International Journal of Applied Economics, Finance and Accounting
ISSN 2577-767X
Vol. 21, No. 2, pp. 122-129
2025
DOI: 10.33094/ijaefa.v21i2.2116

The influence of bank-specific variables on banks' stability: Evidence from Saudi Arabia

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Keywords:
Bank stability
Capital adequacy
Funding risk
Liquidity risk.

JEL Classification:
A10; C01; C58.

Received: *10 October 2024*
Revised: *5 December 2024*
Accepted: *23 December 2024*
Published: *13 January 2025*
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Abstract

The goal of this study is to find out what makes Saudi Arabian banks unstable by using a panel data analysis with ten banks' carefully chosen annual data from 2009 to 2022. Based on the fixed effect model, this study indicates that Saudi Arabian bank stability is unaffected by liquidity risk but is statistically and negatively impacted by credit risk and bank size. Conversely, capital adequacy and funding risk positively and statistically impact bank stability in Saudi Arabia. In light of these findings, we strongly recommend making capital adequacy requirements obligatory for bank management, given their beneficial effect on bank stability. This study recommended that bank management adopt practices such as safe loan provision and prompt customer repayment to mitigate credit risk. Bank managers have to guarantee liquidity adequacy in their banks and improve credit standards by increasing client supplemental requirements. While our study found that liquidity risk does not directly affect banks' financial stability, we propose that bank management should also focus on finding effective ways to generate client deposits to enhance financial stability further.

Funding: This study received no specific financial support.
Institutional Review Board Statement: Not applicable.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Data Availability Statement: The corresponding author may provide study data upon reasonable request.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Ideation, design, data collection, analysis, and interpretation of the study's findings, A.E.T.; examined the findings and approved the final paper version once the second author had completed data collecting and drafted the text, A.E.T. and I.I.B. Both authors have read and agreed to the published version of the manuscript.

1. Introduction

Kim, Batten, and Ryu (2020); Shukla (2014) and Adusei (2015) highlight that the global crisis of 2007–2008 sparked concerns about the soundness of financial systems worldwide. The crucial link between a country's financial system and economic growth necessitated this discussion. Extensive research has underscored this connection, concluding that a country's economic growth hinges on the stability of its financial system, which allocates financial resources to the economy (Athanasoglou, Brissimis, & Delis, 2008; Shukla, 2014). Sustaining economic growth and improving living conditions necessitate a financial system that is both efficient and reliable (Kharabsheh & Gharaibeh, 2022). Financial institutions, especially the banking system, play a pivotal role in this context. Banks facilitate money movement and bolster financial stability against issues and crises. They are vital links between surplus and deficit units in any economy. Banks' primary function is the efficient and successful distribution of funds from lenders to borrowers or investors. After the 2008 financial crisis, which interrupted the sector's usual commercial activities, banking supervision authorities are reasonably worried about banks' stability, given the banking system's significance (Tan & Floros, 2012).

Regarding bolstering economic performance, Saudi Arabia's banking sector is expected to be pivotal. Despite several worldwide issues, the Saudi banking sector witnessed robust lending and asset growth in 2022. Despite a minor slowdown in credit growth, retail credit growth was nevertheless substantial, and real estate operations drove corporate credit acceleration. Furthermore, there were excellent development prospects and a

flexible banking system in Saudi Arabia. The low non-performing loan rate reflects domestic banks' adaptability due to variables like stringent lending requirements. The banking industry maintained its high level of capitalization, and soundness indicators revealed a consistent rise in profitability indices. Liquidity ratios were consistently higher than Basel norms in 2022, except for a few brief fluctuations. The Saudi Central Bank's quick cooperation with key partners and its efforts and activities allowed the banking industry to be flexible.

