

Impact of Banking Service Quality, Credit Risk, and Regulatory Regime on Financial Stability: Evidence from Iraqi Commercial Banks



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This research seeks to examine the relationship between the quality of banking services, as perceived by banks, and its impact on enhancing the financial stability of banks, with quality being a key competitive factor in the contemporary banking sector, reflecting precision, speed, and efficacy of service delivery. The central research question is: "Does the quality of banking services contribute to enhancing financial stability?" The study primarily focuses on quantifying the independent variable—quality of banking services. The sample included 23 commercial banks, both private and Islamic, listed on the Iraq Stock Exchange for 2023, with data sourced from the official website of the exchange. Hypotheses regarding the correlation and causal relationship between the research variables were tested using statistical and financial methods via the SPSS program. Additionally, a questionnaire was distributed, and responses from 356 participants were analysed using Covariance-Based Structural Equation Modelling (CB-SEM). The results indicated that credit risk analysis and the regulatory regime positively contribute to the financial stability of banks in Iraq, while the supply of credit risk did not exhibit a significant relationship with financial stability. The study concludes that the quality of banking services significantly impacts financial stability and recommends that regulatory authorities focus on enhancing both the quality of banking services and credit risk analysis to improve financial stability in Iraqi banks. The study also identifies several limitations.

Keywords: Quality of Banking Service, Quality of Credit Assets, Quality of Performance and Credit Risk Management, Financial Stability.

Introduction

The banking sector plays a pivotal role in a country's economy, serving as the strategic engine of progress and the primary financier of all economic activities that drive development. In the context of globalisation, the widespread adoption of financial and banking technologies, and increasing competition between institutions, the sector has

witnessed intensified rivalry in the provision of banking services. This competition is largely attributed to advancements in banking technology, with many institutions striving to move away from traditional, stereotypical services. To meet these challenges, banks have sought ways to enhance the quality of their services, recognising that such improvements foster customer trust and satisfaction, both for current and prospective clients. The quality of banking services has thus become a cornerstone for maintaining market share, ensuring appropriate profit levels, and withstanding competition. Furthermore, it serves as a protective buffer against unforeseen future shocks and risks, contributing to the overall financial stability of banks and facilitating the creation of an Iraqi banking system capable of competing with globally established banks offering high-quality services.

In addition, credit risk analysis has garnered significant attention from researchers, policymakers, and industry experts, particularly within the banking sector. Credit risk refers to the potential loss a bank may face if a borrower fails to repay or experiences deteriorating financial conditions (Lemos et al., 2022). This risk is twofold: ex-ante risk-taking incentives, which involve decision-making prior to the granting of credit, and ex-post risk-taking behaviour, which relates to actions taken after credit is issued. Credit risk analysis is recognised as a key component of risk management, with long-term implications for banking institutions (Abiola, 2023; Kithinji, 2010). Over the past two decades, the concept of credit risk measurement has evolved significantly due to several critical factors, including: (i) a global rise in bankruptcy rates, (ii) the increasing tendency of large, high-quality borrowers to bypass traditional banking systems, (iii) narrowing profit margins on loans, (iv) a decline in the value of real assets used as collateral in many markets, and (v) the rapid growth of off-balance-sheet instruments, such as credit risk derivatives, which carry substantial default risks (Altman & Saunders, 1997). As such, credit risk analysis remains a fundamental element of overall risk management practices for banks.

Banking regulation has attracted significant attention over the past two decades, with much of the research focusing on its impact on the stability, efficiency, and performance of banks (Dal Maso et al., 2018; Djalilov & Piesse, 2019). The availability of country-specific data from the World Bank's Banking Regulation and Supervision Surveys (BRSS) has facilitated studies on the effects of banking regulation across various institutional and jurisdictional contexts. This paper explores whether stricter regulatory oversight is associated with the stability of banks in Iraq. In its simplest form, banking regulation comprises supervisory and restrictive mechanisms designed by bank officials and experts to mitigate moral hazards and excessive risk-taking (Ayadi et al., 2016; Mishra & Reshef, 2018). Over time, the focus and complexity of these regulations have evolved, shifting from general monitoring to more sophisticated internal supervisory systems and enhanced risk-based supervision approaches (Mishra & Reshef, 2018). For instance, Dal Maso et al. (2018) highlight the role of tools such as on-site examinations and off-site monitoring in influencing the financial reporting of banking institutions. However, whether the regulatory regime in the Iraqi banking sector is linked to financial stability remains an open question, particularly from an empirical perspective.

Based on the above discussion, the following research questions and objectives have been formulated:

- a) What is the level of banking service quality that achieves financial stability for banks.

- b) To what extent do banks care about the quality of banking services provided by them.
- c) What is the level of financial stability in banks.
- d) To what extent do banks care about financial stability and how to achieve it.
- e) How are the credit risk analysis, credit supply, and regulatory regime connected with the financial stability of the banks?

The research objectives are as follows:

- a) Determining the extent of banks' ability to carry out continuous improvement operations for banking services according to various technological and competitive developments.
- b) Clarifying the level of the relationship between the quality of banking services and financial stability for the banks in the research sample.
- c) Clarifying the importance of financial stability for the bank and its reflection on the bank's survival in the labour market.
- d) To examine the connection between credit risk analysis, credit supply, and regulatory regime with the financial stability of banks.

This contribution comes from this study's emphasis on variables that carry the most pertinence associated with banking as well as banking operations. Together, the following: quality banking services, understanding credit risk or analysis, supply of credit, regulating regime, becomes fundamental in seeking the trust required from customer retention, and supporting financial stability. This therefore calls for the need for banks to focus on constant improvement of service quality to gain competitiveness and sustainability in dynamic business environments. Additionally, the aspect of financial stability has increasingly gained prominence following global financial crises that have ravaged financial and banking institutions. In addition, credit risk analysis, credit supply, and the regulatory regime are intricately linked to financial stability, as they affect risk management and resource allocation, thereby offering a more stable outlook for banks. Consequently, this research is of considerable importance in the literature on risk, stability, regulatory regimes, and related fields.

