The effect of the financing structure on financial fragility:

A study in a sample of Iraqi private banks

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Abstract:

The study sought to measure the impact of the funding structure on financial fragility in a sample of Iraqi private banks for the period from (2015-2019), as the selection of the funding structure is an important issue because its results are related to the fate of banks that seek to improve their financial performance, but the difficulty facing Iraqi private banks about How to determine the appropriate financing mix that exposes banks to bankruptcy, That is why financing decisions are complex decisions that require study and search for owned or borrowed sources of financing, or to determine the financing mix that achieves the lowest cost. The Iraqi banking sector was chosen as a place to apply to a sample of (21) private commercial banks In order to reach the results of the study, the financial ratios analysis models were used to obtain indicators that help in choosing an optimal funding structure that would reduce the fragility of the financial system of private Iraqi banks. Financial indicators and statistical and standard models were used to analyze and measure the study variables, as the Panel Data model was used to measure the impact of The funding structure in the financial fragility of the sample banks.

The study concluded that there is a statistical significant relationship between the indicators of the funding structure and financial fragility, meaning that the funding structure is positively related to the performance of institutions. The study recommended that Iraqi private banks should assess the levels of financial fragility for them, which is caused by the weakness of the bank funding structure and the expected value of inefficient assets due, to the emergence of an inappropriate funding structure, which in turn leads to the emergence of fragility in financial systems and appears when institutions are exposed to financial crises Or natural disasters or change in legislative policy.

Keywords: funding structure, financial fragility, Panel Data.

Introduction:

The issue of financing institutions is gaining great interest in all studies specialized in financial management, due to the great importance of the vital element of financing to ensure the continuity and ability of the institution to compete and confront the surrounding threats that have become characterized by aggressiveness and speed of change. In this research, important repercussions of the funding structure were diagnosed And its effects, with its various indicators, on the fragility of the financial system of Iraqi private banks.

As a result, it is necessary to find and define an optimal financing mix that achieves the desired goals, so the funding structure of banks represents one of the main determinants of the
performance of these banks, so one of the main factors for economic growth in emerging markets is the ability of the financial sector to develop appropriate financial policies required for investment. It includes the funding structure that expresses how to reach the optimal mix of funds represented by debt and equity, and thus represents the liabilities side of the balance sheet for business establishments, therefore, the funding structure expresses the components of funds through which the assets represented in the right-hand side of the balance sheet are financed.

Thus financial fragility is a primary consequence of financial instability and is essentially an internal phenomenon, dependent on the existing financial structures and institutional arrangements in a particular economy. As a result of the role that banks play in economic activities, it made it necessary to pay attention to this vital sector, in addition to that it is considered one of the gates that encourage investment and attract capital, which made it have a large and important role in addressing many of the problems that suffer from the economic activity of any country. Therefore, we consider this research another step towards a more realistic description of the interactions of sovereign debt and financial fragility, so the sources of financing for Iraqi private banks and their impact on reducing financial fragility will be identified in order to find conclusions related to improving the reality of Iraqi private banks. Therefore, the current research includes four axes, the first axis, two aspects of the research methodology and previous studies. The second axis included the theoretical framework of the study, and the third axis contained the practical aspect of the study. As for the fourth axis, it included the conclusions and recommendations of the study.

The first axis / research methodology and previous studies

First: Research methodology: the general framework

1- The problem of the study: The financial turmoil that the global economy is exposed to attracted the attention of researchers to learn about the financial instability that affected financial institutions, and from here this research was launched to determine the nature of the impact of the funding structure on the financial fragility of Iraqi private banks. As the choice of the funding structure is an important issue because its results are related to the fate of the banks that seek to improve their financial performance, and as a result of the difficulty of determining this mixture, which exposes the banks to bankruptcy, hence the problem of the study in the implications of choosing the funding structure and its impact on the financial fragility facing Iraqi banks, the study sample. Hence, the main problem of the study emerged in the following question: What is the impact of the funding structure on the financial fragility of Iraqi private banks?

This problem falls under a set of sub-questions as follows:

1. How does the funding structure affect the reduction of financial fragility of Iraqi private banks?

2. What are the factors that must be taken into account to reach a sound financial environment that leads to good financial and banking performance that makes Iraqi private banks far from bankruptcy to avoid financial fragility?

3. What are the most important sources of funding available to Iraqi private banks?
4. What is the concept of the bank's funding structure? What are the most important theories that explain the funding structure?

2- Objectives of the study:

The research aims to achieve a set of objectives that can be inserted in the following:

1. Measuring the impact of the funding structure on the financial fragility of the Iraqi private banks, the study sample, using statistical or standard models.

2. Standing on the reality of Iraqi private banks through financial analysis and using financial indicators and ratios.

3. Statement of the optimal and appropriate funding structure for the Iraqi private banks, the study sample.

3- The importance of the study:

The study gains its importance from the following:

1. The importance of realizing and building diversification in the financing sources for the Iraqi private banks and its impact on the financial fragility of these private banks to reduce risks and benefit from the qualities of each source.

2. This study is one of the few studies that link the variables that dealt with the issue of funding structure and its impact on the financial fragility of Iraqi private banks.

