

# Financial Leverage and its Relationship to Prediction of Financial Failure an Experimental Analytical Study of a Sample of Iraqi Private Banking Sector Banks for the Period 2014-2022

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## ABSTRACT

The survival, continuity and growth of business organizations, whether they are productive or service, such as financial institutions, including (banks) in their environments, is attributed to the extent of their success or failure in their commercial activities due to the dynamic and evolving environment produced by globalization, as well as the policies related to financial liberalization and openness, so it has become imperative for the managements of those banks to It works to face these financial challenges and risks, represented by the increase in its fixed costs in its productive activities, as well as the lack of funds necessary to meet its obligations towards its creditors, which forces it to take the right decisions to enhance its financial position, including the use of financial leverage to rely on public debt funds in its business to achieve its successes by entering investment projects and generating Profits for their owners to cover their fixed costs and pay their dues to creditors, and it is no secret that the process of expanding the debt without well-studied plans will lead to bankruptcy and then to its financial failure soon, and the process of predicting the financial failure of financial institutions is necessary due to the benefits it achieves that make benefiting from these effects. The negative and economic effects of these challenges as a warning bell for the work of the departments of those banks. Among those methods and means taken by its departments is the use of the Altman (1968) model, which adopted the mathematical formula (z-score) through its application to some financial ratios. The study relied on conducting two processes of analysis and testing on the Bank of Baghdad of the Iraqi private banking sector for the purpose of determining the extent of its success, survival, growth and continuity in its work environment or failure. It included the financial and statistical analyzes of its data for the period from (2014-2022). After completing the two analyzes and testing, a number of conclusions were drawn up, the most prominent of which was the existence of a good significant relationship between the two variables (financial leverage and prediction of financial failure). The study came out with it, perhaps the most important of which are two basic aspects: the first is the need for banks to adopt plans that work to cover their credit activities in an efficient manner that works to make the most of their assets and that they do not use financial leverage except within certain limits (when exposed to financial hardship) that would reduce their fixed costs and generate It has profits to cover the resulting interests of loans and advances and to obtain profits for its permanence and growth in the work environment, and if it expands in the public debt, it will lead to failure, and the second is that its plans include using the aforementioned model to know the strength or weakness of its credit position to be remedied.

**Keywords-** financial leverage, financial risk, Altman (1968) model, Bank of Baghdad.

## I. INTRODUCTION

Financial institutions were not isolated from the financial risks represented by the increase in the fixed costs of their products, as well as the decrease in the funds they possess to meet their obligations towards

creditors and what their managements decide to use financial leverage to expand the possession of funds, noting the case of an increase in expansion by completing public debt that will expose them to bankruptcies and then financial failure. In the future, especially as it operates in a dynamic and developed environment, and

the economic effects it produced as a result of globalization, and what many institutions have done for cases of openness and merger in order to overcome the conditions of financial crises and the resulting great financial risks that led them to bankruptcy, failure, and exit from their sector and work environment, which made many Researchers are working on adopting the use of scientific methods and means that will address cases of weaknesses in its credit position, including: how to supplement its budget from external funds and within certain limits, And how to early detect cases of failure that may be exposed to when the value of its assets decreases by using many financial ratios to predict failure before it occurs, and what increases the importance of this topic, many early studies were conducted on it before the risks exacerbated and left their effects on the work of banks, so it came This study is to show the use of quantitative models in the financial and statistical analysis processes and test them on the Bank of Baghdad of the Iraqi private banking sector to highlight the extent of its success and continuity in its credit activity and what are the cases that require its management to use financial leverage, as well as the possibilities that are exposed to financial failure as a result of poor planning with the help of This is based on the standard ratios, as well as the extent to which it can be applied in the Iraqi banking environment. For the importance of the study and for the purpose of its completion, it was required to divide the study into four sections. The first section concerned with the scientific methodology of the study, while the second section dealt with the theoretical aspect of the study. The third section included the analytical and experimental aspects of the study. And the statement of the use of financial leverage in strengthening the financial position, as well as the use of the Altman (1968) model in the process of forecasting the financial failure of the Bank of Baghdad and the possibility of applying it to the Iraqi environment, and finally the conclusions and recommendations came to cover the fourth topic.

The First Topic: The scientific methodology of the study

### **1.1. Problem Study:**

Due to the emergence of many indicators indicating the inability of private commercial banks to carry out their credit activities in the fields of investment and lending, which brought them returns that are no longer sufficient to cover their fixed costs and the interests arising from borrowing and credit operations from creditors, and their exposure as a result to the threat of non-survival, continuity and growth, and their failure to keep pace with economic development And the development of the country in which it operates, which may expose it to cases of bankruptcy and financial failure. Therefore, the study problem can be formulated with the following questions:

Is it possible for the bank (study sample) to increase its financial capacity by using financial leverage to cover its obligations towards creditors by borrowing and borrowing from others?

Can the management of the bank (study sample), by using financial leverage within certain (studied) limits, employ those funds in an optimal way in order to be able to obtain their planned financial returns, or is it something else that makes them vulnerable to financial hardship?

Can the management of the bank (study sample) when it feels financial hardship work to confront this situation through the use of scientific methods, including predicting failure using the (1968) Altman model in order to remedy the weaknesses that it is going through and that leads it to bankruptcy if it is neglected and then to failure ?

If the bankruptcy occurred during work, what is the role of the bank management (the study sample) in dealing with the case and what can be done to avoid reaching the stage of financial failure?

### **1.2. The importance of the study:**

The importance of the study is crystallized through the following points;

1. It deals with important issues in the work of financial institutions, such as financial risks, as well as financial leverage to enhance its capabilities, in addition to a very important topic, which is bankruptcy and then financial failure, how to predict it by its management, and what is its impact on the relevant parties (shareholders, investors, management, dealers, etc.). ..etc) in the event of an occurrence.
2. In view of the unstable dynamic environment and the accompanying financial risks, the managements of these banks must work to confront these risks and take decisive decisions, including the use of financial leverage in order to be able to strengthen their financial position and within limits that cannot be expanded so as not to be exposed to bankruptcy and then financial failure.
3. Identifying the means and the method that enables the bank's management to use it in financial analysis operations through the Altman (1968) model in its mathematical form (z-score).
4. The possibility of applying the Altman (1968) model in its mathematical form (z-score) by taking advantage of the final results of the financial ratios.
5. The study constitutes one of the positive turns that the Bank of Baghdad administration (sample of the study) benefits from in developing plans for its credit activity.
6. The ability of the bank's management to analyze, test and benefit from the accumulated experiences and experiences that banks go through in the same sector.

### **1.2. Study objectives:**

The study aims to achieve the following

1. identifying issues related to the work of financial institutions, especially financial leverage and financial failure and factors related to them.
2. Identifying the type of method used in attracting money through plans to enhance the financial position through financial leverage, as well as the type of method used in predicting financial failure through its

mathematical formula mentioned above when its management does not improve the use of financial leverage.

**1.4 . Study hypothesis :** Based on the problem of the study, which was identified with a set of questions, as well as the goals to be reached, the hypothesis of the study stated that ((there is no relationship between financial leverage and prediction of financial failure in its mathematical formula for the commercial bank)).

Study population and sample:

The study population is represented by the Iraqi private banking sector, which is registered within the Iraq Stock Exchange. As for the study sample, it was represented by (Bank of Baghdad), and the reason for choosing it as a sample is the availability of financial data on it in an integrated manner throughout the study period, as well as its practice of extensive credit activities according to the financial reports issued by it, as well as its being Registered within the Iraq Stock Exchange.

**1.5. The limits of the study:**

\*Spatial boundaries: Bank of Baghdad, located in the capital, Baghdad.

\*Temporal limits: The study relied on financial reports for nine years for the period (2014-2022).

**1.6. Study Method**

The study used the theoretical and practical sides, as shown below:

Theoretical aspect: The study relied on the descriptive approach through the use of some dissertations, theses, periodicals and books, as the researcher was informed of, which he believes are relevant to the completion of the study.

The practical aspect: The study relied on the financial and statistical analysis of the data shown in the financial reports of the study sample (Bank of Baghdad) for the same period by extracting the financial ratios for each of the two variables, financial leverage and financial failure, and making a simple indication of the result of each extracted ratio, explaining the reasons for the declines in the asset ratios as a result of The financial risks facing it and what it requires from the bank’s management by using financial leverage to enhance its financial position on the one hand, and using the mathematical formula for the financial failure prediction model on the other hand, so that the bank’s management can take the necessary measures to address weaknesses and enhance strengths.

**II. THE SECOND TOPIC: THE THEORETICAL FRAMEWORK OF THE STUDY**

**Firstly-Financial Leverage and related concepts (financial leverage, financial failure, and related to them)**

Before starting the topic of financial leverage, some concepts related to it must be addressed, namely risk, and they will be mentioned briefly as follows:

**2.1. Risk:**

**2.1.1. The concept of risk:** Risk is defined in (Webster dictionary as risk or risk, or exposure to loss or damage. Many definitions have appeared for it, and the following are some of those definitions, according to Table (1):

**Table 1: Some definitions of risk**

No.	Definition	Source
1	The chance that an unpleasant event will occur.	Brigham & Ehrhardt,2005:129. Weston et. al.,1996: 182
2	The possibility of an expected loss being realized or occurring when the actual and realized return on an investment is less than the expected return on that investment	Weston & Brigham,1987:8-9
3	The potential for exposure.	Brian,1995:1

A distinction must be made here between risk and Uncertainty. Uncertainty is related to the unpredictability of future results, while risk is the possibility of estimating possible results through the availability of information about them. Risk can be measured statistically using many statistical methods such as probability distributions. Or the standard deviation or the coefficient of variation (Beatty & zaiace, 1994: 313-335), and uncertainty is related to situations for which there is no sufficient information, and therefore the probability distribution cannot be estimated and calculated (Weston & Briham, 1978: 346).

**2.1.2. Risk classification:** The risk of a security is classified into two types: regular and irregular, which are as follows:

\***Systemic risk:** It is the risk arising from price fluctuations of securities, as the value of assets (shares) tends to move (up and down) according to the course of the market (Mayo, 1983:143).

\***Informal risk:** It is the risk that is unique to the organization itself and has nothing to do with market risk (Archer, Marc & Racett, 1983:106) and its relationship is due to the specificity of the organization, weak management, lack of investment opportunities available to it, and informal risk includes two types of risk she:

Business risks: this type refers to the possibility that the organization may not have the ability to compete successfully in the labor market because of the operational difficulties it faces, which sometimes leads to its loss (Jones, 1996:427).

**Financial risks:** It means many definitions, some of which are shown in Table (2) below:

**Table 2: Some definitions of financial risk**

No	Source	The definition
1	Weston & Brigham, 1987: 493 Curley & Bear, 1979: 343	It is the risk that ordinary equity investors bear as a result of the firm's decision to use indebtedness. It is that risk of the possibility of not obtaining sufficient cash flows to cover the interests of the money borrowed from others for the purposes of financing, or to pay the principal amount borrowed, or to provide
2	Hampton, 1996:343	the enterprise with profits as a result of the investment.

Therefore, we find that most business organizations resort to investing in securities in order to avoid exposure to risks, especially in the event of their inability to repay loans, since securities are less profitable if compared to investing their money in loans or other fields. From this it is clear that there is a direct relationship between return and risk, where the higher the return, the higher the risk and vice versa. As for the sources of financial risk, there are three main sources for it (Suvendu, Narayan Roy, 2013:564:

Financial risks arising from the fact that organizations are exposed to changes in market prices and are affected by them, such as interest rates, exchange rates, and exchange rates.

The financial risks arising from the act of dealing with the rest of the other organizations, such as sellers, customers and their counterparts in dealing with derivatives.

Financial risks arising from the internal procedures followed or the failure of organizations, especially individuals, processes, and systems.

**2.1.3. Financial Leverage**

**2.1.3.1. The concept of the lever:** - There are many concepts about the lever according to the sciences that dealt with it, and the following is a brief review of some of them, as shown in Table (3) below - :

**Table 3: Some of the concepts that dealt with science towards financial leverage**

Science	Concept	Source
Physics	It is the ability to lift or move a heavy mass by applying a relatively small force through the use of a lever.	All physics literature
political science	The ability of high-ranking individuals to achieve great accomplishments by uttering few words or small activities that come out of them.	Brigham Houston, 2019: 281

<b>Finance science</b>	The percentage change in one of the variables that affects the increase or decrease in the rest of the other variables and is not directly proportional to that change.	Preet Singh, 2013: 392
<b>Business science</b>	The company's endeavor to achieve the optimal balance point, whether in terms of its cost structure or in terms of its financing structure, to the extent that maximizes its financial performance on the one hand, and reduces the risks surrounding the possibility of its continuity on the other hand.	All financial science literature

**2.1.3.2. Decisions that necessitate the use of the leverage:**

When carrying out any industrial or marketing project, it requires two types of preliminary decisions (Blok & Hirt & Danielsen, 2017: 126):

**The first.** The amount of fixed costs of the plan must be determined with the equipment used in production operations.

**The second .** It is necessary to determine the funds required by the business, so if relying on debt money in the business, then this will lead to success, and if you want to generate profits for the owners, then this means paying fixed costs on the debt, and certainly expanding the debt means bankruptcy. As for the alternative, making a decision corresponding to selling the right of ownership instead of borrowing is a step towards reducing the possibility of allocated profits through the participation of others, and then it will lead to reducing the discovery of risk.

From both of the above decisions, it is possible to make a correct decision about the extent to which leverage is used through intensive commitment to fixed costs in manufacturing operations, and then it will employ operational leverage. But if the decision is to use debt to finance the company, then it tends to use financial leverage.

**2.1.3.3. Types of leverage**

The company's fixed costs will affect its financing decision when the company works to pay its fixed costs, so the company must choose to work by mixing different sources of funds to reach an appropriate financing pattern. Points of view differed on the types of crane, as shown below:

The first point of view: confirms the existence of two types of leverage (Preet Singl, 2013: 392):

- (1) .Operating Leverage (OL)
- (2) . Financial Leverage (FT)

The second point of view: confirms the existence of a third type in addition to what was mentioned above (Suvendu Narayn Roy, 2013: 302-303)

(3) Combined Leverage (CL):- Combined Leverage For the purposes of the current study, the leverage was limited to the type of financial leverage.

**2.1.3.3.1. Financial Leverage (FT)**

It means the potential use of fixed financial costs in order to maximize the impact of changes that occur in operating profits, that is, profits before interest and tax (EBIT) in the earnings per share of the company (EPS) (Gitman, 2000: 236). There are two types of fixed financial costs

**Firstly.** Interest paid on indebtedness.

**secondly.** Divided profits for preferred shares, which the company must pay regardless of the profits achieved from it.

**2.1.3.3.2. The importance of Financial Leverage (FT)**

Its importance appears in the appearance of fixed financial costs such as (interest costs) in the income statement (profit and loss statement) or when the company has to pay the interest due on it as a result of its use of loans. The higher the degree of financial leverage of the company, this means the higher the risk and vice versa. And that financial leverage has effects on maximizing property rights from the point of view of the income statement list, and it thus determines how we get the fruits of our work, and it will be allocated to debt holders, and most importantly to shareholders in the form of earnings per share (Block & et..., 2017:138).

**2.1.3.3.3. Financial Leverage degree:**

Through the foregoing, it is possible to extract the degree of financial leverage through the following equation (Alqatamin et, al., 2017) (Zaher, 2019) (Goldberg, 2020):-

<p><b>The degree of financial leverage = the total liabilities of the company weighted by the total assets of the company</b></p>
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**2.1.3.3.4. Similarities and differences between financial and operational leverage:**

**\*Similarities:**

There is a close similarity between the ideas of the two levers, since both are based on the principle of improving profitability by taking advantage of the fixed nature of some expenses, which are as follows:

In the case of operating leverage: we note that the increase in sales after the break-even point will lead to a greater increase in the profits achieved due to the fact that the behavior of fixed costs does not change with the increase in sales within the reasonable production range.

In the case of financial leverage: the opportunity to improve profits will be by borrowing at a relatively low fixed cost and using the borrowed money in the company's operations to achieve better returns than the cost of borrowing, assuming the company's ability to achieve this.

**\* Aspects of difference:** There are a number of differences between the financial and operational leverage that can be summarized in the following diagram (1): ((Suvendu Marayan Roy, 2013: 301-302):

<p>the sales Fixed costs variable costs ----- Operating Income *****</p>	<p>operating leverage</p>
<p>Earnings before interest and taxes (EBIT)***** Benefit  ***** Earnings before taxes (EBT) ***** taxes***** Profits after taxes ***** Quota***** Earnings per share (EAT) *****</p>	<p>Financial leverage</p>

**Source:** Stanley B. Block & Geoffrey A. Hirt & Bartley R. Danielsen,” Foundations of financial Management “, sixth ed.,Mc Grow Education, 2penn plaza, New york, NY 10121,2017.p.138.

**Form (1)**

The difference between the operating and financial leverages according to the financial statements

**Secondly. Financial failure and concepts related to it :**

**2.2.1. The concept of failure:**

It is the word synonymous in the English language (distress, bankruptcy, failure)) meaning (failure, bankruptcy, insolvency), and each of these terms has its own concept in the world of finance and economics (Marai, 2003: 28). The following is a brief discussion of these terms- :

**2.2.1.1. Failure: Failure:**

Due to what business organizations and financial institutions are facing in today's world of serious matters, no matter how many their reasons are, they will lead them to failure and liquidation at times, and although some organizations aspire to reach growth and success in their business, they must include in their plans the crises that lead to Failure and to face it with wisdom and decisive rational decisions.

**2.2.1.2. Bankruptcy**

Legally, it means the case of judicial bankruptcy that afflicts the company as a result of its refusal to pay its debts to its creditors when they are due, as it is declared bankrupt by a ruling issued by the competent court for the purpose of liquidating and selling it as a prelude to paying its debts to creditors (Ghalib, 2015: 5).

**2.2.1.3. Financial distress (hardship)**

It means that the company is facing a financial imbalance due to the lack of its resources and its capabilities to fulfill its obligations in the short term, which explains the state of imbalance between resources and obligations payable in the short term (Gharib, 2001: 77).

**2.2.2. Definition of financial failure:** have been given by writers and researchers with multiple points of view. Here are some of them in the following table (4):

**Table 4: Some definitions of financial failure**

No	The definition	Source
1	It means that the company's liabilities and liabilities are more than its assets, meaning that the net capital is less than zero	Pringle & Harris,1984:623-633.
2	It is the inability of the company to pay its obligations to creditors and to fulfill its debts	Schall & Haley,1986:733
3	The inability of the institution to meet its financial obligations, which it owed in full, and then on its way to legal bankruptcy.	Youssef H.M. Ashourardmajed M.E.I,Farra,2000.

From the aforementioned, the researcher believes that financial failure has many reasons that lead to the loss of sufficient liquidity to meet the costs corresponding to revenues, as well as financial insolvency leading to bankruptcy.

**2.2.3. Forms of financial failure**

Researchers in the field of financial sciences see that there are two types of financial failure for companies: (Aladdin, 2004: 188):

**2.2.3.1 .Economic failure:** Accordingly, the company is considered a failure when it does not achieve acceptable returns on its investments for its capital that are not commensurate with the size of the expected risks, as well as when the book value of its liabilities is more than the book value of its assets.

**2.2.3.2. Financial Failure:** Accordingly, the company is considered unable to pay its obligations to its creditors within the specified periods, i.e. its inability to fulfill its debts to them, and this type takes two forms:

**The first appearance:** Technical Insolvency

Accordingly, the company is considered unable to pay its financial obligations that are actually due or that are due in the short term, and this appearance takes two forms:

**The first figure:** As for the insufficient cash liquidity available to it, which forces it to not pay its debts and the interest payable because the value of its assets exceeds the value of its liabilities.

**The second form:** or take the form of financial insolvency, which is when the value of the company's

obligations due to others (liabilities) exceeds the value of its assets, and this thing happens regardless of the level of available cash liquidity.

**The second appearance:** Real financial hardship.

In it, the company is exposed to very difficult problems that lie in the difficulty of obtaining liquidity, which forces it to reduce its administrative structure, and then the market value of its assets becomes insufficient to cover its obligations, as well as its financial position becomes burdened with debts and receivables. Technical financial hardship.

**2.2.4. Stages of the financial failure process**

The process of financial failure goes through several stages before it reaches its final stages (bankruptcy and liquidation). The competent management must take the necessary treatments and measures by diagnosing the stage it is going through in order to avoid reaching bankruptcy. These stages are:

**1. The first stage: The emergence stage**

Through it, the company obtains some indicators that indicate that it is going through the stage of emergence of failure, such as the change in demand for its products or the continuous increase in its indirect costs, the obsolescence of its production methods, the increase in competition, the decrease in its credit facilities, and the increase in burdens without its working capital, which leads to its exposure to economic loss. Because the returns on assets are less than the usual ratios, and it is preferable to discover the problem at this stage by re-planning, whose role is more effective.

**2. The second stage: the stage of declining cash flow (faltering)**

In it, the company is exposed to its inability to meet its needs of immediate cash liquidity, as the company's assets are greater than its liabilities, which is what is meant by (defaulting). With this problem, the company is facing difficulty in converting its assets into cash liquidity to cover its debts owed to others, and this situation may continue for several months. