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# MEASURING AND ANALYZING FINANCIAL HEALTH INDICATORS TO REDUCE FINANCIAL FRAGILITY -AN ANALYTICAL STUDY OF A NUMBER OF PRIVATE COMMERCIAL BANKS LISTED ON THE IRAQ STOCK EXCHANGE

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**A B S T R A C T**

The research focused on measuring and analyzing indicators of financial health in reducing financial vulnerability An analytical study of a number of private commercial banks listed on the Iraq Stock Exchange The research problem focused on the main question "Can the financial health of Iraqi banks be measured and analyzed?" The research aimed to measure and analyze the financial health of a number of private commercial banks to identify banks that enjoy better financial health to reduce financial fragility. The research used the descriptive analytical method using programs EXCELL and Evewis, and the research concluded, the results showed a long-term relationship and the sign is negative, which means that the relationship is inverse between (the rate of return on assets X1, the rate of return on deposits X2) and the financial fragility index (Y) and at a probability level of less than 5%, and the research recommended By investing more at the rate of return on deposits and return on assets.

**K E Y W O R D S**

Financial health, financial fragility

## INTRODUCTION

The global financial environment witnessed a high degree of competition, which required keeping pace with developments taking place in the world of finance and business at the global level in general and in Iraq in particular, which led to rapid development in its activities, which confronts it with the possibility of failure represented by financial fragility, which means the necessity of focusing on financial instruments that raise Of financial health, which reduces financial fragility, which is one of the important tools in the world of finance, it represents a tool for measuring
financial performance through which the work of banks can be improved and their financial and operational performance can be increased in light of the developments and acceleration that the world is experiencing today.

**First: The research problem:**

The banking sector faces many risks as a result of political and economic conditions, whether local or international, and these conditions directly affect the financial health of banks. These factors are divided into external factors, such as the global financial crisis, recession, and decline of the global economy, and internal factors, such as wars, occupation, and conflicts, which are A threat to the continued work of banks and the achievement of their goals, and this in turn is generally reflected in the health and efficiency of the bank and thus its ability to invest and generate profits. Accordingly, the problem of the study can be formulated with the following main question: "Is it possible to measure and analyze the financial health of Iraqi banks**"?**

**Second: Research objectives:**

The research aims to measure and analyze the financial health of a number of private commercial banks to identify the banks that enjoy better financial health in order to reduce financial fragility using financial health indicators represented by (the rate of return on equity, the rate of return on assets, the rate of return on deposits, and finally net profit margin).

**Third: The importance of research**

The importance of the research stems from the following**:**

A- Measuring financial health as one of the indicators of modern financial management today through its indicators

B- Analysis of financial fragility and its levels in the investigated banks

C- Providing a cognitive framework about the relevant variables, which contributes to the availability of their perceptions**.**

**Fourth: Research hypothesis**:

The research seeks to achieve the following two main hypotheses**:**

The first main hypothesis, which states (there is a correlation between financial health and the significance of its indicators in reducing financial fragility).

The second main hypothesis, which states (there is a significant effect on financial health in terms of its indicators in reducing financial fragility).

**Fifth: Research methodology:**

The research relied on the descriptive approach to present the theoretical aspect and the analytical approach to test the validity of hypotheses through the use of a package of financial and statistical programs**.**

**Sixth: The research community and its sample**

The research population represents the Iraqi banking sector, but the research sample was limited to 4 banks as a purposeful commercial sample, especially in Iraq, which are (United Investment Bank, Baghdad International Bank, Mosul Bank, and Middle East Bank**.(**

**Seventh: Limits of research**

-Time limits: The research limits were for the period 2011-2020**.**

-Spatial boundaries: The research sample banks listed on the Iraq Stock Exchange.

**The first topic (theoretical framework)**

**First: The concept of financial health.**

Financial health is one of the important and modern topics in financial management that must be addressed when evaluating the financial condition of banks and other financial institutions by addressing the most prominent concepts related to financial health, as (Al-Imam, 2010: 10) indicated that financial health expresses the condition that Through it, banks use their available resources efficiently to enable them to manage the risks they face. Financial health is also defined as the ability to manage spending, plan, and recover from financial shocks and crises. Financial health is a description of the financial condition of banks and institutions of various types, how they deal with their available financial resources, and the extent of their ability to pay their financial obligations on time (O'Neil et al, 2006: 47).

(Whitehead & Bergeman, 2017: 865) define it as a comprehensive assessment of the financial conditions of banks, including the ability to support the fulfillment of basic financial needs, which also includes opportunities for saving and maximizing wealth. (Rashwan and Abu Nasser, 2021: 121) define financial health as A diagnosis of the financial situation of banks in terms of their ability to use available resources and their ability to pay their financial obligations in the short term, in order to measure and evaluate their financial performance during a certain period with the aim of achieving financial stability and its strategic objectives. Financial health is a comprehensive assessment of financial status that includes the ability to support the fulfillment of basic needs, which also includes opportunities to save and build wealth (115: 2022 et al. Sabri).

Financial health is essential for any financial institution, whether banks or companies, as it is the basis through which one can identify the institutions' ability to use their financial resources efficiently, as well as knowing the extent of their ability to generate profits and the extent of their ability to identify and predict the risks that they may face in order to address and maintain them. On their financial soundness, which reflects the extent of their ability to fulfill financial obligations and face difficulties and obstacles, that is, the extent of the banks' ability to reduce the negative effects that may occur as a result of economic changes and confront the crises they face Financial health of banks.

Financial health refers to the state and stability of the financial affairs of banks. When measuring the financial capacity of banks, one must recognize the most important standards that are used to measure that capacity, as there are four basic elements that must be verified to judge the efficiency of the bank. Thus, we can identify the dimensions of financial health that enable banks to Improving its financial health, which is achieving profits, liquidity, ability to repay, financial analysis and record keeping (Sarhan, 2016: 200), and (Edwards, 2014: 6) added other elements in addition to achieving profits, managing financial liquidity, financial efficiency and the ability to repay other dimensions. It was represented by the ratio of asset turnover, net income, and operating expenses**.**

In the same context, (Johnson & Hanson, 3) indicated that there are six basic steps for managing the financial health of banks, which are implemented through good financial planning, and the

financial manager must work to complete these steps and complete them during the bank's period of operation**.**

**Second: The importance of analyzing the financial health of banks**

Understanding financial health and its determinants is important for policy makers and financial professionals to integrate financial health into the economic well-being and financial health of banks in order to enhance their performance as well as stand against the financial crises and difficulties they face (Wijekoon et al., 2021).

The financial analyst analyzes the bank's financial health using its previous financial statements in order to measure and evaluate the performance and financial position and thus estimate the bank's financial future. Through this analysis, it is possible to know its financial strengths and weaknesses, and the importance of health analysis is summarized as follows (Rashwan and Abu Nasser, 2021: 121 **).**

1. It helps banks identify the level of profitability, as well as the possibility of comparing it with other competing companies operating in the same sector**.**
2. Knowing the bank's efficiency in using and investing its assets**.**
3. Knowledge of the credit policies followed by the bank**.**
4. Know the level of inventory you maintain**.**

**Third: Financial health indicators**:

What is meant by financial health indicators are tools that help the financial analyst interpret the financial health of banks by calculating them for more than one financial period and comparing them together (trend analysis) and comparing them with the industry average (i.e. ratio analysis), which clearly reveals the financial position of banks in terms of strengths and weaknesses**.**

Financial health indicators are known as the foundation upon which financial health is based in order to measure and evaluate the financial performance of banks and compare their performance with their competitors, as well as the possibility of using them to predict financial bankruptcy in the future (Gitman. 2009: 69**)**.

While (Shams El-Din, 2016: 4) defines it as a set of metrics that enable us to measure and evaluate the financial performance of banks and know the extent of its deviation from the actual planned performance. That is, it is a tool to identify the current financial position of the bank in a specific period or a specific aspect of the bank's performance

It is also known as the tools that banks rely on in order to objectively evaluate their financial performance from many aspects of their activities, such as analyzing their financial ability to repay or maintain their assets or their ability to predict future profits (Rashwan and Abu Nasser 2021: 122**)**.

The researcher believes that financial health indicators are a method that expresses the company's performance and reflects an image of the extent of its ability to achieve its desired goals by employing commonly used financial indicators to determine its strength and the extent of the health and safety of its financial position**.**

There are many indicators to measure financial health: liquidity, financial solvency, operational efficiency, and profitability. Among these four measures, the best measure of financial health is the level of its profitability. Accordingly, a number of profitability ratios will be used as indicators to measure financial health. My agencies are**- :**

1. Rate of return on equity: It is the total return on capital shares, and it is a standard that shows the bank's ability and the extent of its success in generating profits by converting equity investments into profits and is measured according to the following formula (Hanash and Al-Ajroud, 2019: 65**)**.

Rate of return/equity * 100

2. Rate of return on assets: It is one of the ratios on which the financial performance of banks and the extent of their success is based. This ratio shows the extent of the bank's efficiency in using its total assets to generate profits. A high ratio indicates the company's effectiveness in managing its assets to achieve profits and is measured according to the following formula (Rosikah et al. al, 2018: 7**(**

Rate of return/assets *100

3. Rate of return on deposits: This indicator measures the extent of banks' ability to generate profits from the deposits they obtain and can be measured by the following relationship (Hamid and Al-Atabi, 2016: 9**)**.

Return rate/deposits *100

4. Return on assets available for employment: This ratio measures the extent of the bank's efficiency in achieving profits from its available funds, represented by property rights and deposits, and investing them in the optimal manner. A high ratio indicates the efficiency of management in using resources, but if the ratio decreases, it indicates that the bank's financial resources are increasing. At a rate greater than the rate of increase in net profit, (Hussein and Al-Mawla, 2021: 179) and it is measured by the following equation = rate of return / funds available for employment * 100

5. Net profit margin: - It is a ratio that measures the net profit resulting from sales, in order to determine the extent of the company's efficiency in generating profits and increasing them by investing its resources in an optimal way. The importance of the profit margin stems from the fact that it enables the bank to evaluate whether its current activities are effective or not. And to ensure its financial health and predict the percentage of profits through revenues by monitoring the increase or decrease in the net profit margin, and most banks disclose their net profit margin on a quarterly basis in order to increase their stock prices and thus increase profits, and they are measured according to the following formula (Makhlouf, 2019: 24)

**Fifth: Financial fragility**

Many believe that the concept of financial fragility is linked to the concept of financial instability. Therefore, the concept of financial fragility can be viewed as financial instability associated with a state of economic decline through fluctuations in the price of financial credit as well as the inability of those institutions to fulfill financial obligations (Ruwaibah and Firas, 2021: 28). Or it is the result of the failure of financial institutions to an external shock, which causes their financial instability, which leads to default and thus loss of profitability**(**Schroeder, 2009:287). Financial fragility may arise due to disruption and default Fluctuation in interest rates, rise and fall, or lack of access to external financing, or shocks that affect the monetary system (Tymoigne, 2012: 721**)**.

Financial fragility can be viewed as a visible result of the remnants of non-payment and disturbances in returns such as the return on investment, as well as the nature of external financial financing, which exposes the institution to financial fragility (Abdel-Kadhim, 2022: 35**)**.

The z-score measure can be used to measure financial fragility in the investigated banks
Financial fragility may occur for the following reasons

1. Financial instability, which results from weakness in paying high obligations and fluctuations in profitability
2. Financial behavior, which is practiced by decision makers, such as herd behavior, as well as financial panic
3. Default on payment, which exposes the bank to the appearance of financial fragility in its performance behavior
4. Weak investment in assets and deposits, which exposes them to weak achieved returns

**measuring and analyzing financial health indicators to reduce financial fragility**

**First: unit root tests.**

1. Test (2002) Levin, Lin and Chu-LLC:

We note from Table (1) that all variables stabilized at Level (1) and also stabilized at the first difference (1):1 as follows:

Table 1Test (2002) Levin, Lin and Chu-LLC:

| Levin, Lin & Chu t | | | | | | |
|---|---|---|---|---|---|---|
| | At Level | | | At First Difference | | |
| | t-Statistic | Prob | الحالة | t-Statistic | Prob | الحالة |
| Y | 2.87149- | 0.0020 | Intercept | 3.62239- | 0.0001 | Intercept |
| X1 | -2.46421 | 0.0234 | Intercept | -9.10892 | 0.0000 | Intercept |
| X2 | -4.03032 | 0.0023 | Intercept | -10.6608 | 0.0000 | Intercept |
| X3 | -0.36424 | 0.0342 | Intercept | -9.70044 | 0.0000 | Intercept |
| X4 | -6.55600 | 0.0000 | Intercept | -10.9937 | 0.0000 | Intercept |

**Table: Prepared by the researcher based on the outputs of the Eviews program.12.**

**2. Test (2003) I'm, Pesaram and Shin (IPS**:

We notice from Table (2) that all variables stabilized at Level (1) and also stabilized at the first difference (1):1 as follows**:**

Table 2: I'm, Pesaram and Shin (2003) IPS test results**:**

| I'm , Pesaram and Shin (IPS( | | | | | | |
|---|---|---|---|---|---|---|
| | At Level | | | At First Difference | | |
| | t-Statistic | Prob | الحالة | t-Statistic | Prob | الحالة |
| Y | -2.42013 | 0.0034 | Intercept | -2.54327 | 0.0005 | Intercept |
| X1 | -1.59946 | 0.0342 | Intercept | -1.87656 | 0.0000 | Intercept |
| X2 | -1.83613 | 0.0432 | Intercept | -2.32145 | 0.0000 | Intercept |
| X3 | -2.08876 | 0.0431 | Intercept | -3.98743 | 0.0000 | Intercept |
| X4 | -2.65437 | 0.0038 | Intercept | -2.54321 | 0.0000 | Intercept |

**Table: Prepared by the researcher based on the outputs of the Eviews program.12**.

**Second: Estimating the impact of financial health indicators in reducing financial fragility.**

First, before starting to conduct the multiple regression analysis test, data tests will be conducted to identify problems that affect the accuracy of the data and address them to reach the best results. The most important of these tests are:

1. Detecting the problem of variance difference Panel Period Heteroskedasticity LR Test: This test is used to confirm the extent to which the estimated model is free of the problem of variance difference for the residuals, as shown below:

Table (3)

Results of the contrast difference problem for the Panel Period Heteroskedasticity LR Test

| **Panel Period Heteroskedasticity LR Test** | | | |
|---|---|---|---|
| **Null hypothesis: Residuals are homoscedastic** | | | |
| | **Value** | **df** | **Probability** |
| **Likelihood ratio** | **112.2620** | **5** | **0.06543** |
| **LR test summary:** | | | |
| | **Value** | **df** | |
| **Restricted LogL** | **-222.7943** | **45** | |
| **Unrestricted LogL** | **-166.6633** | **45** | |

**Table: Prepared by the researcher based on the outputs of the Eviews program.12**.

Table (3) shows us the results of the test of the variance difference problem for the Panel Period Heteroskedasticity LR Test, as we note that the value of (F-statistic) is at a probability level greater than (5%), and this means that the model is free of the variance difference problem, and therefore here it must We accept the null hypothesis that there is no variance problem among the random residuals, and we reject the alternative hypothesis that there is a problem of variance variance among the random residuals**.**

**-1**Detecting the problem of autocorrelation - Residual Cross-Section Dependence Test: This test is used to verify the extent to which the estimated model is free of the problem of autocorrelation of the residuals, as follows**:**