3. The research may help Iraqi private banks in determining the suitable and appropriate funding structure for them.

4- Study model: The design of the hypothesis scheme for research is one of the requirements for a systematic treatment of his problem because it indicates the logical relationship between the dimensions of the research and also shows the nature of the relationship and its directions.
Research Hypotheses:

The research assumed hypotheses as temporary solutions that will guide the study, which are:

The main hypothesis

(there is a significant relationship with statistical significance between the funding structure with its indicators and financial fragility with its indicators in Iraqi private banks) and branching out from it hypotheses are as follows:

(1-1) The first Sub-hypothesis: (there is a significant, statistically significant relationship between the indicator (the ratio of deposits to total assets) on the indicators of financial fragility).

(2-1) The second sub-hypothesis: (there is a significant, statistically significant relationship between the (debt ratio) indicator on the indicators of financial fragility).

(3-1) The third sub-hypothesis: (there is a significant, statistically significant relationship between the (property equity ratio) indicator on the total assets) on indicators of financial vulnerability.
5- Research Methodology:

The study relies on the appropriate (descriptive and analytical) approach to the theoretical study. The research in this study relies on indicators based on financial analyzes and touches on some statistical methods and standards, to measure the relationship between indicators of funding structure and indicators of financial fragility that are adopted on the basis of what It was presented in the theoretical side, to reach conclusions and recommendations through which the results that were reached in the field can be verified.

6- The limits of the research:

The framework was carried out within the temporal and spatial limits, as follows:

1- The spatial limits: The spatial limits of the research were represented by the Iraqi private banks in the Iraqi bank sector.

2- temporal limits: The study will focus on the time period from (2015-2019) in Iraqi private banks.

7- Research community and sample:

The research community is represented in the Iraqi banking sector, specifically the banks listed in the Iraqi Stock Exchange, and the sample included twenty-one banks for the period (2015-2019).

8- Statistical methods:

Modern tools were used for the purpose of data analysis, and the following statistical and mathematical analysis tools were used:

1 - The quantitative approach was used in data analysis using financial equations to calculate the funding structure and financial vulnerability of private commercial banks.

2-Using the analysis models and financial ratios to extract the financial indicators for the study variables.

3- Using the Panel Data model to test the relationship between funding structure and financial fragility.

Second: Previous studies: This topic presents a number of research studies related to the research variables to be taken as a starting point for our current research, and the following is a brief presentation of the most important research studies:

1-Funding Structure Studies

| Title of the study formulation and its impact on bank liquidity - An analytical study for a sample of Iraqi commercial banks (2005-2014) |
| The name of the researcher Al-Moussawi, Saadi Ahmed Hamid and Ahmed Hussein |
| Year of study 2017 |

www.turkjphysiotherrehabil.org
Society and sample search | the Iraqi banking sector is the search community, either sample research a number of Iraqi private banks for duration of 2005-2014.
---|---
The study tools and methods | of financial indicators have been used in analysis, depending on the debt ratio to the liabilities to measure the funding structure and it depended on the cash balance rate to measure and analyze bank liquidity. The study has adopted some statistical standards to analyze relations between variables. The average arithmetic was used, simple correlation and (t) testing, the use of simple regression coefficient and (f) testing and Finally the use of the definition coefficient and therefore the study relied on(Microsoft Excel 2010) in the electron and program calculator. (V22) SPSS
---|---
Purpose of the study | measuring and analyzing the indicators of the funding structure, in addition to measuring and analyzing the liquidity ratios of Iraqi commercial banks.
---|---
The most important results | The Iraqi commercial banks varied in their reliance among themselves on sources of financing and diversification, as most commercial banks depended more on debt financing than on equity financing because it was less costly than equity financing.
---|---
The most important recommendations | the most important recommendations for Iraqi private banks to pay attention to formulating the funding structure and trying to obtain funds with long terms and low costs, and Iraqi private banks must find and define an optimal financing mix that achieves low costs, increases profits and maintains acceptable levels of risk.
---|---

| Title of the study | Funding structure and technical efficiency A data envelopment analysis (DEA) approach for banks in Ghana. |
| The name of the researcher | Ofori, Daniel And Joshua And Lord |
| Year of study | 2018 |
| Society and sample search | The study covered 25 banks over six years between (2011 – 2016). |
| The study tools and methods | Use the random effect and panel data. The data was obtained from Bank Scope. Comparisons were made between panel data and the RAM form and can be concluded with the index model, the panel data provides better for data. |
| Purpose of the study | examine the effect of funding structure on the technical efficiency of banks in Ghana, between (2011-2016) |
Ghanaian banks are less efficient, as the average degree of efficiency obtained is less than one. Furthermore, banks in Ghana employ more deposit funding to finance their assets or processes.

Investors must be able to determine an appropriate source of funds that can be efficiently used to maximize their wealth in emerging markets. They must also press managers to reduce profits in order to increase the use of funds generated internally.