The contributions of our work are based on several important issues. First, our study contributes to the expanding literature on financial stability, which already includes works by Fernández, González, and Suárez (2016); Schaeck and Cihák (2014) and Uhde and Heimeshoff (2009) others. These analyses examine factors influencing bank stability and the origins of financial system weaknesses. By examining Saudi Arabia, we contribute to this body of work. In addition, our study's results can help Saudi Arabian bank officials and management understand how important it is to look at the sector's credit defaults, bankruptcy risk, and how the stability of Saudi banking system is affected by institutional quality and institutions. Thirdly, the stability measure (Z-Score) shows statistically significant variances between 2009 and 2022 for Saudi Arabian banks, ranging from 8.6408 to 79.0561 and a standard deviation of 18.053. Although, on average, Saudi Arabian banks are quite stable, these disparities suggest that other, more important factors may be at play. In light of this knowledge vacuum, the current research identifies the critical success factors for Saudi Arabian banks' financial stability. Last, the empirical research reveals that only a few variables were considered when explaining banking sector stability. The researcher is unaware of any research examining the elements impacting Saudi Arabian banks' stability. Since banks in Saudi Arabia are generally stable, this report provides more proof. This research aims to identify the factors unique to Saudi Arabian banks that affect their stability. The remaining research is organized as follows: Literature reviews are the focus of the second part. Section 3 lays out the approach, Section 4 displays the results and estimates, and Section 5 draws conclusions.

2. Literature Review

The banking sector's importance to the long-term viability of national economies has attracted the interest of many academics, researchers, and analysts aiming to comprehend the determinants of banks' financial stability. Researchers have examined the correlation between bank stability and other elements in several circumstances. Schinasi (2004) defines financial stability as the ability of financial institutions to stabilize economic processes, withstand shocks, and manage risk. A substantial amount of research concentrated on bank stability during the global financial crisis of 2007 and 2008 (Kim et al., 2020). The researchers investigate several microeconomic topics, including studies by Amara and Mabrouki (2019) and Djebali and Zaghdoudi (2020). This is an overview of many research studies aimed at identifying the factors that affect bank stability.

Güngör (2023) examined the determinants of financial stability of the banking sector of Turkey. Applying Driscoll and Kraay robust standard errors estimator on the data of six banks for the period of 2019Q1 to 2023Q1, the results showed that the variables of risk-weighted, risk-weighted capital, and bank size have significant negatives on bank stability, while loan ratio, collected funds ratio, and cost-to-income have a positive influence on bank stability. Also, fund diversification and assets have a negative effect on bank stability, while there is a positive relationship between income diversification and the stability of banks in Turkey.

Kharabsheh and Gharaibeh (2022) identified the factors influencing the soundness of Jordanian commercial banks by analyzing annual data sets from 2011 to 2018. According to this study, commercial banks in Jordan are vulnerable to financial inclusion, liquidity, and credit risk. In contrast, capital adequacy and small and medium enterprise loans positively affect their stability (according to the combined effect model). Bank managers should adhere to capital adequacy regulations since they improve bank stability, and the research recommends increasing bank loans to small and medium firms. To address the low financial inclusion ratios reported in many financially solid institutions, this research indicates that banks should increase financial inclusion rates. Conversely, commercial banks in Jordan that have achieved a high degree of financial inclusion should work to reduce the expenses linked to this trend. In addition to tightening loan standards with more collateral, bank management should ensure their institutions have sufficient liquid assets. Customers' needs must be satisfied.

Zeqiraj, Mrasori, Iskenderoglu, and Sohag (2021) examined the impact of banking profitability on financial stability in Southeast European nations. The Generalized Method of Moments (GMM) technique was employed to analyze panel data from 2000 to 2015, revealing a significant positive correlation between return on equity, return on assets, human capital, and trade openness with financial stability in south-eastern European countries. In contrast, governmental expenditures negatively impacted the region's financial stability. The findings indicated that human capital, government spending, and trade openness help sustain financial stability.

Ozili (2019) research examines the reasons for Nigeria's bank instability. The economy's growth and the banking system's stability are inseparable. This study takes a broader look at the variables impacting banking stability in Nigeria than previous studies focusing on specific bank performance. We can zero in on the broader changes happening in the banking industry by using collective outcomes. The results show that factors such as statutory capital ratios, financial depth, banking concentration, the size of nonperforming loans, and bank efficiency have an effect on how stable Nigerian banks are. There are consequences to the results. Authorities in Nigerian banks should focus more on capital adequacy and nonperforming loan issues if this study is to be believed. Furthermore, banking authorities are responsible for enforcing rules that aim to enhance the efficiency of the financial system.

