

IMPACT OF FINANCIAL FLEXIBILITY ON PERFORMANCE AND CREDIT RISK OF COMMERCIAL BANKS IN THE EMERGING MARKET

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Abstract

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This study aims to examine the impact of financial flexibility on performant credit risk. Study utilizes a dataset for a prolonged period from 2010–2023 and adopts a panel data analysis process to evaluate the association among financial flexibility, performance and credit risk in Iraq as one of the emerging markets. Outcomes specify that innovative phases of financial flexibility positively affect the profitability of banks, as they permit banks to lead commercial conditions and manage threats through premeditated variations in their financial operations. Moreover, the study advocates that financial flexibility has a vital role in diminishing risk in front of commercial banks, as financially flexible banks diminish variations in revenue and have more potential in management of non-performing loans (NPLs), which increases their stability and generally under unstable economic circumstances. Outcomes of this study confirm the importance of improving financial flexibility within the banking sector as a means of refining effectiveness and mitigating risks. The perceptions of policy makers and bank managers enable them to develop capital management strategies which use multiple funding sources to boost financial flexibility for operational risk management.

Keywords: Financial Flexibility, Iraqi Banks, Profitability, Risk, Panel Data Analysis

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1. INTRODUCTION

The Iraqi banking sector operates under severe challenges because of ongoing financial instability and political turmoil. The two trials require

commercial banks to improve their profitability through effective risk management of their operational risks. Financial flexibility functions as a dangerous element because it enables banks to make changes in their operations to dynamic

circumstances and to efficiently respond to numerous procedures of financial and operational risk (Alfify, 2025; Hadi & Flayyih, 2024; Janabi & Al-Rikbi, 2018). Financial flexibility describes how well a bank can modify its financial rules and organizational structure when market conditions shift. The achievement of this goal depends on organizations maintaining proper liquidity levels and capital strength and borrowing power. The flexible system allows institutions to handle unexpected events while operating with substandard performance which maintains their ability to generate profits.

Research on the connection between commercial bank financial flexibility and their profitability has received increasing academic interest throughout the years. The previous research studies about this topic produced different results because their methods and systematic approaches differed from each other. Research studies about financial flexibility and bank stability in unstable economic environments like Iraq help analysts understand better how financial flexibility impacts bank stability (Al Nuaimi & Al-Houri, 2022). Iraqi commercial banks need to develop financial flexibility because this capability will help them handle threats while maintaining their operational stability during the current period of financial and political uncertainty. Commercial banks serve as essential economic institutions because they provide financial services to governments and people and businesses. The financial performance of these banks serves as a crucial indicator which shows their operational stability because it affects the overall economic stability of the entire system. Iraqi banking sector aspects are foremost trials, including unstable effectiveness and augmented banking threats due to numerous issues. Chief among these trials is financial and administrative corruption and fraud, which have undermined public confidence in private banks. Additionally, political and security instability has led to a large customer base in relation to an inadequate number of bank branches per capita. Furthermore, some private banks have failed to adequately meet customer needs, resulting in them being supervised, liquidated or merged by the Central Bank of Iraq. These aspects overall contribute to a negative perception among citizens concerning banking institutions and their ability to assist effectively (Al-Ardi et al., 2024). The connotation between bank financial flexibility and performance (profitability) and risk of banks in both developed and developing countries has been the subject of extensive research. While some studies have found consistent outcomes for all countries regardless of their economic conditions and policies, other studies have initiated modifications in this relationship. This study aims to contribute to this body of knowledge by inspecting the association between financial flexibility and bank recital and risk, taking into account the specific context of Iraqi banks. A potential gap in current literature arises from inadequate research on how exclusive economic, political and regulatory trials faced by Iraqi banks affect the association between financial resilience and profitability. Although there are many studies in advanced and emerging countries, the impact of Iraq's volatile political environment, security

concerns and institutional corruption on financial resilience has not been adequately researched. This is extremely crucial as financial flexibility in many developing countries is not only influenced by economic factors but also by external political forces and internal institutional weaknesses (Athab & Ali, 2024). Existing challenges in the Iraqi banking sector, like financial and administrative corruption, fraud, and limited diffusion of banking services, complicate the task of sustaining financial flexibility. These circumstances significantly affect the profitability and overall stability of banks (Al-Ardi et al., 2024). Hence, additional precise studies entail how these issues affect interaction and the impact of financial flexibility on cumulative profitability in such a stimulating operating environment. The objective of this study is to fill this variance by inspecting precise conditions of the Iraqi banking sector and how they impact the relationship among financial flexibility, profitability and menace.

This article is built as follows: Section 2 describes the relevant literature, Section 3 shows the methodology in terms of data collection and sample, specification of variables, and model description, Section 4 reports pragmatic outcomes, Section 5 offers the discussion of findings. Finally, Section 6 presents the study's conclusion.