2- Financial fragility studies

<table>
<thead>
<tr>
<th>Title of the study</th>
<th>The recruitment of sustainable financing indicators in reducing financial fragility. The comparison between Iraqi and Emirates insurance companies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of the researcher</td>
<td>Attawi, Muhannad</td>
</tr>
<tr>
<td>Year of study</td>
<td>2017</td>
</tr>
<tr>
<td>Society and sample search</td>
<td>The research community consists of all the Iraqi insurance companies that contributed (five companies) registered in the Iraq Stock Exchange market and all the UAE insurance companies that contributed (14 companies) and five companies were taken as a sample for compare them with the Iraqi companies.</td>
</tr>
<tr>
<td>The study tools and methods</td>
<td>The information was obtained through the official websites of the Iraq and Dubai Securities Markings, as well as simple regression was used to find the influence relationship between the study variables and the discriminatory analysis to know the significance of the differences, using the program (20 v. SPSS).</td>
</tr>
<tr>
<td>Purpose of the study</td>
<td>Knowing the role of sustainable financing indicators, (the actual growth rate and the sustainable growth rate), in preventing or reducing financial fragility in Iraqi and UAE insurance companies.</td>
</tr>
<tr>
<td>The most important results</td>
<td>The actual growth rate of the Iraqi insurance companies is higher than the actual growth rate of the UAE insurance companies. As for the sustainable growth rate of the UAE insurance companies, it is better than the sustainable growth rate of the Iraqi companies.</td>
</tr>
<tr>
<td>The most important recommendations</td>
<td>Insurance companies must assess the levels of financial fragility that create a lack of sustainable growth with the actual growth that produced a gap, and this gap appears when companies face financial hardship or a change in legislative policies or natural disasters.</td>
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### The second axis The theoretical aspect of the research

**First: The funding structure**

1. **The concept of the funding structure**

   The concept of funding structure refers to the mixture of loans and equity (the mixture of debts and owners’ money), and this concept expresses the options presented to the institution to finance its assets. Debt financing is the main element in external financing for institutions (Quinn, 2016: 144), as it represents the amount of money through which it can be financed. The institution's assets and consists of debt financing and equity financing, which are the left side of the balance sheet (Issawi, 2015: 3) The funding structure is a mixture between equity and debt and attempts to explain the mix of securities and financing sources that institutions use to finance real investment. The total of all claims on the corporation's assets. Together, the claims represent the rights that own all of the corporation's assets (Baraza, 2014:x).

<table>
<thead>
<tr>
<th>Title of the study</th>
<th>Financial Reforms and Financial Fragility: A Panel Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of the researcher</td>
<td>Iftikhar , Syed</td>
</tr>
<tr>
<td>Year of study</td>
<td>(2015 )</td>
</tr>
<tr>
<td>Society and sample search</td>
<td>The study examined the determinants of financial fragility for 176 developed and emerging countries for a sample of 779 banks during the period from 2001 to 2005.</td>
</tr>
<tr>
<td>The study tools and methods</td>
<td>The use of data at the bank level (obtained from the bank-wide database maintained by (Fitch / IBCA / Bureau van Dijk) and the analysis shows the data Cross-sectional units of measurement, the mean, the standard deviation, the lowest value and the highest value of the studied variables. All variables have a percentage (%) except for the financial reform indicator.</td>
</tr>
<tr>
<td>Purpose of the study</td>
<td>Examining the relationship between financial reforms (and their components), financial liberalization, the quality of banking regulation and supervision of the Financial fragility through the application of a dynamic two-step system, the generalized method of moments method (GMM) to analyze the relationship between the capital structure and the technical efficiency of the exchanger.</td>
</tr>
<tr>
<td>The most important results</td>
<td>financial liberalization and Financial reforms greatly enhance the potential for financial fragility while strong banking regulation and supervision have an inverse relationship with financial fragility.</td>
</tr>
<tr>
<td>The most important recommendation s</td>
<td>The study recommends that the benefits of financial liberalization can be achieved without the cost of financial fragility if strong and effective banking regulations and supervision are implemented.</td>
</tr>
</tbody>
</table>
Since the literature has varying results regarding the funding structure from the impact of different sources of funds on the efficiency of the bank, the funding structure is a financial tool for determining how banks should finance the best option. (Ofori et al., 2019:1-2).

2- Definition of the funding structure:
In the literature of financial thought, many definitions of the funding structure are provided. The funding structure is defined as a set of sources through which the institution can obtain the necessary funds to finance its investments. The funding structure is also defined as the amount of money through which assets can be financed. The corporation, which includes debt and equity financing, which are the liabilities side of the balance sheet. (Al-Mousawi and Hussein, 2017: 168). Karbou’ defined that a variety of different sources from which the institution obtains the funds necessary to finance its various assets, as it includes all the elements that make up the liabilities side of the balance sheet (Qarbour, 2017:3:). The funding structure is also defined as a set of decisions related to how the institution obtains The liquidity needed to finance its investments and determine the optimal financing mix for the institution from debt financing and equity to cover its investments. (Balludmo and Bouskaia, 2019: 7) The financial structure is seen as a dynamic process that is determined internally by the demand for certain types of financial services that They differ with respect to each stage of development (Demir & Hall, 2017: 6).

3- Objectives of the funding structure:
The objectives of the funding structure include the following:

A. Maximizing the value of the institution: it means the value of the cash profits that shareholders expect to obtain, and that maximizing the value of the institution is the result of financial decisions in the investment and financing fields (Al-Ahmar, 2018: 78). If the CFO makes any irrational decisions to raise funds through debt financing it can be costly to the organization as it can increase the cost of capital which may ultimately reduce the value of the organization. (Ullah & et al, 2020:1).

