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## The Impact of Financial Inclusion on Banking Stability- An Analytical Study in the Iraqi Banking Sector

Mohammed Hammad Safi<sup>1\*</sup>, Hichem Khli<sup>2</sup>

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### ABSTRACT

This research examines the impact of financial inclusion, as indicated by its indicators, on banking stability. The Iraqi banking sector has been tested, and the main research problem revolves around finding appropriate ways to achieve financial inclusion that align with the Iraqi Central Bank's policies, tailored to the Iraqi environment to achieve stability in the banking sector. The research was applied to the banking sector as a whole through quantitative and statistical data analysis from 2010 to 2021. The main hypotheses were tested to determine the impact relationships between research variables, to answer the research questions and achieve the set objectives. To analyze the data and information, various statistical methods were used using the statistical software (STATA13) and EXCEL, in addition to using the least squares method with the regression model for the hypotheses. The research yielded a set of results, indicating a significant partial effect of financial inclusion indicators on banking stability in this study. The results of the financial inclusion indicators in banking stability varied, and the sub-hypotheses were partially accepted, emphasizing a greater contribution of financial inclusion to it.

### INTRODUCTION

One of the main lessons learned from financial crises, including the global financial crisis of 2007-2009, and culminating with the COVID-19 crisis, is the importance of containing systemic financial risks and maintaining financial stability in general, and banking stability in particular. At the same time, countries' economies strive to enhance financial inclusion, increasing access to financial services for low-income households and small businesses. This is part of their comprehensive economic and financial development strategies, facilitated through modern electronic systems that help extend banking services to a wider range of financial consumers. Electronic systems have played a significant role in the overall economic and financial sector, particularly in the banking sector, which has seen significant developments in banking services. The banking needs and demands of the population have changed significantly over the years, with the expectation of accessing these services at anytime and anywhere, with minimal cost and effort.

In alignment with these developments in the nature of electronic banking services, the current research idea has crystallized to address important and critical factors in banking, namely financial inclusion and banking stability. The results of many practical or applied studies have demonstrated the significance of these variables in the success and leadership of many banks in different environments, increasing their market share. Given the need of Iraqi banks for such studies and research, this research aims to test these variables in the Iraqi banking sector. Accordingly, the main objective of the research is to diagnose the levels of financial inclusion and banking stability in the Iraqi banking sector. To achieve this objective, the research includes, according to its

methodology, an overview of financial inclusion, while the second part addresses banking stability and presents the research framework.

### LITERATURE REVIEW

#### Financial Inclusion

The authors and researchers have approached the concept of financial inclusion from different perspectives. (Lenka & Sharma, 2017) defines it as "the process of ensuring that vulnerable groups, such as low-income sectors and low-income groups, have access to suitable financial products and services at reasonable cost equitably and transparently by efficient mainstream institutions." On the other hand, (Guérineau & Jacolin, 2014) sees it as "permanent access of the population to a variety of suitable financial products and services at reasonable costs and their effective and efficient use." From this definition, three areas can be identified to define financial inclusion: access (supply), usage (demand), and affordability (financial conditions/product quality). Additionally, (Barajas *et al.*, 2020) aims to generalize banking and financial products and services to all members of society with different segments through innovative, high-quality, and reasonably priced financial services using formal methods, including financial awareness and education. Therefore, measures of usage likely reflect the availability of access, cost, and quality, and vice versa. With more detailed data available on specific aspects of financial inclusion, either within or across countries, the concept can be expanded to include access, quality, and cost dimensions as well. (Lozi, 2021) introduces integrates financially marginalized or low-income categories that do not allow engagement in banking operations by dealing with the banking system through the digital work system, meaning completing all

<sup>1</sup> Baghdad University, Iraq

\* Corresponding author's e-mail: [mohammad87alsafi@gmail.com](mailto:mohammad87alsafi@gmail.com)

financial transactions electronically. Financial inclusion focuses on providing financial services through easy, simple, and cost-effective methods, such as mobile phone payments.

The importance of financial inclusion lies in empowering low-income individuals to access high-quality and affordable financial services. It also gives them the appropriate importance and priority within the framework of economic policies, legislative development, and regulatory frameworks that help improve the spread of financial and banking services and encourage innovation in this field. Therefore, expanding the reach of financial services benefits society as a whole, enhances individual financial stability (Akhtar & Pearce, 2010), and supports the banking sector and savings. The significance of financial inclusion also stems from its role in supporting entrepreneurs and startups by providing support and funding, enabling these startups to grow into small and medium-sized enterprises. These enterprises generate business opportunities and employment (Blancher *et al.*, 2019). It's worth noting that the widespread availability of financial services and broadening participation in the formal financial system are essential factors in achieving sustainable development goals, improving living standards, empowering women financially, financing small and medium-sized projects, reducing poverty and inequality, creating jobs, promoting economic growth, and integrating the informal economy into the formal economy.