Daoud and Kammoun (2020) examine the correlation between banks' stability and six bank-specific indicators alongside macroeconomic variables, using a sample of 81 Islamic banks throughout 22 nations from

2010 to 2014. The study's results indicated that all factors in the model substantially affect the stability of Islamic banks. The non-risk-weighted capital variable is the main predictor of Islamic banks' stability, whereas their size adversely affects it. Empirical findings indicated that the risk-weighted capital ratio, total deposits relative to total assets, loans relative to total assets, and overhead costs relative to total assets substantially affect the stability of Islamic banks.

The research paper by Adusei (2015) addresses the following issues: Does the size of a bank have a substantial bearing on its stability? Is it possible that soccer has more followers than any other sport worldwide? How significant is financing risk in determining the viability of a bank? Data from Ghana's rural banking business is the basis for two questions. Factoring in the potential for default, inability to pay commitments, diversification of operations across industries, generation of income, and price increases related to financial structure and Gross domestic product (GDP), the results show that there will be an increase in rural banks becoming more stable as they grow. According to the results, banks are more secure when they face funding risk—the solid bond (Implications for the current conversation stem from the size-bank stability link. The issue is whether or not the financial system should be protected from possible dangers in the event of future disasters by imposing size limits on banks. Funding risk and the stability of banks are highly correlated—substantial ramifications for the continuing debate over retail banks' financial assistance.

Antony, Peter, and Odhiambo (2021) investigated the impact of bank concentration on financial stability in Kenya's banking system using direct and indirect structural equation modelling (SEM). Findings suggest that concentration-related risks, such as rising interest rates and service fees, might worsen credit and systemic vulnerabilities in Kenya's banking industry, which is already quite concentrated. This finding also lends credence to the competition-stability concept since competition is essential for maintaining the financial system's stability. Using information gathered from twenty-four different commercial banks in Pakistan between 2007 and 2015, the statistics show that regulations that promote financial stability and concentration help keep the cardiac market competitive.

What makes the country's banking system stable and profitable was the subject of research by Ali and Puah (2019). The analysis disaggregated the effects of profitability and bank stability. Study results show that credit risk does not affect stability, but profitability, bank size, liquidity, and financing risks do. However, the impacts of the financial crisis on bank profitability and stability are statistically insignificant. Kamran, Omran, and Mohamed-Arshad (2019) use an ordinary least squares regression model with random and fixed effects to examine the influence of eight independent factors on financial stability using two metrics: the Z-score of return on assets and return on equity. The following factors are considered variables: operational risk, financial crisis, nation risk, liquidity risk, credit risk, capital adequacy ratio, and market risk. According to the findings, the Z-score Return on assets (ZROA)—a metric for financial stability—is negatively impacted by credit, operational risk liquidity, and credit. While market and national circumstances do not affect ZROA, the Financial Crisis Risk (FCR) variable hurts it as a financial stability metric. The study found that liquidity risk, low asset quality, and increasing operating expenses are associated with bank instability. While CAR harms financial stability, Audit quality(AQ) correlates favorably with ZROE. In their 2023 study, ALfadli and Sahraoui (2023) looked at what the Middle East and North Africa (MENA) countries may do to make their banking institutions more secure financially. 132 banks and other financial organizations from 14 MENA countries participated in the research between 2011 and 2002. The study's control variable that illustrates the stability of banks is financial factors such as banking efficiency, financial inclusion, competition, and development. Increasing stock market capitalization alone cannot achieve financial stability in banking systems; these systems also benefit from increased efficiency, financial inclusion, and competitiveness.

Twelve retail banks in Pakistan, nineteen of which were conventional and five of which were Islamic, had their data gathered from 2007 to 2015. In their 2019 study, Ali, Sohail, Khan, and Puah (2019) identified four factors—corruption, liquidity risk, credit risk, and financing risk—that influence the stability of banks. Research shows that factors including bank size, financing risk, liquidity risk, and corruption all have a role in a bank's stability. Additionally, there is a negative association between credit risk and bank stability, and research reveals a positive and statistically significant connection between corruption and bank stability.