B. Providing liquidity: Liquidity is providing the necessary funds when needed and at low costs to meet the institution’s obligations when they become due, which contributes to increasing confidence in the institution (Al-Ahmar, 2018: 78). Liquidity greatly improves shareholder value, so it is advisable to enhance stock market capitalization through macroeconomic issues to achieve sustainable business growth (Sadiq & et al, 2020: 24).

C. Achieving profits: Profitability is defined as earnings before interest, taxes and depreciation (OIBDP) on total assets at the beginning of the fiscal year (Dierker, & et al, 2019: 190). No institution will attract external capital (Baraza, 2014:4). The objective of each bank is to maximize expected profits by choosing the rate that is charged to lending. If all borrowers remain able to repay their debts (Damjanovic, & et al, 2020:10).

4- The importance of the funding structure:
The idea of the importance of the funding structure is based on the principle of increasing profitability through borrowing at low and fixed costs, and using these loans to finance the activities of the institution to achieve returns higher than the costs of borrowing (Qadi, and Zarrouk, 2017: 17), so the funding structure is also of greater importance. For banks once the banking industry becomes more complex and global. (ÖZEK, 2016: 54). That is why structural reform in the financial sector is more important than expanding the overall size of the financial industry. (Tang & Yao 2018:29). The funding structure also helps in achieving the goals of the institution in order to renew and improve the
fixed assets of the institution such as buildings and equipment and also helps the institution to meet its financial needs and get out of financial hardship, as well as makes the institution run better by releasing its frozen funds inside and outside it. (Balludmo and Bouskaia, 2019: 8) That is why finance has become the core of the modern economy. It is not only a business, but also a mechanism for allocating resources. It has the function of allocating and redistributing resources. (Xu, Li, & Tan, 2020: 2).

5- Indicators of the funding structure:
Several financial ratios have been used to evaluate the funding structure, which are as follows:

A. Deposits to total assets: The bank funding structure is measured, and the deposits ratio is calculated using the following relationship: Deposit financing = the ratio of deposits to total assets (Ofori & al, 2019: 8). On the other hand, two measures are used to analyze the funding structure of commercial banks. The ratio of non-deposit financing to total liabilities is used as a proxy for funding structure and interbank deposits are used as another metric for bank funding structure. (ÖZEK, 2016: 58). As far as the other variables under study are concerned, it was clear that the deposits to assets ratio positively affects the performance. It is also positively related to the return on the assets of financial institutions. (Baraza, 2014: 38-40).

B. Debt Ratio (Total Liabilities to Total Assets):
This ratio determines the margin of safety for creditors, and the indebtedness ratio is calculated by the following relationship: Debt Ratio = Total Liabilities / Total Assets. This ratio is used to know the institution’s ability to pay its obligations in the event of bankruptcy, if its assets are sold, and the institution will be in good condition whenever this percentage is reduced, as the margin of safety for borrowers increases (Ben Hamida, 2018: 18). These debt ratios show the ratio of assets financed by debt. The high value of these ratios reveals the financial leverage of the institution, as well as the financial risks. Thus, the option of financing the institution through debt reduces the available cash flow (Vintila, 2019: 3-5).

C. Equity ratio (total equity to total assets):
The ratio of equity to assets is measured through the ratio of total equity to total assets, which represents the bank’s capitalization. The proportion of equity is calculated by the following relationship: Equity ratio = total equity / total assets (Alguindigue, 2020: 31) which indicates a high percentage of equity to assets Equity to assets indicates that the banks are well capitalized, which indicates that they have become more secure and the chances of banks defaulting are less (Iftikhar, 2015: 88).

Second: Financial fragility

1) The concept of financial fragility
The term financial fragility originated for the first time by the researcher (Minsky) (1972) when he developed the Keynes 1936 interpretation to reduce the difference and controversy in the statement of the causes of financial instability and that financial fragility is a condition for the banking system to pass a number of stages These stages precede their bankruptcy, which forces them to exit the business. (Al-Taie and Al-Jubouri, 2017: 546) Financial fragility may result from high levels of debt and overvalued assets (guarantees). High debt increases financial leverage and thus risks of failure (Giordani & Kwan, 2019: 16). Therefore, financial fragility is not only a problem related to too few assets but also a problem of high indebtedness, financial distress and lack of financial knowledge (Hasler & et alm, 2018: 17). Real Estate and Equity (Giordani & Kwan, 2019: 1) So financial fragility generally means liability-related elements on
the asset side of the balance sheet that are highly sensitive to changes in interest rate, income, amortization rate, and other elements that affect the liquidity and solvency of the balance sheet. (Hussain et al., 2020: 12).