There is a set of objectives that the central bank seeks to achieve by directing banks to hold annual conferences and compete among themselves to achieve financial inclusion because it cannot be achieved without a culture. The informed customer is more aware of the risks and gains associated with financial products and more aware of their rights and responsibilities. Among these goals mentioned by researchers such as (Al-Hasnawi & Mahdi, 2020; Gabor & Brooks, 2017; Helms, 2006; Ishioro, 2022; Kumar, 2011) are; promoting access for all segments of society to financial services, informing individuals about the importance of these services, how to obtain them, and how to benefit from them; improving the living conditions of individuals, especially the poor classes, and working to reduce poverty and achieve prosperity by promoting entrepreneurship, providing economic development opportunities, and improving their social and economic conditions; speeding up access to sources of financing and providing support to small companies to expand their operations to achieve the required investment; establishing freelance projects to promote the country's economic growth; encouraging individuals to save in banks and invest money using optimal methods, such as creating programs and promoting a culture of competition.

The Group of Twenty (G20) issued, along with the Global Partnership for Financial Inclusion (GPII), in June at the Los Cabos Summit, the indicators for measuring financial inclusion. These indicators were developed

during the 2016 China Summit for the purpose of financial inclusion. These indicators address three main dimensions, as adopted by many authors and researchers in their books and studies, including (Al-Chahadah *et al.*, 2020; Eldomiaty *et al.*, 2020; Maher, 2022) : (1) Access to financial services. (2) Usage of financial services. And (3) The quality of financial services, including the quality of products and service delivery.

### Banking Stability

The authors and researchers have addressed the concept of banking stability from various perspectives. (Shubbar & Vladimirovich, 2019) defined banking stability as the optimal way of analyzing the financial situation to avoid financial crises and ensure the banking system's stability. This involves awareness of the need to use an organized approach to achieve and maintain stability in the long term, both at the national and regional levels. (Alsomaidae *et al.*, 2023; Bhattarai, 2020) emphasized that banking stability plays a vital role in the economic growth of a country, as it is a commercial institution that must generate profits from its operations to survive and fulfill its responsibilities. The main activities of commercial banks include resource mobilization, which involves costs, and profitable resource deployment. Generating income exceeding expenses is the primary source of a bank's profit. In cases where the bank fails to achieve sufficient returns on the allocated resources, it depletes both the company's and the state's resources. Assets are the most important factor in determining the strength of any financial institution. The key factors to consider are the quality of the loan portfolio, the risk asset mix, and the credit management system. A high level of non-performing loans is a major concern for any bank. (My, 2020) defines the concept of banking stability as the effective execution of important economic functions such as resource allocation and risk management, the ability to fully absorb shocks faced by the system, evaluating changes in financial risks, and the efficient allocation of resources. This, in turn, demonstrates the resilience of all financial activities and sectors to reduce losses occurring during banking crises. Both (Anh *et al.*, 2021), and (Sifrain, 2021) define banking stability as a state in which a bank can operate smoothly and efficiently, allowing it to perform its functions well, such as resource allocation, risk distribution, income distribution, payments, and credit. Additionally, the bank must be able to withstand external shocks, which aligns with.

The importance of financial stability becomes evident through the repercussions of recurring financial crises in general, and banking crises in particular, which affect economies periodically, starting from the financial crisis of 2008 and extending to the COVID-19 crisis. This prompts central banks to focus on achieving financial and banking stability in their countries. Both (Uhde & Heimeshoff, 2009) and (Alwan & Kadhim, 2020) agree that the importance of banking stability lies in the measures and policies adopted by banks, with the most



important ones being the accuracy of public budget calculations in the operation of financial institutions increases investor confidence and transparency in credit flow, as well as an increase in the percentage of credit allocation to medium and small projects with feasibility. This helps improve market discipline, increase bank disclosure, and address cases where banks refrain from financing profitable projects due to significant deviations in asset prices from their true value or failure to settle payments on time.

### Banking Stability Measures

The global financial crisis highlighted the significant impact that struggling banks can have on the global economies. The successful development of an economy, as noted by (Ginevičius & Podviekzo, 2013), depends on banks' efficient and stable performance. This leads to the necessity of having sound indicators for banks, as risks must be identified by integrating both internal (banking) and external (market) factors that are easily accessible and can be easily designed by banks (J. Powell & H. Vo, 2020). Banking crises and banking regulation are recurring topics in economic and financial policy discussions. Since the early 1970s, banking crises have repeatedly affected emerging and transitional economies more than others. However, there is a lack of understanding of the factors that generate banking crises. Regulators tend to assist troubled institutions more than resolving them. Prudential regulatory controls aim to reduce excessive banking risks and capital shortfalls in an attempt to protect society (Kane, 2016). Unfortunately, these controls often come too late, after the crisis has already spread. Therefore, a better understanding of risk factors can be useful in reducing risks, especially when regulatory authorities can address distress situations before they spread to the broader financial system (Martínez-Malvar & Baselga-Pascual, 2020).