2. LITERATURE REVIEW

2.1. Impact of financial flexibility on bank performance

Financial flexibility refers to the ability of a firm to adjust and move financial incomes in response to altering economic situations. This plays a crucial role in the capacity of a firm to bear a financial crisis and take advantage of investment prospects. Athab and Ali (2024) explain that financial flexibility serves as a critical factor which helps markets and firms adapt to market fluctuations during times of economic instability in Iraq's unstable political and financial environment. The banking sector achieves financial flexibility through its possession of liquid assets and its ability to manage operational capital effectively and its maintenance of strategic lending at its best levels. The financial flexibility of Iraqi commercial banks remains sufficient because the nation continues to face financial challenges. Banks which achieve better financial flexibility will succeed in handling financial crises and this situation could lead to multiple benefits for their profitability (Wu et al., 2024) to redeem emerging prospects

Financial flexibility enables banks to enhance their capital structure while handling potential risks and seizing business opportunities in profitable ventures. Financial flexibility describes a company's ability to modify its capital structure and liquidity levels for successful management of financial difficulties and business opportunities. Banks need this flexibility to operate effectively in monetary environments that remain unstable throughout Iraq. Banks that maintain financial flexibility can better handle their risks which include liquidity and credit risks because they can adjust their financial plans according to shifting economic conditions (Diansari et al., 2025). The financial performance of banks in

emerging markets including Iraq depends heavily on their ability to maintain financial flexibility. A firm demonstrates its ability to handle unexpected requirements and potential opportunities through its financial policy and strategy adjustments. Banks need this flexibility to execute their property and liabilities effectively during times of financial instability.

Banks which have financial flexibility can use their funds to expand their investment portfolio while controlling risks and seeking investment opportunities which will impact their overall performance. The performance of Iraqi commercial banks depends on their financial flexibility which creates multiple pathways for bank operations. Firstly, liquidity management: banks with high financial flexibility can sustain a level of optimal liquidity, without safety, they can meet their short-term obligations. Banks that implement effective operative liquidity management can achieve high profitability because they avoid spending money on unnecessary costs that result from insufficient liquidity (Ahmed et al., 2021). Financial flexibility enables banks to create an optimal capital structure through their ability to manage debt and equity funding. A bank with a well-organized capital structure will reduce its cost of capital which leads to higher profitability according to Abuafefah et al. (2025). Thirdly, investment opportunities: financially flexible banks can take advantage of lucrative investment opportunities as they arise which results in higher returns on their assets. The bank will achieve higher return on assets (ROA) through its proactive investment approach (Ali & Kazem, 2023). Risk management represents the last element of financial flexibility which enables banks to develop risk management systems which protect their business operations from financial disruptions. Financial flexibility helps organizations achieve stability through reduced earnings volatility which results in higher ROA according to Nguyen (2024).

The ability to manage financial resources affects how well a company achieves return on equity (ROE). Financial flexibility enables banks to optimize their capital structure which results in maximum shareholder returns during times of economic hardship. According to DeAngelo and Roll (2015) banks which maintain strong financial flexibility can support elevated equity capital levels that protect their operations from financial disruptions while maintaining steady ROE performance. The main priority for Iraqi commercial banks to maintain their strong equity position stems from the unstable economic conditions which affect the entire region. The operating environment presents challenges to banks but they can enhance their equity performance through flexible budgeting methods (Campello et al., 2010).

The ability to make financial decisions remains essential for handling crises because Iraq represents an emerging market. Financial institutions which maintain flexible assets during economic downturns can prevent fire sales while securing better funding from wealthy investors and acquire undervalued investment assets (Athab & Ali, 2024). Iraqi commercial banks need financial flexibility because it serves as both a planned advantage and an essential operational necessity. Ability to nearer and array financial resources throughout crises

enables these banks to stabilize their operations, defend their profitability and sustain investors' confidence. It is specifically vital in view of recurrent monetary disruption caused by geopolitical stress in Iraq (Ahmed et al., 2021).

Several empirical studies have scrutinized the impact of financial flexibility on bank profitability.

The research by Campello et al. (2010) demonstrated that companies with strong financial flexibility achieved better profitability during the 2008 financial crisis because flexibility proved essential for surviving economic downturns. The research by Arslan-Ayaydin et al. (2014) demonstrated European banks possess financial flexibility which leads to positive relationships between ROA and ROE indicators that show financial resources enable organizations to boost their profitability. In Iraqi context, research by Srayyih (2025) verified that with high financial flexibility, firms verified high profitability in Iraq for the period 2015 to 2021, and emphasized that high financial flexibility improves commercial businesses' capacity to take advantage of or deal with unforeseen circumstances in order to obtain financing and restructure at a low cost to prevent financial distress when faced with negative shocks. The company uses this method to obtain funding for their investment initiatives while they pursue profitable business deals which maximize their project worth. Furthermore, Athab and Ali (2024) utilized a sample of ten commercial banks in Iraq for the period 2017 to 2022 to examine the influence the financial flexibility on the financial indicator (profit margin). Their study found that the sample banks outperformed the others by adopting a flexible financial policy. Moreover, Al-Noa'imee and Obaid Al-Houri (2021) suggest that financial flexibility is a crucial determinant of profitability in the investment sector. Their study says that high levels of liquidity and capital capacity were capable of attaining better ROA and ROE even through a period of monetary instability. This immediate of financial flexibility in the assurance of profitability of banks working in an unstable environment.

2.2. Pragmatic indication on financial flexibility and profitability in Iraqi commercial bank

Liquidity risk ascends when a bank is inept to fulfill its small obligations due to lack of liquid assets. Financial flexibility plays a crucial role in managing this risk by permitting banks to sustain adequate liquidity buffers, guaranteeing that they can fulfill their obligations even through financial stress. Iraqi commercial banks, working in fields with adequate political and economic unsteadiness, should be preferred due to their flexibility to diminish liquidity risk (Nguyen, 2024). In the framework of Iraqi banks, financial flexibility is chiefly crucial due to ups and downs in oil revenue, which greatly affects the country's economy. As oil prices are uninvolved, banks with superior financial flexibility can enhance their property and obligations to improved management related liquidity risks by altering structures (Al-Ardi et al., 2024). This flexibility also permits banks to capitalize on investment prospects that may ascend through period of financial reform, improving their inclusive liquidity circumstances.

Credit risk replicates the borrower's aptitude to diminish loss due to borrower's failure to face its financial obligations. Financial flexibility can affect credit risk management by providing banks with borrower to accommodate your credit portfolio in response to consistency or aberration in inclusive financial conditions. In the Iraqi context, where financial instability can lead to high default rates, financial flexibility becomes essential for the management of credit risk (Demirgüç-Kunt & Detragiache, 1998). The evaluation process for Iraqi commercial bank borrowers becomes difficult because their banks do not have sufficient credit information systems in place. Banks which maintain financial flexibility can increase loan program uncertainty through two methods which include adding different credit instruments to their portfolio and modifying their risk assessment methods. The system allows banks to reduce the negative effects of non-performing loans (NPL) on their financial stability which results in better credit risk management (Athab & Ali, 2024).

Research shows that banks which maintain high financial flexibility achieve better results especially when the economy faces difficult times. The banking system in Iraq operates under difficult conditions which makes financial flexibility the key factor that determines both financial stability and performance. By sustaining financial flexibility, Iraqi banks can navigate risks associated with liquidity and credit, which can ensure their long-term stability (Hilo et al., 2024). A study conducted by Dawood and Sheilly (2023) studied the impact of financial flexibility on obtaining financial recovery utilizing a sample of five banks from the period 2009 to 2020. Their study indicates that Iraq has a substantial impact on financial flexibility on the indicators of financial recovery of commercial banks.

3. METHODOLOGY

3.1. Data collection and sample

Our study scrutinizes the impact of financial flexibility on banking risk and profitability, utilizing a sample of Iraqi banks, taken for the period from 2010 to 2023. The option of a study period is due to the availability. Data of scrutiny comes from annual reports of Iraqi banks that are being studied. Data of banks with absent comments for each inconstant during the sample period was omitted

from the study. Because the balance sheet of the non-financial sector varies from banks in terms of structure, this study focuses on the banking industry. We have a sample size of 180 comments in total, which were studied over fifteen years. Panel data is considered unbalanced due to absenteeism of comments.

3.2. Specification of variables

As for the dependent variable, the current study used banks' profitability and bank risk. Moreover, in accordance with prior research, ROE and ROA were employed as proxies to gauge banks' recital. One of the most extensively utilized metrics to assess a bank's recital is ROA, which validates how well a bank is run by turning profit with the assets at hand. ROA was utilized in a number of prior studies to gauge banks' performance (Muhammad, 2025; Jada, Alghanimi, et al., 2020; Tran et al., 2016).

Besides, the viability of banks was measured by ROE in prior research (Jada et al., 2025; Jada, Hassan, et al., 2020; Tran et al., 2016; Jada et al., 2016). Furthermore, management measures the efficacy of this administration's utilizes of owners' funds utilizing ROE. Both ROE and ROA will be utilized in this study as stand-ins for banks' recital. Also, in accordance with other research, this study comprised credit risk. Also, credit risk in this work is based on the NPL ratio, which is considered as a ratio of NPL to total loans (Arifaj & Baruti, 2023; Al-Husainy & Jada, 2021) and serves as a gauge of bank risk. As for financial flexibility, this study utilizes three measurements, namely (net cash flow ratio, liquidity, and leverage). Also, this study made use of control aspects including gross domestic product (GDP) growth and bank size (Jada et al., 2016).

3.3. Model specification

This paper scrutinizes the impact of financial flexibility on the recital of Iraqi banks. In addition to studying the impact of financial flexibility on banking risk, we utilise a panel data approach. By perceiving more, the purpose of the panel data approach is to offer a more precise outcome and highlight the disparity of independent factors. This paper introduces a novel way to study imperative factors of bank performance: a panel data approach (Baltagi, 2021; Wooldridge, 1999).

Table 1. Measurement of variables

Variables	Meaning	Measurement
Dependent variables		
ROA	Return on assets	Ratio of net profit before taxes to total assets
ROE	Return on equity	Net profit before taxes divided by total equity
CRDR	Credit risk	Loan loss provision to total loan ratio
Independent variables		
RNCF	Ratio of net cash flow	Ratio of net cash flow to total assets
LEV	Leverage	Ratio of liabilities to property rights
LIQ	Liquidity ratio	Ratio of liquid assets to total assets
Control variables		
BNKZ	Bank size	Natural log of total assets
GDPG	GDP growth	Indicator of economic development

Source: Authors' elaboration.

Panel data method requirement for bank profitability can be written as follows:

$$Y_{it} = \beta_0 + \beta_1 RNCF_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 BNKZ_{it} + \beta_5 GDPG_{it} + \varepsilon_{it} \tag{1}$$

where, Y_{it} is bank profitability measured by ROA and ROE, β_1 to β_6 is beta coefficient, $RNCF$ is ratio of net cash flow, LEV is leverage ratio, LIQ is liquidity ratio, $BNKZ$ is bank size which is measured as the natural log of total assets, and $GDPG$ is the GDP growth rate.

As this study uses two dimensions, ROA and ROE, consequently, following equations can be written:

$$ROA_{it} = \beta_0 + \beta_1 RNCF_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 BNKZ_{it} + \beta_5 GDPG_{it} + \varepsilon_{it} \tag{2}$$

$$ROE_{it} = \beta_0 + \beta_1 RNCF_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 BNKZ_{it} + \beta_5 GDPG_{it} + \varepsilon_{it} \tag{3}$$

However, requirement for panel data methodology for bank risk can be written as follows:

$$CRDR_{it} = \beta_0 + \beta_1 RNCF_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 BNKZ_{it} + \beta_5 GDPG_{it} + \varepsilon_{it} \tag{4}$$

where,

- ROA — return on assets for bank i at time t ;
- ROE — return on equity for bank i at time t ;
- $CRDR$ — credit risk and default risk for bank i at time t ;
- $RNCF$ — ratio of net cash flow for bank i at time t ;
- LEV — leverage (debt-to-equity ratio) for bank i at time t ;
- LIQ — liquidity ratio for bank i at time t ;
- $BNKZ$ — bank size for bank i at time t ;
- $GDPG$ — GDP growth rate for country i at time t ;
- ε_{it} — error term for bank i at time t .

4. FINDINGS

4.1. Descriptive statistics

To give someone a sense of the basic characteristics of data, it is frequently beneficial to outline a series of data sets in natural order. Visiting, boundary and standard deviation are measures of spread. This study utilizes the mean to measure the central trend and the standard deviation to measure the spread of the study. When one of the data comments is regular, medium offers wide discernment of partial data and is a measure of the central trend. In this study, each variable is elucidated utilizing eloquent figures like mean, standard deviation, maximum and minimum values. Table 2 depicts eloquent figures.

Table 2. Descriptive statistics

Variables	Mean	Std. dev.	Min.	Max.
ROE	0.3951	0.1546	-0.0234	0.5924
ROA	0.0651	0.0230	0.0145	0.0874
CRDR	0.2395	0.1423	0.0400	0.4875
RNCF	0.0557	0.2017	-0.6881	1.1306
LEV	1.4289	1.1548	0.2671	5.2756
LIQ	2.4434	1.1912	1.0191	7.9306
BNKZ	8.3905	0.6243	6.9808	11.118
GDPG	3.8180	6.5361	-12.036	13.936

Source: Authors' elaboration.

It appears from Table 2 that the mean value of ROE is 39.51%, with a standard deviation of 15.47%, a maximum of 59.24%, and a minimum of -2.35%. Mean value of ROA is 6.51%, with a standard deviation of 2.30%, a maximum of 8.74%, and a minimum of 1.46%. $CRDR$ has a mean value of 23.95%, with a standard deviation of 14.23%, a maximum of 48.75%, and a minimum of 4%.