The association between banking risk and the financial stability of 15 banks in Pakistan is examined by Chai, Sadiq, Ali, Malik, and Hamid (2022) using a dataset that spans 12 years, from 2009 to 2020. Findings from the study's fixed effects model indicate that liquidity and credit risks favorably impact financial stability. On the other hand, financing risk has zero bearing on the stability of banks. In addition, regarding bank stability, return on assets (ROA) is good, while bank size is terrible. Banks would go out of business without taking leadership action to provide safe credit and reduce credit risk via customer commitment to loan payback.

Further assurance of financial stability may be achieved by diligent monitoring of financial circumstances and management mobilization of client accounts. Our primary objective was to demonstrate that specific characteristics unique to Saudi Arabian banks are associated with stability. To summarize, previous studies have shown conflicting results when examining the effect of bank-specific factors on bank stability. Few studies have focused on finding agreement among researchers. This problem has arisen due to a lack of empirical support, and existing knowledge studies, particularly in developing countries, should be more direct in resolving it. Consequently, it would be best to investigate the specific aspects that influence the stability of Saudi Arabian banks. With that background in mind, we came up with the following hypotheses:

H_1: Their capital sufficiency heavily impacts the soundness of Saudi Arabian financial institutions.

H_2: Bank stability in Saudi Arabia is greatly affected by credit risk.

H_3: The financial security of banks in Saudi Arabia is greatly affected by funding risk.
H_4: The stability of banks in Saudi Arabia is greatly affected by liquidity risk.
H_5: Bank size significantly influences the stability of Saudi Arabian banks.

3. Methodology

3.1. Data

This research aimed to examine the relationship between the stability of Saudi Arabian banks and several financial metrics such as liquidity ratio, credit risk, capital adequacy ratio, funding risk, and bank size. Ten banks listed on the Saudi Stock Exchange were selected for this investigation. The data included in the research came from the annual reports that each bank posted online from 2009 to 2022.

3.2. Variables Selection

In this section, we provide the variables that best describe the factors contributing to the stability of the Saudi Arabian Bank.

3.2.1. Dependent Variable

3.2.1.1. Bank Stability

One way we assess Saudi Arabian banks' stability is by using the Z-score (BST). Accordingly, stability is less likely to occur at larger z-scores. The Z-score is calculated in the following way:

$$Z - Scors = \left[\!\left[\frac{ROAi,t + \frac{Ei,t}{Ai,t}}{\sigma(ROAi,t)}\right]\!\right]$$

Where:
Z - score (BSTi, t) = The continuity of bank (i) throughout time (t).
ROAi, t = Rate of return on assets bank (i) held on a time series (t).
Ei, t = Equity of bank (i) in time (t).

3.2.2. Independent Variables

3.2.2.1. Capital Adequacy (CAR)

The capital adequacy ratio (CAR) is a crucial indicator for evaluating the effectiveness of the bank's operations. This ratio shows how well a bank can handle assets that might be dangerous (Yudha, Chabachib, & Pangestuti, 2017). Raising the capital adequacy ratio improves a bank's bottom line, say (Zulifiah & Joni, 2014). Our method for calculating capital sufficiency is as follows:

$$CARi,t = \frac{CIi,t}{WACCi,t}$$

Where:
At time t, the capital adequacy ratio of bank i is represented as CAR I, t.
The total capitalization of all banks (i) as a function of time (t) is denoted as CIi, t.
The bank's cost of capital (i) over time (t) is called the weighted average cost of capital (WACC, t).

3.2.2.2. Credit Risk (CR)

The correlation between total loans and nonperforming loans is known as credit risk. This percentage indicates the overall credit risk that the bank faces. This percentage is based on the terms that the borrowers have agreed to. For credit risk, we use the following metrics:

$$CRi,t = \frac{NPLi,t}{TLi,t}$$

Where:
Cri.t = Bank's Credit Risk (i) at the time (t).
Non-performing loans of a bank (i) in time (t) are represented by NPLi, t.
A bank's total loan at a given time is denoted as TLi, t.