The increase in capital adequacy has become a more important strategy for enhancing banking stability in the aftermath of the global financial crisis of 2007-2009. During this period, most central banks proposed an increase in capital adequacy as a requirement for building stability in the banking industry (Sulemana *et al.*, 2018). To the best of the researcher's knowledge and information, several authors and researchers have concurred, including (Chouhan *et al.*, 2014; Mutarindwa *et al.*, 2020; Oyetade *et al.*, 2022; Yunita, 2022). They used the Z-SCORE indicator to measure banking stability. The Banking Financial Stability Indicator (Z-SCORE) plays a vital role in enhancing the reputation and security of the banking system and increasing international trade in light of the significant economic growth in countries that impact banking services. This indicator suggests the ability to predict financial crises (Alshubiri, 2017) and can be counted as an early warning system for the banking system (Faruqinata & Wibowo, 2020). The post-global financial crisis period of 2007-2009 witnessed numerous experimental efforts to assess the effectiveness

of discriminative analysis. Most of these studies focused on cases of bank failures during the financial crisis, increasing interest in the Z-SCORE indicator from earlier times (Mugo, 2021). (Syed *et al.*, 2022) emphasized that the Z-SCORE indicator is important in achieving banking stability, a point reiterated by (Oyetade *et al.*, 2022). Z-Score is a measure used to predict bank failure or financial distress and is a common measure of banking resilience, assessing the extent to which a bank's capital can cover losses resulting from variations in returns without going bankrupt.

### METHODOLOGY

The research sample represents the Iraqi banking system in its entirety. This is because there were changes in the structure of the banking system during 2021, due to the entry of some local banks and the exit of some foreign banks from the banking sector, particularly Lebanese banks that were invested in Iraq. This resulted from the economic crisis in Lebanon, which led Lebanese banks to withdraw from some countries, including Iraq. The total number of operating banks, with the Central Bank of Iraq at the forefront, became 74 banks, including 7 government banks and 3 specialized banks, 3 commercial banks, and one Islamic bank. Meanwhile, the number of private banks reached 67 banks, including 25 local commercial banks and 28 local Islamic banks, as well as 14 foreign banks, consisting of 2 Islamic banks and 12 commercial banks.

The Z-Score measure has been proposed as an indicator of risk and the likelihood of bank insolvency or failure. This measure has been widely used in numerous studies and has become common for assessing banks' distress, failure, and stability. It was initially developed by Roy in 1952 and subsequently refined by (Sifrain, 2021). Its value indicates the number of standard deviations that need to occur in the return on assets (ROA) ratio, which is the number of times the return decreases from its value in order to deplete equity and render the bank insolvent. The value of the indicator increases with higher profitability and equity levels (Lepetit & Strobel, 2015). Conversely, it decreases when returns are more volatile and decline, as reflected in an increase in the standard deviation of the return on assets. In other words, as the indicator value rises, the bank's stability increases, and conversely, when the indicator value significantly declines, the level of stability and the ability of banks to withstand shocks decrease (Li *et al.*, 2017). As the value approaches one or approaches zero or becomes negative, the bank enters a state of financial distress and instability, leading to a banking crisis. The stability of the banking sector can be expressed mathematically, as in the following formula.

$$Z\text{-score} = \frac{ROA + (Equity/Assets)}{(\sigma(ROA))}$$

The financial stability in Iraq can also be measured using the aggregate index. Different countries vary in their use of indicators and measures of banking stability, depending on the monetary policy adopted by the central bank. This variation is attributed to the strength

of banking systems and the systems in place, whether they are advanced with full electronic automation or they follow traditional systems. The Central Bank of Iraq has defined the banking stability indicators in Iraq, including capital adequacy, asset quality, profitability, and liquidity (Central Bank of Iraq Report, 2021).

## RESULTS AND DISCUSSION

To test research hypotheses and analyze them, the impact of financial inclusion with its indicators on banking stability was tested based on time series data. Through this model, the relationship between research variables

will be identified. Before starting the hypothesis testing procedures, it is necessary to ensure the suitability of the data for the regression model of least squares used in this research by examining the data and determining whether it possesses the characteristic of normal distribution, i.e., whether the data of the variables follow a normal distribution.

The table 1. displays the results of normal distribution tests using the Shapiro-Wilk W test for this type of test. It ensures that all variable indicators possess the characteristic of a normal distribution.