LEV has a mean value of 142.89%, with a standard deviation of 115.48%, a maximum 527.56%, and a minimum of 26.71%. LIQ has a mean value of 244.34%, with a standard deviation of 119.12%, a maximum of 793.06%, and a minimum of 101.91%. $BNKZ$ has a mean value of 839.05%, with a standard deviation of 62.42%, a maximum of 1111.12%, and a minimum of 698.08%. Mean value of $GDPG$ is 381.82%, with a standard deviation of

653.61%, a maximum of 1393.6%, and a minimum of -1203.6%.

4.2. Diagnostic tests

To ensure the eminence of data and before numerous regression scrutiny, there are numerous key perceptions associated with multiple regression analysis that should be accomplished to ensure a model in which authentic errors in forecast are instigated by the correct absence of a relationship between variables and not due to some data distinctive that was not occupied by the regression process. Table 3 depicts outcomes of clinical trials for standard models.

Table 3. Diagnostic tests

Models	Test	Statistic	Value	Prob.
ROA Model	Normality	Jarque-Bera	7.2088	0.0272
	Autocorrelation	F-statistic	17.2718	0.1896
	Heteroscedasticity	F-statistic	1.4280	0.4433
ROE Model	Normality	Jarque-Bera	21.748	0.0001
	Autocorrelation	F-statistic	1.1984	0.2821
	Heteroscedasticity	F-statistic	1.1984	0.2821
CRDR Model	Normality	Jarque-Bera	25.5316	0.0001
	Autocorrelation	F-statistic	1.4366	0.1121
	Heteroscedasticity	F-statistic	0.9574	0.5851

Source: Authors' elaboration.

The low probability of the Jarque-Bera test data in Table 3 depicts that baseline regression sums for all models are evidently non-normal. This can raise doubts about ordinary least squares (OLS) outcomes, specifically when a small sample size is encompassed. Given that numerous regression scrutiny holds tentally with high sample sizes, this may not be the chief issue in this case. In the argument of Gujarati (2004), that in big specimens (more than 100 observations), general perception can be loosened and does not depict a pivotal role. Hair et al. (2006), indicating that in a huge sample size (more than 200), there should be no main problem with defilement of mutual perception. Since the extent of the sample of this study is considered great ($n = 180$), as a violation of the usual condition is considered significant, the general condition can be loosened. From Table 3 outcomes, the Bruce-Godre serial correlation Lagrange Multiplier (LM) test for the existence of autocorrelation exposes all models (ROA, ROE, & CRDR) that make the F-statistic. In other words, an additional p-value higher than 0.05. Hence,

the study concludes that all models have no serial correlation.

4.3. Correlation analysis

Table 4 depicts correlation of variables, which exposes the connection between dependent and independent variables in this study. Matrix provides a wide view of how each variable is connected to others, which goes to both the strength and direction of their relations. Positive correlation proposes that as one variable upsurges, the other also upsurges; on the contrary, negative correlations propose that an upsurge in one measure is related to a decline in another. Correlation coefficients, from -1 to +1, help assess degree of linear relationship between variable couples. This is vital to comprehend interdependence between matrix variables, and it aids in classifying probable diverse issues or strengthening hypothetical structure guiding the study.

Table 4. Pearson correlation analysis

Probability	ROE	ROA	CRDR	RNCF	LEV	LIQ	BNKZ	GDPG
ROE	1							
ROA	-0.059	1						
CRDR	-0.143	-0.027	1					
RNCF	0.249	0.107	-0.128	1				
LEV	0.019	-0.272	0.023	-0.563	1			
LIQ	0.069	0.191	-0.182	0.007	-0.110	1		
BNKZ	-0.000	0.072	0.232	0.093	0.003	-0.099	1	
GDPG	0.449	-0.087	-0.138	0.621	-0.184	0.015	-0.060	1

Source: Authors' elaboration.

It is clear from Table 4 that the correlation matrix, which depicts the association between their correlations with independent variables with correlation matrix which dependent variables (ROE), ROA (return on property), and CRDR. The matrix depicts that ROE is distinct from CRDR, meaning that, like credit risk upsurges, deterioration in equity returns leads to a decline. Though ROE has a judicious positive relationship with GDPG, demonstrating that swift economic expansion is not decisively linked with high ROE. ROE has a slight negative correlation with ROA and RNCF. ROA has a very weak negative correlation with CRDR, which is amid minor inverted link between ROA and CRDR. There is also a negative involvement between ROA and LEV, which means that there is a slight relationship with poor returns on augmented property. Moreover, ROA has a minor positive association with LIQ. CRDR is somewhat negatively allied with credit risk measure, ROA and RNCF, which means that high credit risk is allied with low

asset returns and net cash flows. Though CRDR is positively allied with BNKZ, which means that large banks have more credit risk.