3.2.2.3. Funding Risk (FRISK)

As you add up the equity-to-total asset (E/TA) ratio and the deposit-to-total asset (DEP/TA) ratio, and then take away the standard deviation of the DEP/TA ratio, you get a measure of funding risk.

$$FRISKi,t = \left[\frac{\frac{DEP}{Ai,t} + \frac{E}{Ai,t}}{\sigma\left(\frac{DEP}{Ai,t}\right)}\right]$$

To rephrase, FRISKi represents an institution's financing risk (i) over time (t).
The percentage of a bank's total deposit assets is DEP/Ai, t, where t is a function of time.
The equity-to-assets ratio (E/Ai, t) measures a bank's efficiency over a certain period of time.
A bank's deposit-to-asset ratio (i) standard deviation over time (t) is denoted as σ (DEP/Ai, t).

3.2.2.4. Liquidity Risk

Liquidity risk shows banks' ability to repay customers' use of funds by relying on loans as a source of liquidity. We measure liquidity risk as follows:

$$LRISK\ i,t\ = [\frac{TLi,t}{TDEPi,t}]$$

LRISK i, t represents the bank's liquidity risk at time t.
A bank's total loans at a given period are denoted as TLi, t.
A bank's total deposit (i) at the time (t) equals TDEPi, t.

3.2.2.5. Bank Size (BS)

In agreement with other research, Adusei (2015) uses the natural log of total assets as a proxy for bank size. The natural logarithm of a bank's assets measures its size.

3.3. The Model

To examine the factors affecting the stability of banks in Saudi Arabia, a panel data model is used to analyse the impact of bank-specific variables on the stability of the Saudi Arabian banking system. The research used a balanced dataset of 10 banks, with yearly data spanning from 2009 to 2022 due to data availability, sourced from the annual financial reports of each bank. The panel data model has several advantages over other cross-sectional and time series methods. For example, the panel approach delivers more information on the study variables and controls the occurrence of heterogeneity among sections. This results in enhanced efficiency and dependability in the outcomes. The panel model also solves the problems of time series data not being stationary and have not enough distributions. The panel model of our research is predicated on the following variables: Bank stability (BST) serves as the dependent variable in our research model, while liquidity ratio (LR), funding risk (FRSK), capital adequacy ratio (CAR), bank size (BS), and credit risk (CR) are the independent variables. The factors of bank stability may be articulated in their most basic functional form as follows:

$$BSTi,t = \propto\ + LRi,t + CRi,t + CARi,t + FRSKi,t + BSi,t + \varepsilon it \qquad (1)$$

Where:
BSTi, t = Bank (i) stability in time (t).
LRi, t: Liquidity risk of a bank (i) in time (t).
Cri.t = Credit risk of a bank (i) in time (t).
CAR i, t = Capital adequacy ratio of bank (i) in time (t).
FRISKi, t: Funding risk of a bank (i) in time (t).
BSi, t: Bank size of a bank (i) in time (t).

4. Empirical Result

4.1. Correlation Matrix

Testing the correlation between the explanatory variables ensures that they do not influence one another. When the correlation value between two variables exceeds 80%, multicollinearity occurs, as mentioned by Gujarati (2021). According to Table 1, there is a negligible degree of association among the various explanatory variables. At 0.241 (less than 80%), the FRISK and CAR variables show the strongest association. Consequently, the analysis concludes that the explanatory variables do not exhibit any signs of multicollinearity.

Table 1. Correlation matrix among the study variables.

Variables	LIQSK	CR	CAR	FRISK	SIZE
LIQSK	1				
CR	-0.156	1			
CAR	-0.128	-0.049	1		
FRISK	0.020	-0.076	0.241	1	
SIZE	0.092	-0.148	-0.032	0.195	1

4.2. Descriptive Statistics

In Table 2, the variables (Z_SCORE), (FRSK), (LR), (CAR), (CR), and (BS) are shown statistically. The standard deviation, which quantifies the dispersion from the mean and the highest and lowest values, is an essential part of descriptive statistics.

The dependent variable (Z_SCORE) ranges from an average of 40.8762 to a standard deviation of 18.0539, as shown in the table values. The following ratios are typically observed: LR for liquidity, 0.1869 for credit risk, 0.0224 for financing risk, 8.1520 for bank size, and 4.1184 overall.