**Table 1:** Results of normal distribution tests

Shapiro Wilk W test for normal data						
Variable	Obs	W	V	Z	Prob>z	Sig.
Banking Density	12	0.85399	2.440	1.738	0.4113	not significant
banking spread	12	0.96338	0.612	-0.957	0.83082	not significant
ATMratio	12	0.86575	2.243	1.574	0.05775	not significant
SUB/1000km	12	0.86103	2.322	1.641	0.05036	not significant
ATM/1000km	12	0.86422	2.269	1.596	0.05523	not significant
Depth of Banking Loans Index	12	0.94051	0.994	-0.012	0.50471	not significant
Depth banking index	12	0.89952	1.679	1.009	0.15637	not significant
B. St. Index	12	0.81225	3.137	2.228	0.1296	not significant

## Hypothesis Testing

The primary hypothesis of the research was to test the direct impact of financial inclusion, as indicated by its independent indicators, on banking stability. Table (2) presents the results of testing the first hypothesis of the study, which showed significant effects. The BD index had a significant impact on stability ( $\beta = -0.0089$ ,  $P < 0.05$ ), as did the BS index ( $\beta = 0.1228$ ,  $P < 0.05$ ), ATM (1000) ( $\beta = -0.053$ ,  $P < 0.05$ ), and DOBLI ( $\beta = -0.0333$ ,  $P < 0.05$ ), while the R ATM ( $\beta = 0.0318$ ,  $P > 0.05$ ) and SUB (1000) ( $\beta = 0.00769$ ,  $P > 0.05$ ) did not have a significant impact on banking stability. The coefficient of determination or R-squared ( $R^2$ ) for each test model was significant ( $R^2 = (0.281, 0.255, 0.221, 0.488, 0.426)$ ), with a statistical significance of  $P = 0.000$ . This indicates that the variation in banking stability was explained by the significant financial inclusion indicators, while the remaining determination coefficients were explained by other variables not considered in this test model.

Based on these results, the impact of financial inclusion during the study period was not total but partial, due to the significant impact of some indicators in the test model. The reason for the significance of the impact on banking stability may be that the financial inclusion indicators represent an investment that aims to achieve planned stability. However, this stability appears to be inversely related to the beta values, meaning that as there is an expansion in financial inclusion, it is accompanied by a decrease in stability. This could be attributed to the growth rates of financial inclusion indicators leading to an increase in deposits and loans provided by banks to customers. Additionally, the banking spread index in all its forms negatively affects the nature of stability due to an increase in the supervision scope and a loss of control over branches. This, in turn, leads to an increase in non-performing loans compared to the decrease in deposits, which are considered the primary drivers of banking activity. Table (2) summarizes the results of testing the hypothesis.

**Table 2:** Results of the first hypothesis testing

Path	$\alpha$	Coef.	Std. Err.	T	$P >  t $	$R^2$	Prob
BD <--- B. St. Index	.6301	-.0089	.0041	-2.17	0.030	0.281	.000
BS <--- B. St. Index	-.0313	.1223	.0603	2.03	0.043	0.255	.000
R ATM <--- B. St. Index	.3935	.0318	.0174	-1.82	0.069	0.216	.000
SUB/1000 <--- B. St. Index	.1165	.0769	.0953	0.81	0.420	0.051	.478
ATM /1000 <--- B. St. Index	.3797	-.0530	.0286	-2.05	0.044	0.221	.000
DOBLI <--- B. St. Index	.5544	-.0333	.0098	-3.38	0.001	0.488	.000
DBI <--- B. St. Index	.5635	-.0245	.0082	-2.99	0.003	0.426	.000

## CONCLUSIONS

The current paper aimed to test the impact of financial inclusion on the stability of the Iraqi banking sector. The results confirmed a significant decrease in the number of bank branches during the research sample period relative to the population in Iraq, according to international standards. The results indicated the inadequacy of the number of ATMs, despite a noticeable increase in their numbers. However, this increase is not proportional to the growing demand for them, leading to a significant gap between the two. Regarding banking distribution, there has been a noticeable relative increase in recent years during the time frame of the research sample. However, it has not reached the required level according to global standards. This can be attributed to the focus of the research sample's banks on major cities, which are characterized by high population density. Also, the stability of the Iraqi banking system witnessed significant fluctuations during the research sample period. In the first five years of the research period, there was clear stability, followed by a significant decrease in the composite index level, as endorsed by the Central Bank of Iraq, as a natural consequence. The reasons for this can certainly be attributed to the security and political conditions that Iraq went through during that period, and undoubtedly followed by the COVID-19 pandemic.

In light of the conclusions reached regarding the Iraqi banking sector in the research sample, it becomes evident that there is a need for banking management to increase access to financial services by increasing the number of branches and ATMs in all Iraqi provinces, taking into account the country's size, and not restricting them to specific provinces only. Furthermore, it is essential for banking management to consistently focus on the indicators adopted by international central banks, including the Central Bank of Iraq.

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