Research Hypothesis:

H1. *There is a significant effect of the quality of banking service on financial stability.*

H2. *There is a significant correlation between the quality of banking service and financial stability.*

H3. *There is a significant relationship between credit risk analysis and the financial stability of banks.*

H4. *There is a significant relationship between credit supply and the financial stability of banks.*

H5. *There is a significant relationship between the regulatory regime and the financial stability of banks.*

Literature Review

Interest in the quality of banking services flows from objectives related to the need to face competition and be up to date with variations that take place in customers' preferences and requirements in order to meet their needs with high-quality services. In such a way, the deterioration of some services is avoided, which may adversely affect the bank's revenues and profits. Thus, the quality of banking services can be defined as the degree of conformance of the services delivered to customer expectations, which infers that the service delivered has met or exceeded the expectations of the customers. (O'Loughlin & Szmigin, 2005). The pivotal role of service quality in generating profits and sustaining continuous growth enhances a bank's capacity to survive, compete, and ultimately stabilize, thereby bolstering the confidence of its clients. This can be quantified using the equations presented by (Jubouri et al., 2018). Also, the banking assets quality is an indicator that can be calculated with the quality of bank's assets and the ability to maintain the credit process integrity being a core activity of the bank. The lower value of this indicator is better, and it can be calculated using the following equation

$$\text{Credit Quality} = (\text{Non-Performing Loans})/(\text{Total Loans})$$

Additionally, performance quality and credit risk serve as another indicator, calculated by dividing total loans by deposits. This ratio reflects the efficiency of banking performance in managing credit risks. A decrease in this indicator signifies a closer alignment between the level of loans granted and the value of deposits held by the bank. It is computed using the following equation.

$$\text{Performance Quality and Credit Risk Management} = (\text{Total Loans}) / (\text{Total Deposits})$$

The concept of financial stability is defined as the condition in which the financial system is capable of performing its tasks and achieving its objectives in an effective and acceptable manner over an unspecified period of time, by rectifying recurring imbalances within its operational mechanisms (Morris, 2010). In this study, financial stability will be measured using the Z-Score indicator, a modern tool widely employed in financial literature to assess the financial stability of banks. It has become one of the most commonly used indicators in evaluating financial safety and is recognised by the World Bank in its global financial statements. A high Z-Score signifies a strong level of stability, indicating that the bank has the financial capacity to absorb losses and is less susceptible to financial distress. The components of this indicator can be further explained (Goetz, 2018; Onumah & Duho, 2019).

$$Z - \text{Score} = \frac{ROA + E/A}{\sigma ROA}$$

Where (Z) represents the measure of financial stability, ROA is the ratio of return on bank assets, E/A denotes the ratio of equity to total bank assets, and σROA indicates the standard deviation of return on bank assets. The value of this indicator increases with higher levels of capital and profitability, while it decreases in the presence of profit instability, which is evident when the standard deviation value rises.

Research Community and Sample: The research community consists of the Iraq Stock Exchange, and the sample is composed of all private commercial banks, including Islamic banks, which total 23 commercial banks. These institutions continue to operate within the

market, regularly publishing their financial data and disclosing all their commercial activities.

The Theoretical Framework for Research Variables

The Concept of Banking Service Quality: The world is witnessing significant advancements across global banking systems. These developments have resulted in many banking services reaching maturity, with a growing similarity between various services and systems, consequently reducing competition among banks in terms of the services they offer. This shift has led many banks to focus their competitive efforts on a different area: service quality. As a result, the concept of banking service quality has emerged as a key domain in which banks can differentiate themselves. Bank customers have increasingly sought symbolic values in banking services, rather than merely the marketing content they derive from those services. These values are represented by superior quality (Al-Janabi, 2016).

Definitions of service quality have varied due to the widening gap between customers and institutions. To address this gap, attention shifted to service delivery times and the emergence of continuous improvement programmes, which reduced functional barriers and built a strong service foundation. Understanding customer values, trends, and expectations has enhanced the speed of banking practices, created a customer-centric service culture, and trained employees in effective customer interactions. Al-Haddad (2018) defined banking offers as services like account management, investment loans, and cheque discounting. Yorke (1982) described banking services as everything provided to the customer, aiming to satisfy their needs and generate profit. Surahman et al. (2020) characterised it as an essential activity that reflects the gap between customer expectations and the actual services received.

Banking service quality is essential for the growth and sustainability of financial institutions. As service areas expand, the importance of service quality increases due to the growing number of institutions offering services across the economy (Wang & Hsu, 2013). The intensity of competition reveals that the survival and continuity of institutions rely on market share, with quality services providing a competitive edge. A thorough understanding of customer needs is crucial, as delivering quality products at acceptable prices is insufficient without recognising customers' desires and aspirations. The economic importance of service quality underscores banks' efforts to maintain and expand their customer base by retaining existing clients and attracting new ones. Studies and research contribute to gathering information, understanding service roles, and identifying dimensions, forming the core of effective quality improvement programmes. Addressing customer complaints effectively enhances the likelihood of repurchase and loyalty. Recruiting skilled competencies ensures a workforce capable of developing and implementing quality standards (Abu Nabaa, 2005; Al-Haddad, 2018). Internal marketing programmes foster a positive employee experience, treating employees as internal customers. Customer education on services improves their understanding and satisfaction, while developing a quality-supportive culture instils excellence in service delivery. Quality teams are critical for motivating employees and ensuring collaborative efforts (Abu Nabaa, 2005; Al-Haddad, 2018). Senior management's commitment to quality, with leadership styles focused on embedding a culture of service quality, is essential. Reliability refers to the ability to consistently and accurately deliver required

services, while trust encompasses employees' knowledge, treatment, and ability to instil confidence in customers. Responsiveness reflects management's swift response to customer needs, and tangibility pertains to the physical facilities and equipment involved in providing banking services (Asamoah et al., 2021).