Table (4): Results of the LM autocorrelation problem test

| **Residual Cross-Section Dependence Test** | | | |
|---|---|---|---|
| **Test** | **Statistic** | **d.f.** | **Prob.** |
| **Breusch-Pagan LM** | **20.40112** | **10** | **0.2257** |
| **Pesaran scaled LM** | **2.325761** | | **0.3200** |
| **Pesaran CD** | **2.965617** | | **0.0730** |

Table: Prepared by the researcher based on the outputs of the Eviews program.12**.**

Table (4) shows us the results of testing the autocorrelation problem. We note that the probability (F-statistic) reached (0.1819), which is greater than (5%). This means that there is no autocorrelation problem. Therefore, here we must accept the null hypothesis which states that there is no autocorrelation problem. There is a correlation problem between the random residuals, and we reject the alternative hypothesis which states that there is a correlation problem between the random residuals**.**

**2. Impact analysis**.

The PANEL ARDEL method will be relied upon to estimate the impact of financial health indicators in reducing financial fragility as follows**- :**

**1-Long-term relationship**

Table (5)

Results of estimating the impact of financial health indicators in reducing financial fragility in the long term

| **Dependent Variable: D(Y)** | | | | |
|---|---|---|---|---|
| **Method: ARDL** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.*** |
| | **Long Run Equation** | | | |
| **X1** | **-0.032357** | **0.044960** | **-0.719689** | **0.0093** |
| **X2** | **-1.978981** | **0.356079** | **-5.557706** | **0.0000** |
| **X3** | **3.141216** | **0.960813** | **3.269332** | **0.0035** |
| **X4** | **1.395680** | **0.284691** | **4.902438** | **0.0000** |

Table: Prepared by the researcher based on the outputs of the Eviews program.12**.**

The results of the long-term relationship showed the following**:**

The results showed the presence of a long-term relationship and the sign is negative, which means that the relationship is inverse between (rate of return on assets One unit leads to a decrease in financial fragility (Y) by (0.3) (1.9) units, respectively, with other factors remaining constant**.**

The results showed the presence of a long-term relationship and the sign is positive, which means that the relationship is direct between (rate of return on equity One leads to an increase in financial fragility (Y) by (3) (1.3) units, respectively, with other factors remaining constant**.**

**2-Short-term relationship**.

Table (6)

Results of estimating the impact of financial health indicators in reducing financial fragility in the short term

| | **Short Run Equation** | | | |
|---|---|---|---|---|
| **COINTEQ01** | **-0.509222** | **0.213091** | **-2.389688** | **0.0259** |
| **D(X1)** | **0.371238** | **0.349037** | **1.063604** | **0.2990** |
| **D(X2)** | **1.474387** | **1.908978** | **0.772343** | **0.4481** |
| **D(X3)** | **-15.68677** | **15.79793** | **-0.992964** | **0.3315** |
| **D(X4)** | **-5.889785** | **5.149791** | **-1.143694** | **0.2607** |
| **C** | **13.63326** | **7.244893** | **1.881775** | **0.0732** |
| **Root MSE** | **14.30523** | **Mean dependent var** | | **0.573354** |
| **S.D. dependent var** | **32.64687** | **S.E. of regression** | | **21.56595** |
| **Akaike info criterion** | **5.565745** | **Sum squared resid** | | **10231.99** |
| **Schwarz criterion** | **6.636478** | **Log likelihood** | | **-111.1436** |
| **Hannan-Quinn criter.** | **5.973486** | | | |
| ***Note: p-values and any subsequent tests do not account for model** | | | | |

Table: Prepared by the researcher based on the outputs of the Eviews program.12**.**

The results of estimating the parameters of the independent variable in the short term showed that the table shows that there is no relationship between financial health indicators and financial fragility due to the probability exceeding the 5% barrier**.**

