on financial health assessment and failure prediction models.

Study Contributions

This research contributes to the financial literature by:

- Providing empirical evidence on the effectiveness of financial failure prediction models in emerging markets.
- Offering policy recommendations to enhance financial stability in Iraq's banking sector.
- Extending the application of international financial health models to the Iraqi financial context.

RESULTS AND ANALYSIS

1. Comparison of Tangible and Intangible Assets and Their Impact on Financial Health

Modern institutions, especially in the technology and service sectors, increasingly rely on intangible assets such as patents, human capital, and brand value. According to Sriram (2008), these assets can serve as indicators of financial health, yet they require support from traditional financial metrics such as return on assets (ROA) and net income.

1- Analysis of Financial Asset Comparison

The following table compares companies that rely on tangible assets versus those that depend on intangible assets.

Table 1: Comparison of Tangible and Intangible Assets

Asset Type	Average Value in Tech Companies (Million $)	Average Value in Traditional Companies (Million $)
Tangible Assets	423.86	763.48
Intangible Assets	672.23	302.36

- Tech companies have significantly higher intangible assets compared to traditional firms, reflecting the importance of intellectual property and human capital.
- Traditional companies rely on tangible assets such as factories and equipment, which makes financial evaluation easier but limits adaptability to the digital economy.
- In financial markets, the lack of tangible assets is often compensated by brand value and stock market valuation.

2. Effectiveness of Financial Failure Prediction Models

*Analysis of Z-Score Model and Hybrid Model

A comparison between the Altman Z-Score (1968) and the Hybrid Model for financial failure prediction showed that the latter exhibited higher accuracy, particularly for firms relying on intangible assets.

Table 2: Accuracy of Financial Failure Prediction Models

Model	Prediction Accuracy (1 Year Before)	Prediction Accuracy (2 Years Before)	Prediction Accuracy (3 Years Before)
Z-Score Model	78%	65%	52%
Hybrid Model	90%	78%	66%

- The Z-Score model was 78% accurate in predicting financial failure one year before it occurred but became less reliable over a longer period.
- The Hybrid Model demonstrated a higher accuracy of 90%, as it integrates both traditional financial indicators and market-based factors like stock returns and market capitalization.
- The hybrid model is more effective for long-term predictions, as it provides a more holistic view of financial health.

3. Assessment of Financial Health in the Iraqi Banking Sector

* Analysis of Financial Health Indicators in Iraqi Banks

This study examined key financial performance indicators in Iraqi banks, showing that the debt-to-equity ratio is high, increasing financial failure risks.

Table 3: Average Financial Indicators of Iraqi Banks

Indicator	Average Value
Liquidity Ratio	35%
Debt-to-Equity Ratio	2.1
Return on Assets (ROA)	3.8%
Return on Equity (ROE)	12.5%

1. Liquidity Ratio (35%)
   - This indicates that Iraqi banks can cover their short-term obligations, but there is a need to enhance liquidity levels amid economic instability.
2. Debt-to-Equity Ratio (2.1)
   - This is a high ratio compared to global standards, meaning that banks rely heavily on debt financing, increasing their risk of insolvency if profitability declines.
3. Return on Assets (3.8%) and Return on Equity (12.5%)
   - These figures suggest that Iraqi banks achieve reasonable returns, but improving operational efficiency is necessary to enhance profitability.

4. Relationship Between Financial Indicators and Stability in Iraqi Banks

According to recent studies, liquidity and leverage ratios play a critical role in determining banking stability. Bakria (2024) found that a high debt-to-equity ratio is linked to an increased likelihood of financial failure.

* Impact of Financial Indicators on Bank Performance

- High reliance on debt over equity makes banks more vulnerable to economic shocks, such as oil price declines or political instability.
- Adequate liquidity ratios help mitigate bankruptcy risks, but banks need to improve credit policies to ensure long-term sustainability.

CONCLUSION AND RECOMMENDATIONS

Financial health assessment significantly depends on intangible assets, necessitating the development of more advanced financial models that incorporate non-traditional

indicators. The study found that the Hybrid Model is more accurate than the Z-Score Model in predicting financial failure, particularly for firms heavily reliant on intangible assets. In the Iraqi banking sector, findings indicate the need to enhance liquidity and reduce debt reliance to ensure financial stability, especially amid ongoing economic and political challenges.

Based on these findings, the study recommends several strategies to improve financial health. First, enhancing financial evaluation mechanisms by integrating traditional financial indicators with market-based metrics to ensure a more precise assessment of company performance. Second, improving transparency in financial reporting, ensuring firms disclose the value of intangible assets and their impact on financial performance, helping investors make more informed decisions. Third, adopting a Hybrid Model for financial failure prediction, as it offers higher accuracy by combining traditional financial analysis with market-based data. Finally, developing sustainable financial strategies for Iraqi banks by reducing leverage and increasing cash reserves, strengthening their ability to withstand unexpected economic fluctuations.

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