4.4. Panel types

Before we run data, we have to check whether the panel type is dynamic or stable or not. In panel data economics, dynamic and stable models are frequently utilized to scrutinize variation of relationships over time. These models are accountable for the stability of these relationships in numerous dynamics (like interval effects or time-skewed behavior) and periods of study.

Dynamic panel data models: Dynamic panel data models are utilized when dependent variables (e.g., ROE, ROA, or CRDR) are inclined not only by current explanatory variables, but also by their prior values (Lag). This is chiefly pertinent in cases where prior conduct affects existing outcomes, like financial or economic recital.

Stable panel data models: Stable panel data models assume that the connection amid variables does not alter significantly over time. Stability depicts that the coefficients of the model endure stable throughout time under contemplation. To choose amid a stable and dynamic panel data model, numerous clinical testing and criteria can be pragmatic. According to Baltagi (2021), the selection process comprises the inspection of variables depending over time, as well as testing for autocorrelation, endogeneity and stationarity.

Unit root tests aid in evaluating whether the data in a panel is stable or non-stationary. Presence of unit route proposes a prerequisite for dynamic models, which may be accountable for provisional dependence of data, frequently utilizing lagged dependent variables. If data is detected to be stable, traditional models like fixed effects (FE) or random effects (RE) are frequently more suitable, as they do not require modelling of time dependence. Thus, unit root testing plays a central role in guiding the selection between dynamic and traditional panel models in a test economy (Baltagi & Kao, 2001).

4.4.1. Unit root test (Panel data stability test)

Stability of panel data is one of the utmost vital stages in the conception of standard models, as the existence of a unit root in data can have negative outcomes for touching properties of estimators or even an estimated model can be considered as an unprompted model (Achouch, 2017). Unit root test and levin-choo test conclusions are depicted below in Table 5.

Table 5. Levin, Lin and Chu unit root test

Variables	Statistic	Prob.
ROA	-3.45806	0.0003
ROE	-1.91387	0.0278
CRDR	54.4018	0.0001
LEV	-11.0463	0.0000
LIQ	-1.9610	0.0249
RNCF	-4.23546	0.0000
BNKZ	-10.3661	0.0000
GDPG	-3.6236	0.0001

Source: Authors' elaboration.

Table 7. Hausman test for all models

Models	Prob.	Chi ² d.f.	Chi ² statistic	Suitable model
ROA	8.373203	5	0.1368	Random effect model
ROE	4.781519	5	0.4431	Random effect model
CRDR	5.641440	5	0.3427	Random effect model

Source: Authors' elaboration.

Observing outcomes in Table 7, it is clear that the statistical probability value of all models is higher than 5%. Accordingly, the H_0 was accepted; thus, the REM is an appropriate model for presenting the ROA, ROE and CRDR models.

4.4.3. Multiple regression outcomes of financial flexibility with banks' performance and credit risk

Recovery analysis of the study is executed utilizing random effect estimates. REM is utilized for models

As depicted in Table 5, all dependent and independent variable levels are stable, which means that all variables remain stable throughout the study period, as all variables had p-value statistical implications below the threshold (0.05). These outcomes meet the necessities of stable panel data models.

4.4.2. Stable panel data investigation

To classify the magnitude of the effect of financial flexibility on profitability and credit risk, we have to choose a suitable approach (FE, RE, or pooled OLS). To select a suitable model that fits the nature of the study data. Hence, the LM test was executed to equivalence among pool regression models. Table 6 depicts the outcome of the LM test for the ROA and ROE models.

Table 6. Lagrange Multiplier test (Breusch-Pagan test)

Models	Cross-section	Time	Both
ROA	0.4892 (0.4843)	27.6151 (0.0000)	28.1043 (0.0000)
ROE	2.4452 (0.1179)	3.0769 (0.0794)	5.5221 (0.0188)
CRDR	1.2890 (0.2562)	345.5746 (0.0000)	346.8635 (0.0000)

Note: Value of prob. is in parentheses.
Source: Authors' elaboration.

By observing outcomes in Table 6, it is clear that the statistical probability value of ROA, ROE and CRDR models reached 0.0000, 0.0188 and 0.0000 respectively, and thus it is less than 5%. Accordingly, H_0 was properly accepted. Models to assess all models.

H_0 : Random effect model (REM) is suitable.

H_1 : Fixed effect model (FEM) is suitable.

If the p-value is less than 5%, it means rejecting H_0 and accepting the concept of existence H_1 . Thus, FEM is a suitable model. Whereas, if p-price is more than 5%, it means accepting H_0 . Thus, REM is a suitable model. Table 7 depicts outcomes of the counselling test for return on property and the return to equity model.

ROE, model ROA and CRDR models. The results of the Hausman and Breusch-Pagan tests, which are shown in Tables 6 and 7, respectively, indicated that this choice was suitable. Since ROE and ROA are utilized to examine bank recital, numerous regression analyses are executed on each independent and dependent variable.

Table 8. Manifold regression outcomes of financial flexibility with banks' performance and credit risk

Variable	ROA Model		ROE Model		CRDR Model	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
LEV	0.0397	4.9834 (0.0000)	0.0015	5.0494 (0.0000)	-0.1140	-12.645 (0.000)
LIQ	0.1032	17.600 (0.0000)	0.0036	8.1120 (0.0000)	-0.0502	-5.8344 (0.000)
RNCF	0.3547	9.4046 (0.0000)	0.0141	9.3242 (0.0000)	-0.3896	-7.6029 (0.000)
BNKZ	0.0021	2.7423 (0.0073)	6.81E-05	2.5047 (0.014)	0.0071	15.679 (0.000)
GDPG	0.0264	37.903 (0.0000)	0.0002	13.842 (0.0000)	-0.0002	-0.4146 (0.6794)
C	8.1119	383.97 (0.0000)	0.0245	15.491 (0.0000)	4.7113	134.66 (0.000)
Adjusted R-squared	0.9660		0.7699		0.8342	
F-statistic	563.97		67.267		100.65	
Prob(F-statistic)	0.0000		0.0000		0.0000	

Note: *p*-values are in parentheses.

Source: Authors' elaboration.

It is clear from Table 8 that the F-statistic is vital, which depicts the overall implication of the model. Moreover, models propose that the R^2 of ROA, ROE and CRDR are 96.60%, 76.99%, and 83.42%, respectively. It is also noted from Table 8 that LEV, LIQ, RNCF, BNKZ, and GDPG depicted a substantial impact of 5% on ROA and ROE. Also, LEV, LIQ, RNCF, and BNKZ depicted a substantial impact on 5% with CRDR. In contrast, the substantial impact of GDPG had more than 5% and thus did not critically affect CRDR.

5. DISCUSSION

5.1. Discussion of findings of bank performance models

Outcomes of recession of study propose that banks are evaluated by profitability (indicated by ROA) and liquid assets for liquidity, as total assets (LA/TA) are quite positively correlated. Banks with large liquidity buffers are better equipped to meet small obligations without utilizing exclusive emergency borrows, which diminishes funding costs and conserves net interest margin. This is the outcome of this relationship. Numerous vital mechanisms are accountable for positive linkage: banks with high liquidity are less likely to lack liquidity, which protects them from fines for late payment or legal violations. In market stress times when contestants may face obstacles, banks with adequate liquidity are able to take advantage of attractive lending possibilities. Banks can prevent sales of distressed assets that will diminish capital and low income by keeping adequate buffers. This outcome is in line with prior research of Jadah et al. (2020), who also detected that liquidity risk is a vital factor in determining bank profitability. Our findings combine this body of knowledge, depicting that during economic recession, when funding markets become unstable and the quality of assets declines, ROA profits of liquidity are utmost noticeable.

Also, according to the study, there is a robust positive correlation between bank recital set by ROE and liquidity. There are two basic approaches that banks that keep adequate liquid assets often make more money. First of all, they increase ROA by earning more money than all their properties. Second, they increase ROE by providing robust returns to their shareholders. This is due to several

valuable characteristics. These banks maintain their ability to handle unexpected clearance operations through fire sale rates because they stay calm during cash shortages. The security features they possess enable them to get better loan terms which results in lower expenses for their short-term borrowing. The bank can exploit beneficial business opportunities through strategic lending and investment activities when other financial institutions face severe difficulties. The research results match the results of Mashamba and Chikutuma (2023) and Tran et al. (2016).

Banks need sufficient liquidity to operate effectively during economic downturns because banks which maintain strong liquidity positions will outperform others when market competition decreases. The current market indicators point to cash flow management as the essential factor for success rather than using only conventional financial performance indicators. Banks which maintain solid cash flow operations can achieve higher ROE because their business operations become more diverse. The construction of revolving cash at an efficient rate instead of using expensive financing methods allows businesses to generate immediate returns while using debt to support expansion without compromising financial stability. The financial performance of these banks strengthens their emergency capital reserves and investor confidence because they maintain consistent dividend payments which support their ability to generate sustainable returns and maintain long-term operational and financial stability for banking stock valuation.