The results of the table show that the value of the error correction factor has a negative sign, reaching (0.5092) and this value is significant based on the probability value, which was (0.0259), which is less than (0.05), meaning that the first condition has been fulfilled, noting that this value indicates To the point that 50% of short-term errors can be corrected in a unit of time, represented here by the year, in order to return to the equilibrium situation in the long-term**.**

Joint integration between financial health and financial fragility indicators**.**

It is noted from the results of the Badroni test that five out of a total of seven tests confirm the existence of a long-term co-integration relationship between the study variables at a significant level (5%) at the individual categorical and general trend, that is, the presence of co-integration between the variables as in the following table**:**

Table (7)

Results of the cointegration test (Pedroni Test**)**

| **Pedroni Residual Cointegration Test** | | | | | |
|---|---|---|---|---|---|
| **Series: Y X1 X2 X3 X4** | | | | | |
| **Alternative hypothesis: common AR coefs. (within-dimension)** | | | | | |
| | | | | **Weighted** | |
| | | **Statistic** | **Prob.** | **Statistic** | **Prob.** |
| **Panel v-Statistic** | | **-3.546442** | **0.9998** | **-3.313842** | **0.9995** |
| **Panel rho-Statistic** | | **3.220126** | **0.9994** | **2.491010** | **0.9936** |
| **Panel PP-Statistic** | | **-4.755999** | **0.0000** | **-10.30581** | **0.0000** |
| **Panel ADF-Statistic** | | **-2.026187** | **0.0214** | **-0.973519** | **0.1651** |
| **Alternative hypothesis: individual AR coefs. (between-dimension)** | | | | | |
| | | **Statistic** | **Prob.** | | |
| **Group rho-Statistic** | | **3.447643** | **0.9997** | | |
| **Group PP-Statistic** | | **-10.40261** | **0.0000** | | |
| **Group ADF-Statistic** | | **0.174676** | **0.5693** | | |
| **Cross section specific results** | | | | | |

**Table: Prepared by the researcher based on the outputs of the Eviews program.12**.

**Conclusions and recommendations**:

1. The results of the long-term analysis showed the existence of a long-term relationship and the sign is negative, which means that the relationship is inverse between (the rate of return on assets (X2) by one unit leads to a decrease in financial fragility (Y) by (0.3) (1.9) units, respectively, with other factors remaining constant**.**
2. The results showed the presence of a long-term relationship and the sign is positive, which means that the relationship is direct between (rate of return on equity One unit leads to an increase in financial vulnerability (Y) by (3) (1.3) units, respectively, with other factors remaining constant**.**
3. The results of estimating the parameters of the independent variable in the short term, as the table shows that there is no relationship between financial health indicators and financial fragility due to the probability exceeding the 5% barrier**.**

4. The results showed that the value indicates that 50% of short-term errors can be corrected in a unit of time, represented here by the year, in order to return to the equilibrium situation in the long term.

**Second: Recommendations**

1. The need to invest more in indicators (rate of return on assets, rate of return on deposits
2. We must work to reduce financial fragility by paying greater attention to return indicators
3. It is necessary to pay attention to indicators of financial health and fragility in the long term, as they have achieved positive results in the short term