Financial stability is a top priority for the monetary authority, represented by the central bank in each country, and is considered a critical strategy to ensure the continuous improvement and development of the banking sector in line with international best practices. The central bank's focus on financial stability has intensified within the financial and banking sectors to create a resilient banking system capable of managing risks, absorbing financial shocks, and reducing exposure to financial crises. Several definitions of financial stability exist. According to Mishkin et al. (2003), it is the state in which the financial sector can withstand various economic disturbances, maintaining its capacity to carry out financial intermediation, settle payments, and redistribute funds effectively. Al-Saadi (2024) defines it as the condition that enables the smooth functioning of complex relationships between financial markets, institutions, and structures within specific legal, financial, and accounting frameworks. Furthermore, Chao et al. (2022) define financial stability as the bank's ability to meet the financial needs of all its stakeholders, both present and future, through a diversified investment portfolio, while maintaining sufficient liquidity to finance customers in times of emergency.

While there have been notable successes in recent macro monetary policies, significant challenges remain in modelling, measuring, and managing systemic financial stability (Goodhart, 2005). This is primarily because most efforts have focused on improving risk management practices at the individual bank level, rather than addressing broader systemic risks and their contributing factors. The Basel II framework, for example, aims to align regulatory capital requirements with sophisticated internal assessments of bank capital. However, concerns persist at the individual bank level, such as how to properly account for diversification and the differing priorities between banks and regulators. At the systemic level, Basel II's detailed and prescriptive approaches have raised issues such as 'endogenous risk' and procyclicality, with simulations suggesting that these could become significant problems (Goodhart, 2005).

A study by Samorodov et al. (2019) focuses on the relationship between credit risk and bank stability, updating and improving methods for evaluating risk in a bank's credit portfolio. The study highlights that a credit portfolio's key factors are profitability and risk, with the balance between these determining the efficiency of bank operations. The primary objective is to manage the credit portfolio to maximise profitability while maintaining risk at an acceptable level. The authors outline three steps in their approach. First, they examine nine indicators related to credit risk, including the credit activity ratio, reserve adequacy ratio, loan quality ratio, overdue loan ratio, maximum risk per borrower or group, concentration of large credit risks, the level of credit risks to insiders, the ratio of loans written off from reserves, and the profitability ratio of credit operations. The second step involves a scoring system to calculate a combined credit risk indicator. Finally, the third step calculates the overall credit risk indicator and the level of credit risk, enabling banks to track trends over time. By comparing results across periods, banks can assess whether their credit risk is increasing or decreasing. The analysis section of the study demonstrated that the bank had improved its credit risk management.

There is an ongoing debate in the literature regarding the impact of regulatory mechanisms on banking sector stability. [Malik et al. \(2022\)](#) explore the relationship between governance mechanisms, financial inclusion, and financial stability in Asian economies, using stakeholder theory. They created composite variables for governance quality, financial stability, and financial inclusion through principal component analysis (PCA). The relationship between these variables was examined using the dynamic system generalized method of moments. Additionally, Baron and Kenny's approach was employed to investigate whether financial inclusion mediates the link between governance quality and financial stability. The study's findings revealed that governance quality negatively affects financial inclusion but positively impacts financial stability, while financial inclusion itself enhances financial stability in Asia. In a similar vein, [Mathuva and Nyangu \(2022\)](#) examine whether the quality of banking sector earnings, a measure of stability, is linked to the regulatory regime. Using panel data methods from 1991 to 2019 and applying feasible generalized least squares (FGLS) and generalized method of moments estimators, their study found differential impacts of the regulatory regime on the earning quality of banks.

Methodology

In the first phase, the research employed a descriptive and analytical approach to examine and analyse the key variables, including the relationship between the quality of banking services provided by the banks in the study sample and banking stability. The quality of banking services, an essential factor to be maintained by all bank employees, reflects the gap between customer expectations and the actual services received. Banking stability was assessed using data from the annual reports of the commercial banks in the sample. In the second phase, a questionnaire was developed, considering primary data as a widely used tool for collecting and analysing responses. The questionnaire was designed using insights from previous studies, as detailed in [Table 1](#), which lists the variables considered, their relevant items, and the sources of the studies. All variables were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire also included demographic variables such as age, educational background, work experience, and role/position in the bank. Initially, 400 questionnaires were distributed to respondents with varied demographics. Of the distributed questionnaires, 371 were returned, while the remaining were marked as non-responses. A further review revealed that 15 copies had missing or invalid responses. Thus, the final sample consisted of 356 respondents from banks in Iraq. [Table 1](#) provides an overview of the variables and their measurement sources.

Table 1: Variables and Measurement Source

Variable Name	No. of Items	Literature Source
Financial Stability	4 Items	(Oosterloo & De Haan, 2004)
Credit Supply	3 Items	(Wosko, 2016)
Credit Risk Analysis	7 Items	(Hassan, 2009)
Regulatory Regime	5 Items	(Mathuva & Nyangu, 2022)

Analysis and Findings

The financial analysis of the research variables compares the percentage of variable indicators for each bank during the year 2023 with the overall average of the total banks in the study. The independent variable, representing banking service quality (quality of credit assets, performance, and credit risks), and the dependent variable, financial stability, are analysed to understand their impact on the sample banks. As shown in Table 1, the indicators for banking service quality were used to assess the commercial banks, which numbered 12. These indicators include the credit asset quality index (X1), an essential measure of non-performing loans relative to total loans. A lower percentage of this index indicates better banking service quality regarding assets, meaning the bank meets its obligations and maintains financial stability.