Individual variables have corresponding 140 observations with standard deviations of 0.0769, 0.0225, 0.0386, 1.5412, and 0.3386.

The descriptive statistics of the additional variables may be seen in Table 2.

Table 2. Descriptive statistics of the study's variables.

Variables	Z_SCORE	LIQSK	CR	CAR	FRISK	SIZE
Mean	40.876	0.625	0.022	0.186	4.118	8.152
Median	40.414	0.635	0.015	0.182	3.996	8.219
Maximum	79.056	0.824	0.201	0.340	7.316	8.961
Minimum	8.640	0.064	0.000	0.015	1.786	7.238
Std. dev.	18.053	0.076	0.022	0.038	1.541	0.338
Skewness	0.400	-2.962	4.304	0.726	0.661	-0.385
Kurtosis	2.221	2.064	5.038	4.375	2.525	3.007
Observations	140	140	140	140	140	140

4.3. Panel Unit Root

To ensure that a time series' integration order is correct using probability values, we utilize the Im, Pesaran, and Shin (1997). Since testing unit roots is a novel method for economists, according to Alam and Paramati (2015) testing unit roots in time series is more trustworthy than in the past. To ensure that the time series is stationary, we apply Im-Pesaran-Shin based on this perspective. All variables are statistically significant and exhibit stationary behaviour at the first difference, as shown in Table 3 of the unit root test. Table 3 shows the results of the tests, which show that all these variables are statistically significant and stationary at the first difference. Therefore, this research focuses on the first distinction. This study accepts the alternative premise that the research variables' time series are stationary at the first difference.

Table 3. Unit root test of the study's variables.

Variables	I(0)		I(1)	
	C	C&T	C	C&T
Z_SCORE	-1.370	-0.708	-5.112***	-4.079***
LIQSK	-1.426	-1.442	-7.140***	-6.305***
CR	-1.419	-0.805	-3.987***	-3.450***
CAR	-0.361	0.340	-3.782***	-2.534*
FRISK	0.405	0.403	-4.049***	-3.245***
SIZE	-0.018	1.405	-3.934***	-3.785***

Note: *** significance at 1 percent level, and * significance at 10 percent level.

4.4. Discussion Results

Table 4 shows the outcomes of a three-panel model that looked at how LIQSK, CR, CAR, FRISK, and SIZE affect the stability of Saudi Arabian banks. The models used pooling effects, fixed effects, and random effects. The data used for this analysis spans the years 2009–2022. We used Lagrange multiplier (LM) tests to evaluate the two models—the pooled and random effects and find out which was better. After that, we compared the fixed and random effects models using the Hausman test to see which one worked better. Table 4 shows that the fixed effects model best serves our inquiry.

Table 4. Regression results of panel data models (Pooled effect, fixed effect, and random effect).

Variable	Pooled effects		Fixed effects		Random effects	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
C	16.171***	0.000	14.171***	0.000	15.469***	0.000
LIQSK	6.357	0.450	6.357	0.450	-11.903	0.133
CR	-25.678**	0.035	-24.678**	0.035	-29.751*	0.059
CAR	19.930***	0.000	20.930***	0.000	19.670***	0.000
FRISK	4.659***	0.009	4.659***	0.009	-1.992*	0.079
SIZE	-20.592***	0.000	-20.592***	0.000	-15.132***	0.000
Adjusted R2	0.413		0.920		0.340	
F-test (p-value)	20.624 (0.000)		115.555(0.000)		15.384(0.000)	
LM test (p-value)	-		95.533(0.000)		-	
Durbin-Watson test	1.395		1.555		1.164	
Hausman test (p-value)	-		77.144 (0.000)		-	
Observations	140		140		140	

Note: *** significance at 1 percent level, ** significance at 5 percent level, and * significance at 10 percent level.

The corrected R-squared score for the model is 92.02%. The study's explanatory factors account for 92.02 percent of the variation in the dependent variable, bank stability. According to the statistically significant F-test results, the research is suitable. For Saudi Arabian banks, liquidity risk (LIQSK) has no bearing on stability (Table 4). An increase in liquidity risk does not affect the stability of Saudi Arabian banks.

If you look at the ratio of bad loans, the coefficient value of CR has a negative and stable effect on the stability of Saudi Arabian banks (see Table 4). The coefficient of (-24.678) indicates that for every one percent increase in credit risk, the stability of banks will decrease by 24,768 points. To restate, the level of credit risk is

directly proportional to the probability of bankruptcy. Specifically, our data shows that when credit risk increases, bank stability decreases. A potential way to look at this conclusion is that rising interest rates result from customers' greater willingness for credit risk. According to our findings and other studies, credit risk should hurt bank stability because of loose credit line circumstances (e.g., Adusei (2015)). Ghenimi, Chaibi, and Omri (2017) and Zaghdoudi (2019).

At the 1% significance level, the capital adequacy ratio coefficient value of 20.93 shows a favorable and statistically significant outcome. 20.93 points will enhance the stability of the Saudi Arabian Bank with a 1% increase in the capital adequacy variable. Capital sufficiency hypothetically makes a bank more resilient to losses and collapse. Banks should increase the amount of risk capital they put aside to mitigate the risks associated with their excessively hazardous lending practices (Demirguc-Kunt, Detragiache, & Merrouche, 2013). The results that Sang (2021); Daoud and Kammoun (2020) and Salami (2018) have found all point to the capital adequacy ratio having a favorable effect on bank stability.

According to our findings, funding risk (FRISK) positively and significantly affects bank stability. A rise in financing risk improves bank stability. A 1% increase in financing risk will lead to a 4.65% improvement in bank stability, according to the FRISK coefficient value of 4.65. A more stable financial system might explain the observed results, which could have resulted from Saudi Arabian banks efficiently attracting customer deposits. Köhler (2015); Adusei (2015) and Shleifer and Vishny (2010) have all come to similar conclusions.

Table 4 shows that the bank size variable has a statistically negative impact on the stability of Saudi Arabian banks, with a coefficient value of -20.59. What this means is that bigger banks are not always more stable. A one percentage point rise in bank size results in a twenty—59 percentage point drop in stability. Because of diversification and economies of scale, large banks are more secure. In general, bigger banks are less stable, according to our data. Perhaps this is because it is more challenging to manage more prominent organizations. There is conflicting evidence about the effect of bank size on stability. There is an inverse relationship between bank size and stability, according to studies cited by Köhler (2015). Large banks are not always as reliable as smaller ones. According to a study by Laeven, Ratnovski, and Tong (2014) individuals have less risk when interacting with smaller banks. Still, Altaee, Talo, and Adam (2013) found that, statistically speaking, the size of a bank has little impact on its stability.

5. Conclusions

During the financial crisis of 2007–2008, academics, investors, and politicians across the globe started to fret about the security of financial institutions. Keeping banks solvent is critical for encouraging economic growth because of their vital role in every economy. Preliminary descriptive data show the stability of banks in Saudi Arabia. All ten Saudi Arabian banks were part of this panel data research that employed a fixed effects model from 2009 to 2022. The research aims to find out what makes Saudi Arabian banks so stable.

Some factors affect the stability of Saudi Arabian banks in a good way, while others have a negative impact, according to the research. It makes sense that an increase in capital adequacy or financing risk would lead to an enhancement in bank stability in Saudi Arabia, given their positive and statistically significant impact on bank stability. Statistical research, however, reveals that the stability of banks in Saudi Arabia is significantly and negatively affected by credit risk and bank size. According to the findings, liquidity risk does not impact the stability of Saudi Arabian banks.

Our study's results have several ramifications for the Saudi Arabian regulatory authorities and bank management. To reduce credit risk, bank management should use safe lending methods and encourage customers to repay loans quickly. According to our analysis, liquidity risk does not affect banks' financial health. However, to make things more stable, bank management needs to determine how to attract more customers' deposits. Lastly, the Saudi banking system needs its regulators and supervisors to make it more robust and stable.

Limitations of the study: Along with its many implications, our research includes a few limitations:

1. The research only comprised tens of banks in its sample size.
2. The research just used variables from microeconomics.
3. Generalizing the study's conclusions is challenging since it was restricted to the Saudi banking industry.

Further investigation: Future research may analyse micro- and macroeconomics and include a larger sample of banks to better understand the variables that impact bank stability.

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