**Sources and Reference**

First: Arabic sources

1. Al-Imam, Salah al-Din Muhammad Amin, using the CAMELS classification system in achieving the financial soundness of banks - applied research on a sample of Iraqi banks, 2010, Al-Mansour Magazine, No. 13.
2. Hussein, Ahmed Ali and Al-Mawla, (2021), Evaluating profitability and its impact on productivity in commercial banks (applied research in a sample of private Iraqi banks), Journal of the Faculty of Science, 13 (1), 173- 201.
3. Rashwan, Abdul Rahman Muhammad and Abu Nasser, Hassan Atef, (2021), Measuring and analyzing the impact of using financial health indicators on market value - an applied study on banks listed on the Palestine Stock Exchange, Palestine Technical University Journal for Research, 9 (2), 115- 134.
4. Sarhan, Ahmed Mustafa Muhammad, (2016), Adoption of good management practices and their relationship to the financial health of the farm among small dairy cattle breeders in Qena Governorate - Egypt, Journal of Economics and Agricultural Sciences, Mansoura University, 7 (2), 199-215.
5. Shams El-Din, Abdel-Rahman Hamza, (2016), The role of financial analysis tools in evaluating an economic institution - a case study of Sonatrach, RTO branch, Master's thesis in commercial sciences, Faculty of Economic, Commercial and Management Sciences, Abdelhamid Ben Badis University, Mostaganem, Algeria
6. Abdul-Kadhim, Sarmad Salem, The effect of financial leverage on financial fragility indicators - an applied study of a number of companies listed on the Iraq Stock Exchange, Master's thesis, Tikrit University.
7. Makhlouf, Wassim Suleiman, (2019), The impact of dividend policy on corporate profitability - Study of banks in the Amman Stock Exchange, Master's thesis in Business Administration, Syrian Virtual University, Syria.
8. Hindi, Ali Hamid and Sarhan, Sarah Salam, (2022), Analysis of the reality of the financial health of private Iraqi banks listed on the Iraqi Stock Exchange for the period (2015-2020), International Journal of Economic Studies, 21 (5), 129-134

**Second: Foreign sources**

1. Edwards, W. (2014): Financial Performance Measures for Iowa Farmers, Iowa State University Namibia, Livestock Research for Rural Development, Vol.22, No.6.

2. -Johnson, D.M., and Hanson, J.C. (no date Financial Management and Diagnosing the Financial Health of the business, Department of Agricultural and Research Economics, University of Maryland, USA
3. 5- Statcan , g. (2018). Financial indicators from the National Balance Sheet Accounts: Update
4. Rosikah, A., Prananingrum, D., Muthalib, D., Azis, M., & Rohansyah, M. (2018), Effects of Return on Asset, Return on Equity, Earning Per Share on Corporate Value, The International Journal of Engineering and Science (IJES), Vol. 7, No. 3,
5. 7-Weida, E. B., Phojanakong, P., Patel, F., & Chilton, M. (2020). Financial health as a measurable social determinant of health. PLoS ONE, 15(5), e0233359, 1-14.
6. https://doi.org/10.1371/ journal.pone.0233359
7. O'Neill, B., Prawitz, A., Sorhaindo, B., Kim, J., & Garman, E. T. (2006). Changes in health, negative financial events, and financial distress/financial well-being for debt management program clients. *Journal of Financial Counseling and Planning*, *17*(2),46-63
8. Sabri, M. F., Wijekoon, R., Abd Rahim, H., Ahmad, N., Burhan, S., Madon, Z., & Hamsan, H. H. (2022). Financial Literacy, Financial Behavior, Self-Efficacy, and Financial Health among Malaysian Households: The Mediating Role of Money Attitudes.
9. Schroeder, S. (2009). Defining and detecting financial fragility: New
10. Tymoigne, E. (2014). Measuring macroprudential risk through financial fragility: a Minskian approach. Journal of Post Keynesian Economics, 36(4), 719-744.
11. Whitehead, B. R., & Bergeman, C. S. (2017). The effect of the financial crisis on physical health: Perceived impact matters. *Journal of health psychology*, *22*(7), 864-873.
12. Zealand's experience. International Journal of Social Economics

Appendices //Financial statements of the banks under study

| **Middle East Bank** | | | | | |
|---|---|---|---|---|---|
| the years | **Financial fragility** | **Return/assets** | **Return/Deposits** | **Return/ownership right** | **Net profit margin** |
| **2011** | **15.08** | **45.39** | **15.68** | **0.043** | **0.032** |
| **2012** | **16.68** | **48.96** | **13.56** | **4.642** | **0.035** |
| **2013** | **18.53** | **43.44** | **10.99** | **4.743** | **3.16** |
| **2014** | **28.78** | **7.232** | **0.844** | **0.731** | **0.383** |
| **2015** | **26.38** | **98.15** | **1.521** | **1.852** | **0.635** |
| **2016** | **28.31** | **33.01** | **4.089** | **4.665** | **1.788** |
| **2017** | **22.81** | **2.163** | **0.217** | **0.179** | **0.077** |
| **2018** | **20.91** | **14.36** | **0.847** | **0.534** | **0.286** |
| **2019** | **25.64** | **0.484** | **0.029** | **0.029** | **0.011** |
| **2020** | **25.61** | **9.126** | **0.791** | **0.787** | **0.323** |
| **Mosul Bank** | | | | | |
| the years | **Financial fragility** | **Return/assets** | **Return/Deposits** | **Return/ownership right** | **Net profit margin** |
| **2011** | **15.29** | **53.79** | **10.76** | **6.816** | **0.041** |

| | | | | | |
|---|---|---|---|---|---|
| **2012** | **20.05** | **61.26** | **6.836** | **6.708** | **0.034** |
| **2013** | **21.79** | **65.07** | **13.02** | **14.36** | **6.897** |
| **2014** | **30.35** | **15.91** | **0.687** | **0.799** | **0.522** |
| **2015** | **28.64** | **4.597** | **0.091** | **0.383** | **0.09** |
| **2016** | **26.16** | **38.49** | **1.326** | **2.615** | **0.858** |
| **2017** | **26.82** | **43.08** | **1.809** | **3.849** | **1.195** |
| **2018** | **26.1** | **23.72** | **0.972** | **2.215** | **0.63** |
| **2019** | **26.42** | **36.71** | **1.273** | **2.882** | **0.833** |
| **2020** | **27.18** | **21.27** | **0.539** | **1.436** | **0.365** |
| **United Investment** | | | | | |
| the years | **Financial fragility** | **Return/assets** | **Return/Deposits** | **Return/ownership right** | **Net profit margin** |
| **2011** | **12.05** | **64.22** | **15.11** | **14.52** | **0.066** |
| **2012** | **13.8** | **4.265** | **14.64** | **13.81** | **0.048** |
| **2013** | **13.26** | **39.73** | **8.202** | **8.623** | **3.992** |
| **2014** | **15.32** | **45.35** | **6.411** | **11.62** | **3.625** |
| **2015** | **15.65** | **44.21** | **6.069** | **8.663** | **3.411** |
| **2016** | **16.34** | **4.48** | **0.327** | **0.761** | **0.201** |
| **2017** | **40.73** | **23.01** | **1.434** | **4.105** | **0.821** |
| **2018** | **14.97** | **77.2** | **3.454** | **14.32** | **2.035** |
| **2019** | **13.3** | **22.07** | **0.678** | **2.963** | **0.341** |
| **2020** | **11.58** | **2.909** | **0.147** | **0.294** | **0.064** |
| **Bank of Baghdad** | | | | | |
| the years | **Financial fragility** | **Return/assets** | **Return/Deposits** | **Return/ownership right** | **Net profit margin** |
| **2011** | **12.56** | **37.68** | **13.14** | **2.996** | **0.024** |
| **2012** | **12.17** | **40.01** | **8.335** | **2.397** | **0.019** |
| **2013** | **12.49** | **37.61** | **9.967** | **2.301** | **1.816** |
| **2014** | **11.89** | **36.43** | **8.899** | **1.862** | **1.52** |
| **2015** | **12.15** | **6.372** | **2.088** | **0.637** | **0.369** |
| **2016** | **16.87** | **27.5** | **7.158** | **2.445** | **1.686** |
| **2017** | **166.9** | **11.45** | **1.559** | **0.558** | **0.381** |
| **2018** | **16.25** | **11.35** | **2.295** | **0.782** | **0.549** |
| **2019** | **16.57** | **18.25** | **2.667** | **0.911** | **0.644** |
| **2020** | **14.05** | **33.36** | **7.254** | **1.883** | **1.423** |