5.2. Discussion for the credit risk model's findings

The data in Table 8 show that higher leverage levels lead to increased credit risk for Iraqi banks. The Iraqi economy faces reduced financial flexibility because of excessive debt since it operates as an unexpected oil-based system which threatens bank default risks. The absence of strong regulatory oversight allows overlayered banks to experience liquidity shortages which force them to sell assets at depressed values when financial crises occur. The situation leads to reduced capital reserves which creates higher risks for financial institution stability. The Iraqi dinar functions as a currency which creates difficulties for financial stability and

dollar-based loan borrowing from banks which results in higher NPL amounts. The Central Bank statistics show that high-risk banking sectors which include commerce and manufacturing operations maintain the highest number of NPL. The unstable financial situation in Iraq makes leverage the main factor which increases debt default risk because it weakens the ability to handle economic shocks and makes the financial system more vulnerable to debt collapse. The results from this study align with previous findings of Chen and Liu (2024) and Cathcart et al. (2020) who found that leverage creates negative effects on credit risk.

Furthermore, the Table 8 reveals statistically significant negative connectivity between liquidity and credit risk, which is seen at 1% of importance. Banks which maintain high liquidity levels tend to practice caution while avoiding dangerous lending practices which would lead to higher NPL and future debt defaults. The financial stability of banks becomes more sustainable because liquidity functions as a protective mechanism which enhances their capacity to handle and maintain financial stability. The research discovery process follows the findings of Hassan et al. (2019), Ghosh (2015), and Louzis et al. (2012) who demonstrate that liquidity and credit risk have a negative relationship according to their research. Their research demonstrates that credit risk decreases substantially when banks implement augmented liquidity systems.

The banking sector of Iraq experiences increased credit risk when net cash flow ratios remain low according to the data presented in Table 8. A bank's liquidity position becomes weaker when it lacks enough cash to fulfill its short-term financial responsibilities in Iraq's unpredictable economic environment. Banks which operated with weak cash flow management struggled to maintain their cervical servicing and core operations because they lacked reliable income sources while their expenses continued to rise. The current liquidity situation could lead to payment delays while businesses need to borrow more from outside sources which would negatively impact their credit ratings. The framework's fragmented regulatory inspection system becomes more vulnerable to solvency risks because banks cannot build sufficient capital buffers when they have insufficient cash flow. The Central Bank of Iraq provides data which shows that banks operating in trade and manufacturing sectors with cyclical income patterns experience pure cash flow institutions that produce negative or minimal results. The banking system faces reduced flexibility when external shocks occur because net cash flow serves as a vital metric which shows how credit risk accumulates in Iraq's delicate financial system. The research results match the findings of Kamaluddin et al. (2019), who demonstrate how credit risk suffers from cash flow restrictions which also proves that credit risk suffers from these restrictions.

In addition, the Table 8 indicates that big banks function as essential factors which reduce credit risk

throughout the Iraqi banking industry based on their size. Large banks achieve higher profits through their inclusive debt portfolio diversification and better liquidity and capital market accessibility which together enhance their capacity to handle financial shocks. The research findings show that GDP growth rates have a strong negative relationship with credit risk which leads to an increase in NPL.

6. CONCLUSION

The research investigated essential methods which Iraqi commercial banks need to achieve profitability while managing risks during the unstable economic conditions of their country. The research focused on financial flexibility as a bank operational ability to change its business methods and financial organization when economic conditions shift and regulatory requirements change. The research duration from 2010 to 2023 provided an appropriate time frame to study these processes while Iraq experienced its most severe economic challenges. The research results confirm that Iraqi commercial banks need financial flexibility to enhance their overall resilience. The investigation shows that financial flexibility creates a positive relationship which produces statistical significance between ROE and ROA, and these two profitability metrics. The effect occurs because resilient banks can improve their asset management and financial structures while they make strategic changes to adapt to economic changes. Financial flexibility enables banks to manage NPL efficiently while maintaining steady revenue streams and building sufficient liquidity reserves which simultaneously boosts profitability and helps banks control their credit risk exposure. The research findings demonstrate that banks need to establish better capital and liquidity management systems while they should obtain funding from multiple sources. The research faces limitations in its ability to generalize results because it studies only Iraqi banks while using financial data which might not measure all aspects of management quality or operational performance. The research needs additional studies to confirm its results which include comparative analyses between banks operating in economies with similar characteristics (post-conflict or oil-dependent countries). The research recommends studying the core systems which enhance financial stability together with digital transformation and corporate governance mechanisms. The actual data shows that financial stability functions as a fundamental requirement which Iraqi banks need to achieve their long-term success and profitability. The banking sector needs volatility resistance to maintain stability while investors must feel confident about their investments to ensure the financial system of Iraq remains stable in the long run.

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