Table 2 highlights that the highest value for this index was 7.1% for a bank in Iraq, while the general average was 3.5%. An increase in this index indicates a decline in asset quality, with a higher proportion of non-performing loans, negatively impacting the bank's financial stability. Conversely, the National Bank of Iraq had the lowest value of 1% for this indicator, much lower than the general average of 3.5%, suggesting the bank has high asset quality and enjoys financial stability. The other banks in the study fall between these two values. Table 2 summarises the indicators of banking service quality and financial stability for the commercial banks.

Table 2: Credit Asset Quality, Performance and Risk Ratios

No	Commercial Bank Names	Credit Asset Quality Ratio (X1)	Credit Performance and Risk Ratio(X2)	(Z-Score)
1		%6.3	%39.4	%20
2	Iraqi Economy	%1.0	%11.9	%40
3	Iraqi National	%6.1	%13.1	%41
4	Iraqi Investment	%1.5	%11.8	%35
5	Gulf Commercial	%4.5	%19.3	%30
6	Middle East	%2.2	%21.2	%42
7	Ashur International	%1.2	% 25	%46
8	Iraqi Union	%4.3	%19	%57
9	Mansour Commercial	%2.3	%14.6	%26
10	Mosul Development	%2.9	%10.4	%27
11	Baghdad Commercial	%2.2	%10.4	%35
12	Sumer Commercial	%7.1	%83.5	%21
	Across Iraq	%3.5	%23.3	%35

Source: Researcher's Numbers Based on the Financial Reports Published on the Iraq Stock Exchange Website for the Year 2023

Table 2 further presents the second indicator of banking service quality, the performance and credit risk ratio (X2), which measures the efficiency of a bank in investing deposits by granting loans. An increase in this ratio signals a higher risk of

liquidity issues, as the bank may be lending beyond the capacity of its deposits. The highest value for this indicator was recorded by Iraq Bank at 83.5%, well above the general average of 23.3%. This suggests that Iraq Bank may face liquidity risks due to overextending loans beyond its deposit levels. In contrast, both Baghdad Commercial Bank and Sumer Commercial Bank recorded the lowest value of 10.4%, indicating that these banks are granting loans in proportion to their deposits. The remaining commercial banks fall within these two extremes. Additionally, Table 2 shows the percentages for the banking stability index, measured by the Z-Score. A higher value of this index indicates increased financial stability, reflecting the bank’s ability to meet its obligations on time. Al-Mansour Commercial Bank achieved the highest stability index at 57%, significantly above the general average of 35%. Conversely, Abra Al-Iraq Bank recorded the lowest stability index at 21%. The other banks fall between these two values. Figure 1 visualises the indicators of banking service quality and financial stability for commercial banks in 2023.

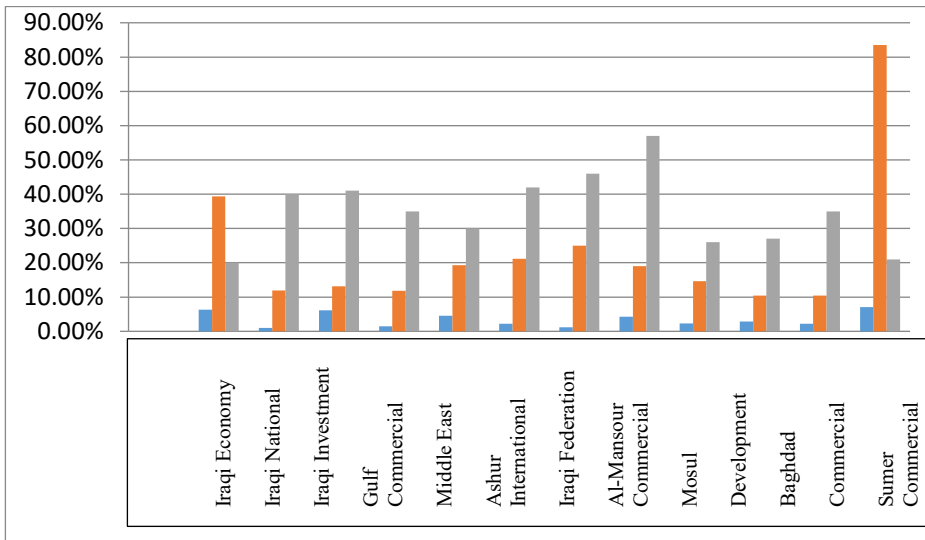


Figure 1: Indicators of Banking Service Quality
 Source: Prepared by the Researcher Based on the Excel Program.

Figure 1 illustrates the indicators of banking service quality for each bank in the research sample, presented through graphic charts. These charts enable comparisons of the service quality indicators across individual banks, alongside the independent indicator of financial stability. For the Islamic banks included in the research sample, which comprises 11 institutions, Table 3 provides the banking service quality and financial stability indicators for the year 2023. The Iraqi Commercial Islamic Bank recorded the highest value for the credit asset quality index (X3) at 6%, compared to the general average of 3%. Conversely, the lowest value was observed for three banks—Amin Iraq, Islamic Iraq, and Islamic South—each at 1%, below the general average index. Regarding the second indicator of banking service quality, represented by the

performance and credit risk quality (X4), Amin Iraq Islamic Bank recorded the highest value of 37%, surpassing the general average of 21.5%. In contrast, Cihan Islamic Bank registered the lowest value of 11.6% for this indicator, compared to the general average index of 21.5%. The remaining Islamic banks in the research sample fall between these two extremes. [Table 3](#) summarises the indicators of banking service quality and financial stability for Islamic banks in 2023.

Table 3: Indicators of Banking Service Quality and Financial Stability

No	Islamic Bank Names	Credit Asset Quality Ratio (X3)	Credit Performance and Risk Ratio(X4)	(Z-Score)
1	Arab Islamic	%4	%13	%92
2	The Trust International Islamic	%3	%27	%70
3	Al Mashreq Arab Islamic	%2	%17	%97
4	Amin Iraq Islamic	%1	%37	%65
5	Iraqi Islamic	%1	%15	%100
6	Al Taif Islamic	%2	%12.8	%91
7	Ilaf Islamic	%4	%20	%95
8	Iraqi Commercial Islamic	%6	%25	%88
9	South Islamic	%1	%30.4	%70
10	Asia Islamic	%5	%28	%74
11	Jehan Islamic	%3	%11.6	%93
	General Average	%3	%21.5	%85

Source: Researcher's Numbers Based on the Financial Reports Published on the Iraq Stock Exchange Website for the Year 2023.

[Table 3](#) shows the value of the independent financial stability indicator for Islamic banks, which is represented by the Z-Score. The Z-Score describes the level of financial stability in the banks of the research sample-that is, how far or close they are to bankruptcy. It is noted that the higher the Z-Score is, the better the financial stability of the bank, thus reflecting its high resistance to any potential financial crisis. In this regard, the Iraqi Islamic Bank came with the highest value of the Z-Score, amounting to 100% of the general average, which reached 85%. This means the bank was highly stable over the period of study. In contrast, Amin Al-Iraq Islamic Bank recorded the lowest Z-Score value at 65%, below the general average of 85%, indicating a lower level of financial stability. The remaining banks in the sample exhibited values between these two extremes, reflecting varying degrees of financial stability. [Figure 2](#) presents the banking service quality and financial stability indicators of Islamic banks in the year 2023. This chart compares, graphically, the main indicators for each bank, showing variations in both banking service quality and financial stability within the sample. The indicators included are credit asset quality, performance and credit risk, and the financial stability measure, Z-Score. The graph clearly shows how each Islamic bank compares in terms of service quality and financial stability for the given year.

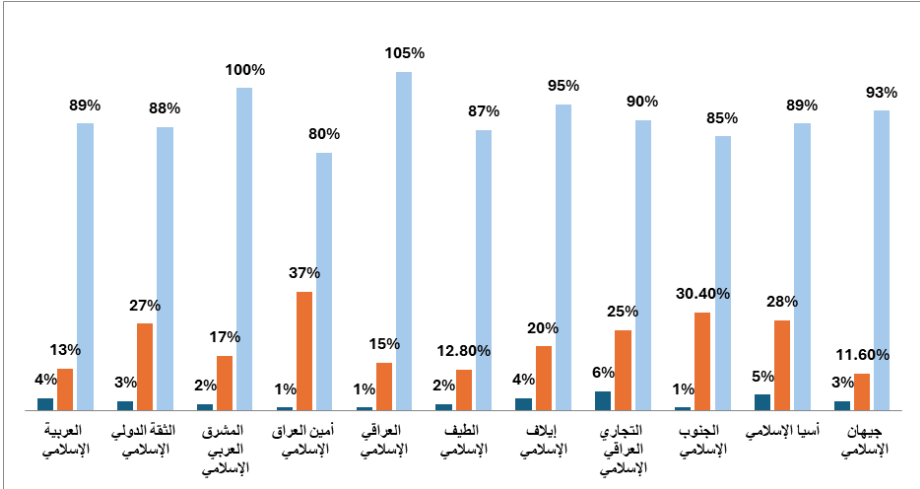


Figure 2: Indicators of Banking Service Quality
 Source: Prepared by the Researcher Based on Excel Program

Figure 2 presents the indicators of banking service quality for each Islamic bank in the research sample, represented by graphic charts. This chart allows for a comparative analysis of the banking service quality indicators for each bank, alongside the independent financial stability indicator. The visualisation enables a clear comparison of key performance metrics, highlighting variations in both service quality and financial stability across the Islamic banks in the sample.

Analysis of the Results of Testing Research Hypotheses

To test the research hypotheses, the statistical programme SPSS was employed, using a simple linear regression equation. The regression coefficient (B) was utilised to assess the relationship between the variables, while the coefficient of determination (R²) was used to explain the variance in financial stability. Additionally, the value of F was used to determine the significance of the model applied. The results of these analyses are presented in Table 4.

Table 4 reveals that the coefficient of determination (R²) for the impact of credit asset quality on financial stability is 0.521, signifying that credit asset quality accounts for 52% of the variation in the financial stability index for the commercial banks in the research sample. The remaining 48% of the unexplained variation is attributable to other variables not included in the regression model. This is an acceptable percentage, given that the significance level (F) is 0.001, which is below the threshold of 0.05. The constant (a = 0.456) suggests that the financial stability index is 45% when credit asset quality is zero, while the marginal slope (B) of 0.232 indicates that financial stability increases by 23% for each unit increase in credit asset quality. This is statistically significant, as the value of (T) is 0.030.

Table 4: *Impact of Banking Service Quality Indicators on the Financial Stability of the Sample Banks*

Quality of Banking Service	FS	A	B	R2	F-value	Significance	T-value	Morale Level T	Decision
	AQ	0.456	0.232	0.521	12.215	0.001	4.488	0.03	
	PQ&CRM	0.462	0.546	0.466	10.058	0	8.52	0.001	

Note: FS: Financial stability, AQ; Asset Quality, PQ&CRM; Performance Quality and Credit Risk Management

Source: Researcher's Numbers based on the Financial Reports Published on the Website of the Iraq Stock Exchange for the Year 2023.