2- Defining financial fragility:

In order to find indicators of financial fragility for banks, broad definitions must be found (Al-Taie and Al-Jubouri, 2017: 546). Therefore, financial fragility can be broadly defined as the tendency of financial problems to generate financial instability, and financial instability is an economic condition in which financial problems tend to affect employment and price stability. Finally, financial instability manifests itself in the process of debt deflation (Tymoigne, 2011: 3). Financial fragility can also be defined either at the macro or partial level. At the macro level, financial fragility is considered a risk of financial instability at the micro level. The financial fragility of banks is characterized by difficulties in fulfilling their responsibility obligations, or they are highly dependent on debt refinancing. (Chlettos & Sintos, 2021: 2) So, financial fragility is an evolutionary process and each stage of fragility is a dynamic process, not equilibrium.(Nishi, 2019: 13). Also, financial fragility (defined as the number of bank failures after imposing shocks in the system(Wegner,2020:136) and financial fragility is also defined as the bank's exposure to the financial crisis, measured by loan quality measures(Farag & Mallin, 2017:7).

3- Determinants of financial fragility:

There are a number of factors that can affect the financial fragility of banks. The following is an explanation of the relevant variables.

A. Financial Reform and Financial Liberalization:
Delice used the financial reform variable and found that financial liberalization policies reduce the market power of banks, especially in advanced economies, we will also address the impact of financial liberalization, banking regulations and the control index individually on financial fragility through the use of the new indicator of financial reform and that regulation Banking supervision has a negative impact on financial fragility as strong regulation reduces the possibility of non-performing loans and financial fragility can be reduced in both developed and developing countries through sound and effective banking supervision and regulations(Iftikhar 2015:86-97) Financial liberalization is defined as the implementation of a set of measures aimed at removing restrictions between different financial institutions in a country that could impede the good performance of its economy (Kristanti & at el, 2019:515).

B. Higher education and financial knowledge:

The data clearly shows that the higher your educational attainment, the less likely you are to be financially weak. Education is not only associated with higher incomes but may also provide individuals with the skills to manage their finances, navigate markets, and have the flexibility to change jobs(Hasler& et al, 2018:8). Financial inclusion means developing the level of financial inclusion and literacy and developing a strategy for developing financial literacy and inclusion of rural and urban communities has a positive impact on the country’s economy. Financial inclusion also plays an important role in stabilizing the financial system to reduce poverty, unemployment and individual differences between regions of Through penetration into banking, banking services, and the banking system in rural and urban communities (Wardhono & et al,2019:339) Financial literacy will greatly reduce your likelihood of being financially fragile. Thus, financial literacy affects financial fragility in addition to the effects of education (Hasler & et al, 2018:20).
C. Gross loan growth:
Excessive loan growth, inflation and loan growth in the economy can be a warning sign that underwriting standards are deteriorating and that loan growth is an important risk factor for banks. We also expect loan growth to increase non-performing loans and the expected signal between financial fragility and lagging loan growth is positive due to rapid credit growth and a potential decline in loan quality during an economic downturn (Iftikhar, 2015:88). The financial system is more fragile when high debt levels (higher leverage) are associated with high valuations in assets that act as collateral (Giordani & Kwan, 2019:2).

D. Total Assets:
Demirguc-Kunt and Huizinga also used assets to measure the absolute size of a bank. The track record of total assets is expected to be negative in relation to financial fragility. The reason may be that large banks are better equipped in risk management strategies and have sufficient resources to deal with defaulters (Iftikhar, 2015:89) Banks with a higher proportion of total risky assets are more likely to maintain a reserve and manage the risk of their portfolio when they have sufficient capital to comply with the capital requirements (Ashraf & et al, 2016: 60).

4- Sources of financial fragility:
The following are the main sources of financial fragility:
A. External financing:
Financial openness is associated with higher macroeconomic instability resulting from international capital movements and the unstable dynamics of foreign banks. According to this view, external financing enhances financial fragility and economic stagnation, especially in developing countries with weak domestic institutions (Gaies & Nabi, 2019: 427). For this reason, the dependence of the financial system on debt or any source of external financing is considered a source of financial fragility, as the fragility of the financial system appears when there is no agreement between the actual realized expenditures and revenues and the expected, especially when the state of the economy turns into a recession, which makes financial institutions face difficulty in meeting its financial obligations. (Al-Attwi, 2017: 173).

B-Firm size:
Large firms in emerging markets are more vulnerable to financial risks and are also systemically important. The relationship between firm size and firm fragility is relatively stable over time (Alfaro & et al,2019:1-2). The financial fragility of institutions varies according to the size and sector, and the impact of shocks and financial crises varies according to the degree of financial fragility of institutions. (Nishi,2019:585) The size of the bank is an important incentive for risk. Larger banks tend to engage in higher risk activities due to the presence of implicit and explicit deposit insurance. On the other hand, large banks have a larger pool of assets and are therefore better able to diversify their loan portfolio as larger banks deal with larger risks due to their size.(Ashraf &et al,2016:59-60).

C. Corruption:
It is a global concern because it is considered a major constraint on the growth and development of an organization and corruption can take many forms such as bribery, embezzlement, money laundering, tax evasion, nepotism and others. and that corruption makes institutions more likely to engage in risky ventures. Thus, institutions that engage in corrupt practices will create more financial fragility. (Le & doan,2020:2-4) Also, corruption may have an impact on the organization's dynamics and growth as well as deteriorate the quality of public
administrative services. Corruption is an abuse of state power by government officials to gain private gains, which directly affects the fixed capital structure. More government corruption leads to a higher percentage of corporate debts and a shorter maturity of debts (Phan & Archer, 2020: 265-266).

D. Liquidity:

The liquidity index is an important indicator for financial institutions, as it causes financial fragility due to the lack of access to the necessary financing in the short term, which leads to a large fluctuation in monetary assets that make the financial system fragile. (Al-Attwi, 2017: 173) In contrast, banks with higher asset liquidity and stronger reliance on individual insured deposits and larger capital stocks were less likely to fail during the global financial crisis. (Vazquez & Federico, 2015:3).

5- Indicators of financial fragility:

A. Bad debts: Doubtful debts are one of the most important indicators of the fragility of the banking system, as many specialists stress that the high percentage of doubtful debts in most banking systems is caused by the turmoil in the security situation, the low value of collateral, the low financial ability of creditors and the large migration of creditors outside their countries. Which prompted banks to reduce the granted credit or stop granting credits (Mohsen, Maha, 2016: 107) The use of the non-performing assets ratio (NPA) as a measure of financial fragility. The Non-Performing Assets Ratio (NPA) is calculated by dividing the level of non-performing loans by the total loans. (Farag & Mallin, 2017:11).

B. The share price to earnings ratio: The stock price-earnings ratio is widely used to measure stock market valuation. There are many variations in calculating this ratio. We use Shiller's CAPE to build our indicator. (Giordani & Kwan, 2019: 18-19). It is possible to rely on the share price to the earnings per share or the so-called profit multiplier calculated for one of the alternative institutions to the current institution to be invested in, or the share price to the industry’s earnings per share in evaluating the expected value of each ordinary share issued by it. One of the new institutions where it is sometimes called the alternative value. It is calculated by dividing the share price by the earnings per share (Al-Henawi and El-Shahawi, 2014: 119).

Third: The relationship between funding structure and financial fragility

Funding structure and financial fragility: “financial fragility” and “financial crises” are widely used, so that the crisis refers to sharp declines in the volume of new loans and in GDP, but not necessarily large losses in the banking sector. (Giordani, Paolo, & at el, 2017:2) The levels of fragility of the banking system can be determined by the strength and size of the margin of safety and the initial disturbances that are caused by the weakness of the bank funding structure and the expected value of inefficient assets due to the emergence of an inappropriate funding structure, which in turn leads to the emergence of fragility in financial systems, in addition to that this fragility is due to fluctuations in the interest rate and weakness in the sources of refinancing, as external shocks can have a negative impact on cash flows. For this reason, several studies have resorted to diagnosing the sources of turmoil, especially liquidity and credit risks. (Al-Taie and Al-Jubouri, 2017: 546).

High leverage in the banking sector is expected to increase fragility, and there is no doubt that high levels of leverage in important sectors of the economy have been one of the worst features of financial crises (Giordani, Paolo, & at el, 2017: 7) Leverage can increase money returns in
good times, but it can also increase investor losses and response to poor performance. This is new evidence of the link between leverage and financial fragility. And that leverage exacerbates negative externalities in investors' recovery decisions (Vivar & et al, 2020: 1-2).

The fragility of the financial structure in general, on which the cyclical stability of the economy depends, appears from the loans provided by the bankers, and the bankers' emphasis on the value of collateral and the expected values of assets leads to the emergence of a fragile financial structure. The strength or fragility of the financial system depends on the size and strength of safety margins and the potential to amplify initial turbulence. Financial fragility will grow given credit and liquidity risks if underwriting procedures change so that more focus is placed on refinancing and liquidating assets to service debt. (Tymoigne, 2014: 2-3) However, if institutions perform poorly and reach the liquidity barrier, they will sell a small part of the assets to solve the financial distress. After selling the assets, these poorly performing institutions may recover and reach a higher limit for refinancing or may need to inject new capital (Dierker & et al, 2019: 196).

The spread of the financial crisis led to a significant tightening of financing conditions for both companies and banks, which shows that financing conditions became particularly stringent in the year (2007) when problems in the US mortgage markets surfaced. In the asymmetric information environment, banks with high-quality assets insure these assets, while banks with low-quality assets use deposit financing. By contrast, the bank uses a mixture of unsecured and secured financing. This interaction between sources of financing shows how mortgage assets affect vulnerability and the role of prudential regulation (Ahnert, Toni & et al, 2019: 5).

The third axis: hypothesis testing and the influence relationship of the study variables.

The influence relationship between the main study variables was tested in the light of the results of the statistical analysis that illustrate the influence relationship between the indicators of the funding structure and financing fragility. The time factor and the effect of changing the differences between vocabulary, and accordingly, the following appropriate study model was adopted:

**First-Testing regression models for indicators of funding structure in financial fragility.**

1- Test the trade-off between the general (cumulative) model (PRM) and the two fixed effect models (FEM).

In order to determine the appropriate model for analyzing the data of this study, the restrictive F-test will be used to compare between the general model and the fixed effect model if the value of (F) is greater or equal to the tabular value. The fixed effect is the appropriate model for the data of the study, and after this test between the general model and the fixed effect model, and the choice of the fixed effect model as the appropriate model, then the second test, which is the Hausman test, is conducted between the fixed effect model and the random effect model, and the (F) test takes the following formula:

$$ F(n - 1, nT - n - k) = \frac{(R_{FEM}^2 - R_{PM}^2) / (N - 1)}{(1 - R_{FEM}^2) / (nT - n - k)} \quad (2) $$

**RFEM** represents the limiting factor when using the fixed impact model

**RPM** represents the limiting factor when using the general impact model

I represents the number of cross-sectional data (banks from 1 to 21)

T represents the time dimension starting from the year (2015-2019).

K represents the number of estimated parameters.

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If the value of the restricted (F) is not significant, then we consider it the general model is the appropriate model and rejects the fixed effect model. We note from Table (2) that the value of (F) for the comparison between the general impact model and the fixed effect model was (8.830) at the level of significance (0.0000), which is less than the level of significance (0.05). Which leads us to the results of the table in Table (2) to reject the null hypothesis (aggregate regression model), and therefore the appropriate model for the studied data is the trade-off between the fixed effect model or the random effect model.

Table (1) Results of the comparison between regression models for funding structure indicators on financial fragility

<table>
<thead>
<tr>
<th>Effects</th>
<th>Statistic</th>
<th>Df</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-Section F</td>
<td>8,830</td>
<td>(20,80)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Cross-Section Chi-square</td>
<td>121,211</td>
<td>20</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Prepared by the researcher based on program outputs (EviewsV.9)

Table (2) Test the trade-off between the fixed effect model and the random effect model

<table>
<thead>
<tr>
<th>Test summary</th>
<th>Chi-Sq. Statistic</th>
<th>Df</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-Section random</td>
<td>9.665</td>
<td>4</td>
<td>0.0216</td>
</tr>
</tbody>
</table>

Source: Prepared by the researcher based on the program outputs (EviewsV.9).

We note from the results of this test that follows the chi-distribution that the calculated value amounted to (9.665) and with a probability equal to (0.0216), as the table shows the result of the Hausman test that is statistically significant if it was Its value is less than the level of significance (0.05), which explains that the random effect model is more suitable for this study than the fixed effect model.

Second - Presentation of the results of the random effect model:
In order to test the hypotheses of the impact of the funding structure indicator on financial fragility, Table (4) shows the test results represented by the random effects in order to answer the previously formulated hypotheses.

**Table (3) Results of the random effects of the impact of the funding structure in terms of its indicators on financial fragility**

<table>
<thead>
<tr>
<th>Significance of regression model</th>
<th>R-squared</th>
<th>Prob.</th>
<th>t-Statistic</th>
<th>Estimated Coefficient</th>
<th>Independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>The result</td>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of significance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob.</td>
<td>0.00005</td>
<td>8.430</td>
<td>0.202</td>
<td></td>
<td>deposits ratio</td>
</tr>
<tr>
<td></td>
<td>0.6833</td>
<td>0.409</td>
<td>0.029</td>
<td></td>
<td>debt ratio</td>
</tr>
<tr>
<td></td>
<td>0.0199</td>
<td>-2.366</td>
<td>0.151</td>
<td>Equity ratio</td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared by the researcher based on program outputs (EviewsV.9)

We note from the results of the analysis in Table (4) that the funding structure affects financial fragility according to the random effect model, as the value of F was significant, as the value of (F-statistic) amounted to (8.430) at the level of significance (0.00005) less than the level (0.05). The explanatory power (influence) was (R-squared) (0.202), where this value represents the explanatory power that explains that (20%) of the variance occurring on financial fragility in the selected Iraqi private banks is caused by the change that occurs through the funding structure on fragility. This is consistent with the main hypothesis which states that there is a significant relationship with statistical significance between the funding structure with its indicators and the financial fragility with its indicators in the Iraqi private banks. In order to find out the effect of the sub-indicators of the funding structure on financial fragility, a random regression test was conducted, the results of which are shown in Table (4).

It was clear from the results of the table the effect of the indicators of the funding structure (deposits ratio), as it showed a significant T value for the deposits ratio indicator, as it reached (t-statistic) (-3.396) at a level of significance (0.0010), which is less than the level of significance (0.05). And in terms of a value (t-statistic), whose value appeared negative, which indicates an inverse relationship between the two variables, that is, the higher the deposits percentage, the lower the financial fragility. This means that if the deposits ratio increases by (1), the vulnerability ratio will decrease by (-0.201) alone. This is consistent with the first sub-hypothesis, which states that there is a significant relationship with statistical significance between the indicators of the funding structure represented by (the ratio of deposits to total assets) and indicators of financial fragility.
The results of the phenomenon in Table (4) show the effect of the indicators of the funding structure (debt ratio), as it showed an insignificant T value for the debt ratio indicator, as the value of (t-statistic) amounted to (0.409) at a level of significance (6833.0), which is greater than the level of significance (0.50). In terms of the value of (t-statistic), whose value appeared positive, which indicates a direct relationship between the two variables, that is, the higher the indebtedness ratio, the higher the financial fragility of the banks. This means if the indebtedness ratio increased by (1), the vulnerability would increase by (0.029) units. This is due to the heavy reliance of private Iraqi banks on debt to finance their operations, due to the difficulty of obtaining financing from within. This does not agree with the second sub-hypothesis, which states that there is a significant, statistically significant relationship between the indicators of the funding structure represented by (the ratio of debt to total assets) and indicators of financial fragility.

As it became clear from the results of Table (4) the effect of the indicators of the funding structure (property equity ratio), as it showed a significant T value for the equity ratio indicator, as it reached (t-statistic) (-2.366) at a level of significance (0.0199), which is less than the level of significance (0.05). In terms of the value of (t-statistic), whose value appeared negative, which indicates an inverse relationship between the two variables, that is, the higher the proportion of equity, the lower the financial fragility of the banks. This means if the ratio of equity is increased by (1), The fragility will decrease by (-0.151) units.. This is consistent with the third sub-hypothesis, which states that there is a significant relationship with statistical significance between the indicators of the funding structure represented by (property equity ratio to total assets) and indicators of financial fragility.

Third - Panel estimation results
Table (1) shows the results of estimating the three panel models (the general model, the random effects model and the fixed effects model) and based on the LM test, as the chi-square statistic shows that it is significant at a level less than (0.05) As for the random effects model or the fixed effects model, it is significant at a level less than (0.01) in some cases and the Hausman test shows the significance of the chi-square in all cases, which means that it is better to choose a random regression model in determining the impact relationship between the variables of the funding structure and financial fragility variables. The financial statements, as shown in Table (4).

| Dependent variable: Represents the financial fragility of Iraqi private banks |
|---------------------------------------------|------------------|-----------------|-----------------|
| Duration: 2015-2019 T=5 N=21 Total panel views: 5*21=105 views | variables | aggregative model | the fixed effect model | The random model |
| | Pooled data | FEM | REM |
| deposits ratio | -0.38 | -0.122 | -0.201 |
| debt ratio | 0.35 | -0.054 | 0.029 |
| equity ratio | 0.0744 | -0.188 | -0.150 |
| C | 0.240 | 0.0208 |

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Fourth Axis: Findings and Recommendations

-Results:-

1. There is a significant relationship with statistical significance between the indicators of the funding structure and the financial fragility, meaning that the funding structure is positively related to the performance of institutions. The result is attributed to the willingness of enterprise managers to finance their projects by borrowing and then to use these funds optimally to achieve maximum performance.

2. Increasing competition, technological improvement, financial product development and increasing liberalization have become a major challenge in protecting the financial stability of Iraqi private banks. The recent waves of banking crises are mainly attributed to the high rate of loan defaults.

3. That government interventions can lead to stability or instability, and that government policy should take into account the destabilizing consequences of its policies in the areas of banking regulation, taxation, credit support, and monetary control.

4. The shocks that lead to a decrease in bank profits and an increase in bank default rates also lead to a decrease in gross domestic product. Under the assumption of capital adequacy constraints, most shocks do not lead to a decrease in bank profits. The reason for this is that banks need to maintain or increase their capital and they do this by choosing (more risky) investments that increase their profits.

5. From the results of the random regression model, we found that there is a significant inverse effect between (the ratio of deposits to total assets) and financial fragility, which means rejecting the first sub-hypothesis which states that there is no significant relationship with statistical significance between the indicators of the funding structure represented by (the percentage of deposits over total assets) and indicators of financial fragility.

6. The results of the statistical analysis showed that there is a positive, insignificant relationship between (the ratio of indebtedness to total assets) and financial fragility, which means proving the second sub-hypothesis, which states that there is no significant relationship with statistical significance between the indicators of the funding structure represented by (the ratio of debt to total assets) and indicators of financial fragility.

7. The results of the random regression model showed that there is a significant inverse relationship between (property equity ratio to total assets) and financial fragility, which means rejecting the third sub-hypothesis which states that there is no significant relationship with...
statistical significance between the indicators of the funding structure represented by (property equity ratio to total assets) and indicators of financial fragility.

**Recommendations:**

1. Iraqi private banks must evaluate the levels of financial fragility for them, which is caused by the weakness of the bank funding structure and the expected value of inefficient assets due to the emergence of an inappropriate funding structure, which in turn leads to the emergence of fragility in financial systems and appears when institutions are exposed to financial crises, natural disasters, or a change in the legislative policy.

2. The study recommends that banks follow up on investment operations and regulate their use of funds in the correct manner to help them achieve profits from these investment operations and pay the banks' obligations on time to avoid the difficulties that lead them to bankruptcy.

3. Work to improve and develop human cadres through training and qualification in line with modernization processes and modern banking technology for Iraqi private banks.

4. If banks want to lend money, they should carefully study the feasibility of the projects they want to finance accurately before providing loans so that institutions can achieve the required returns to meet their needs. It is important to consider the funding structure that will be employed, which is the structure that leads to good financial performance, and superior to ensure the organization is able to operate smoothly and meet its obligations promptly.

5. It is important to provide the necessary liquidity for Iraqi private banks when needed and at low costs to meet their obligations when they become due, which contributes to increasing confidence in the banks. The lack of regular liquidity management may lead to bankruptcy risks, especially when it comes to the inability of banks to provide withdrawals to depositors and customer requirements in a timely manner. The problem of liquidity usually arises due to large deposit withdrawals when banks do not have enough cash on hand.

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