For the second variable, performance quality and credit risk management, the coefficient of determination (R^2) is 0.466, indicating that performance quality and credit risk management explain 46% of the change in the financial stability index. The remaining 54% of the unexplained variation is due to other factors not captured in the regression model. The significance level (F) of 0.000 is also below the threshold of 0.05. The constant ($a = 0.462$) suggests that the financial stability index is 46% when performance quality and credit risk management are zero. The marginal slope (B) for this variable is 0.546, meaning that financial stability increases by 54% for each unit increase in performance quality and credit risk management. This result is statistically significant, with (T) = 0.001. Based on the financial analysis and the interpretation of these results, the first hypothesis is accepted, stating that: "There is a significant effect of the quality of banking services on financial stability" for the commercial banks in the research sample. [Table 5](#) displays the correlation indicators between the main research variables.

Table 5: *R and Morale Values*

Research Variables	Financial Stability	
	R	Morale Level
Credit Asset Quality	0.722	0.030
Performance Quality and Credit Risk Management	0.683	0.001

Source: Researcher's numbers based on the outputs of the electronic calculator.

[Table 5](#) presents the correlation between the primary research variables. The correlation coefficient between the credit asset quality index and financial stability was found to be 0.722, with a significance level of 0.030. This indicates a strong positive correlation between the two variables. Additionally, the correlation coefficient between the performance quality index and risk management was 0.683, with a significance level of 0.001, also indicating a strong positive relationship. Based on the financial analysis and the results of hypothesis testing, the second main research hypothesis is accepted: "There is a significant correlation between the quality of banking services and financial stability."

As outlined previously, the second phase of this study focuses on the survey questionnaire, which includes various characteristics of the respondents (as presented in Table 6).

Table 6: Demographic Factors

Age Group	Frequency	%
20-24 Years	34	9.55
25-34 Years	152	42.70
35-44 Years	66	18.54
45-54 Years	81	22.75
55 Years and Above	23	6.46
Total	356	100
Educational Qualification	Frequency	%
Bachelor's Degree	136	38.20
Master's Degree	81	22.75
PhD	88	24.72
Professional Certifications (e.g., CFA, CPA)	51	14.33
Total	356	100
Years of Work Experience	Frequency	%
Less than 5 Years	37	10.39
5-10 Years	107	30.06
11-15 Years	137	38.48
More than 15 Years	75	21.07
Total	356	100
Position/Role in the Bank	Frequency	%
CEO/Managing Director	21	5.90
Manager Operations	56	15.73
Head of Risk Management	87	24.44
Head of Credit Operations	61	17.13
Other Executive Roles	131	36.80
Total	356	100

Regarding age distribution, 34 participants fall within the 20-24 years group, while the 25-34 years group accounted for the largest share, with 42.70% of the total sample. Additionally, 66 respondents are within the 35-44 years age range, 81 participants are between 45-54 years, and 23 respondents are aged 55 years and above, resulting in a total of 356 participants, or 100%. Concerning educational qualifications, 136 participants, representing 38.20% of the sample, hold a 14-year degree. The study also found that 81 respondents, or 22.75%, possess a master's degree, while 88 respondents, or 24.72%, have completed a PhD. Moreover, 51 participants (14.33%) hold professional certifications such as CFA or CPA, bringing the total number of respondents to 356, or 100%. Regarding work experience, 37 participants (10.39%) have less than 5 years of experience. The largest group consists of 137 respondents (38.48%) with 11-15 years of work experience. Additionally, 107 participants (30.06%) have 5-10 years of experience,

while 75 respondents (21.07%) have more than 15 years of experience, resulting in a total of 356 respondents, or 100%.

Regarding the respondents' positions or roles within the bank, 21 participants (5.90% of the sample) hold the role of CEO or Managing Director. A total of 56 respondents (15.73%) occupies managerial operations roles, while 87 participants (24.44%) serve as Heads of Risk Management. Additionally, 61 respondents (17.13%) hold the position of Head of Credit Operations. The largest group comprises 131 participants (36.80%), who are in other executive roles. The overall sample of 356 demonstrates a well-distributed variation in terms of these demographic factors. Figure 3 illustrates the pie-chart distribution of these demographics.

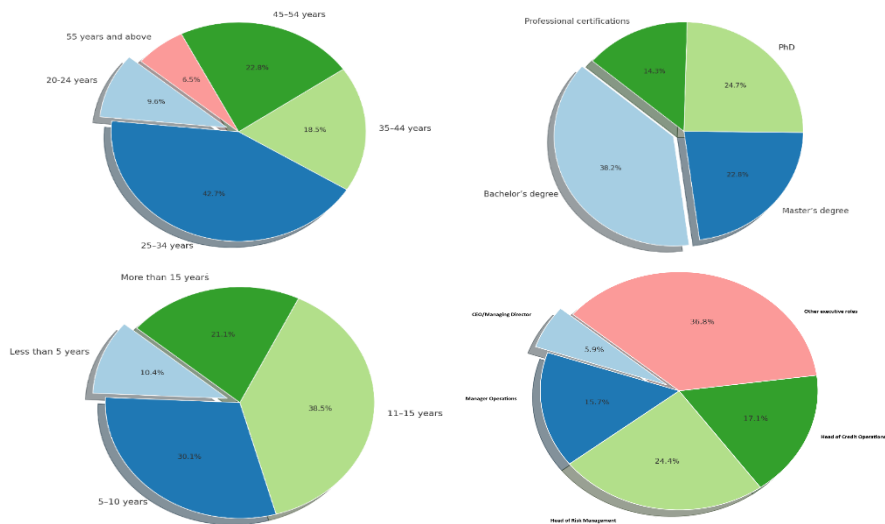


Figure 3: Demographic Factors

The results for the CB-SEM model, in terms of reliability and validity, are presented below in Table 7. For the CRA construct, the loadings of the items are as follows: .811, .844, .621, .855, and .817. These loadings yield a Cronbach's alpha value of 0.894, which exceeds the acceptable threshold of 0.70. Similarly, the composite reliability for CRA is 0.895, further confirming its reliability. The convergent validity, measured by the (Gromova & Ferreira) score, is 0.631, which is greater than the acceptable threshold of 0.50. For the CRS construct, the item loadings are 0.766 and 0.744. These loadings correspond to a Cronbach's alpha value of 0.726, which is above the threshold of 0.70, indicating reliability. The composite reliability for CRS is also 0.726, meeting the required minimum value. Additionally, the average variance extracted (Gromova & Ferreira) score for CRS is 0.570, which is above the threshold of 0.50, indicating sufficient convergent validity.

Table 7: Measurement Model Results: Reliability, Validity, and Outer Loading

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
CRA	CRA1	0.811	0.894	0.895	0.631
CRA	CRA2	0.844			
CRA	CRA3	0.621			
CRA	CRA4	0.855			
CRA	CRA5	0.817			
CRS	CRS2	0.766	0.726	0.726	0.57
CRS	CRS3	0.744			
FNS	FNS1	0.953	0.911	0.905	0.771
FNS	FNS2	0.837			
FNS	FNS4	0.84			
RRG	RRG1	0.614	0.879	0.864	0.607
RRG	RRG2	0.805			
RRG	RRG3	0.81			
RRG	RRG4	0.874			
RRG	RRG5	0.77			

For the financial stability construct, the outer loadings for the items are 0.953, 0.837, and 0.840. The Cronbach's alpha is 0.911, which is well above the threshold of 0.70, indicating high reliability. The CR is 0.905, further confirming the reliability of the construct, while the AVE score is 0.771, which is well above the acceptable threshold of 0.50. This signifies strong convergent validity for the financial stability construct. For the RRG, the item loadings are 0.614, 0.805, 0.810, 0.874, and 0.770. The Cronbach's alpha value is 0.879, demonstrating internal consistency as it exceeds the 0.70 threshold. The CR is 0.864, confirming the reliability of the construct, and the AVE score is 0.607, indicating adequate convergent validity. [Figure 4 A](#) and [B](#) provide a visual representation of the CB-SEM model used in the study, along with the output showing the item loadings for each construct.

The HTMT [Table 8](#) evaluates the discriminant validity of the constructs—CRA, CRS, FNS, and RRG—in the model. The HTMT values represent the degree of correlation between pairs of constructs, with a threshold of 0.90 indicating acceptable discriminant validity. For the pair between CRA and CRS, the HTMT value is 0.838, which is below the threshold of 0.85, indicating that these constructs are distinct from each other. Similarly, the HTMT value for CRA and FNS is 0.653, and the correlation between CRA and RRG is 0.608, confirming that these constructs are also distinct. For the pair between CRS and FNS, the HTMT value is 0.612, and for CRS and RRG, it is 0.513. These results are well below the 0.85 threshold, indicating clear discrimination between these latent constructs. Finally, the HTMT value for FNS and RRG is 0.552, further confirming the discriminant validity. Overall, all HTMT values in [Table 8](#) are below the 0.90 threshold, ensuring that the constructs in the model are well-separated and measure distinct concepts.

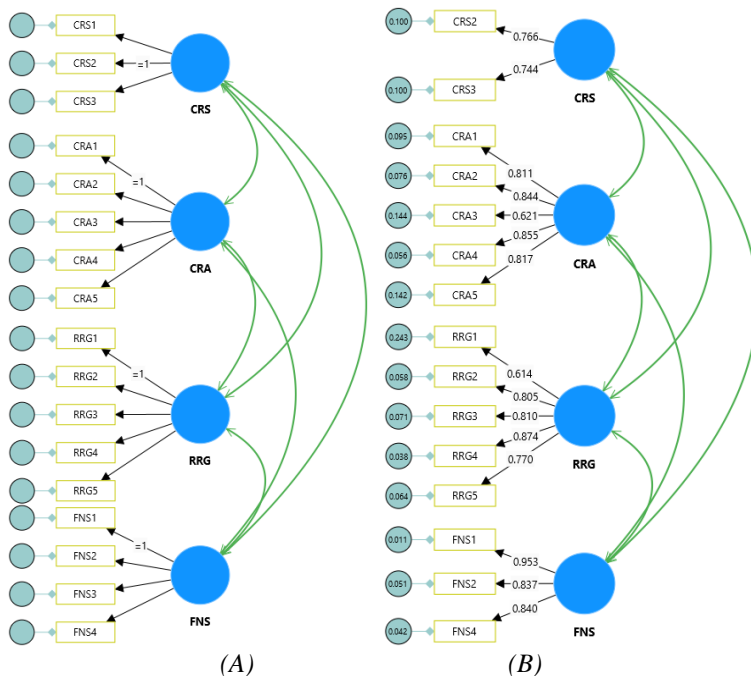


Figure 4: A and B: Model Input and Output

Table 8: HTMT Ratio

	CRA	CRS	FNS	RRG
CRA				
CRS	0.838			
FNS	0.653	0.612		
RRG	0.608	0.513	0.552	

Impact of CRA, CRS and RRG on Financial Stability

The path model results presented in Table 9 show the parameter estimates, standard errors, t-values, and p-values. The coefficient for credit risk analysis on the financial stability of banks in Iraq is 0.850, which is the highest value compared to other coefficients in the similar model. The standard error is 0.370, yielding a t-statistic of 2.289. The p-value is significant at 5%, confirming that credit risk analysis is positively and significantly associated with the financial stability of the banks in Iraq. This suggests that an improvement in credit risk analysis by the banks in Iraq leads to better financial stability, as indicated by this study. However, the results also show that higher credit risk supply has a negative but insignificant relationship with FNS for the banks in the region. Additionally, the results indicate that the regulatory regime is positively related to financial stability, with a beta coefficient of 0.264, a standard error of 0.064, a t-value of 4.101, and a p-value of 0.000. This further supports the notion that regulatory measures contribute positively to the financial stability of the banks in Iraq.

Table 9: Path Model Results

Path	Parameter Estimates	Standard Errors	T Values	P Values
Credit Risk Analysis -> FNS	0.850	0.371	2.289	0.023
Credit Risk Supply -> FNS	-0.543	0.417	1.300	0.194
Regulatory Regime -> FNS	0.264	0.064	4.101	0.000

Discussion

The first path in the CB-SEM approach illustrates how CRA aids banks in maintaining financial stability in several ways. Firstly, it enables banks to thoroughly assess and manage their loans, thereby reducing the likelihood of borrower defaults. This translates into fewer losses for the banks and a steady income stream from loan repayments. Secondly, effective credit risk management fosters trust among depositors and investors, as they perceive the bank as more secure and less prone to financial difficulties. This trust enhances the bank's ability to access funds, contributing to its overall stability.

Moreover, efficient CRA helps banks comply with regulatory requirements, such as capital adequacy standards, ensuring that they are adequately prepared to face potential risks. Additionally, by identifying and addressing credit-related issues early, banks can mitigate the adverse effects of loan defaults on their profitability and stability. In summary, a strong credit risk analysis framework bolsters the long-term stability of banks by minimising risks and enhancing stakeholder confidence. However, the analysis also reveals that the relationship between higher credit risk supply and financial stability is negative but not statistically significant. This suggests that while increased credit risk might intuitively be expected to undermine financial stability, the relationship in this context is not robust enough to draw a definitive conclusion.

The results further indicate a positive relationship between the RRG and financial stability. A robust regulatory framework contributes to financial stability in several keyways. Firstly, it ensures that banks operate within a well-defined set of rules, thereby reducing risky behaviours and enhancing accountability. By enforcing important guidelines, such as maintaining adequate capital, liquidity reserves, and conducting regular stress tests, a strong regulatory regime helps banks prepare for financial shocks and adverse economic conditions. This preparedness fosters greater confidence among investors, depositors, and other stakeholders, as they feel more secure in the bank's ability to manage risks. Additionally, a comprehensive regulatory regime promotes transparency, allowing banks to identify and address potential risks early, thus preventing major disruptions to their operations. In conclusion, a strong regulatory framework cultivates a stable environment, enabling banks to function effectively, manage risks efficiently, and sustain long-term financial stability. The output for the SEM model is well presented in Figure 5.

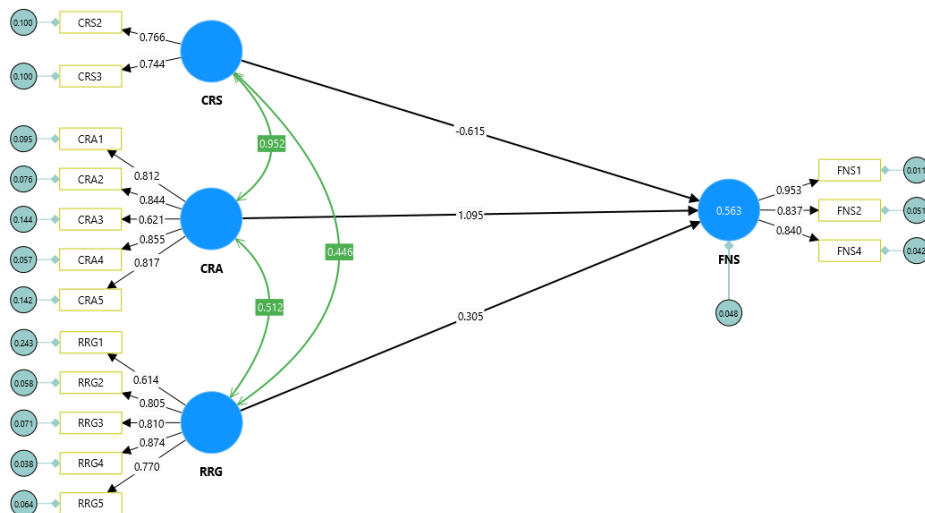


Figure 5: SEM Output

Conclusion

It can be inferred that 16 out of the 23 commercial and Islamic banks in the research sample recorded low indicators in the credit asset quality index, compared to the general average index. This suggests that these banks have been efficient in managing their loans and ensuring timely repayments. A lower indicator signifies a decrease in non-performing loans relative to the total loans granted by the banks, which is a positive indicator of their financial health. Furthermore, 18 banks out of the 23 demonstrated a strong credit policy, as evidenced by their ability to maintain a balance between the loans granted and the deposits they hold. This was measured using the performance quality and risk management index, with a lower indicator reflecting better management of deposits in relation to the extended loans. Additionally, 14 out of the 23 banks displayed a state of financial stability, either due to their reliance on efficient credit policies or their ability to generate strong annual profits, as reflected in the Z-Score index, a key measure of financial stability.

Based on the findings, the following key recommendations are proposed:

1. Regulatory authorities should prioritise high-quality banking services and stay updated with the latest banking technologies.
2. Banks must focus on financial stability as a key strategic goal for long-term success.
3. A prudent hedging policy should be adopted to balance deposits and loans, avoiding non-performing loans.
4. Modern financial methods should be used to measure banking variables and manage risks effectively.
5. Banks should embrace technological advancements and improve banking culture for better operational practices.
6. Banks in Iraq should strengthen financial stability by using reliable credit risk assessments, diversifying loans, maintaining capital reserves, and conducting stress tests.

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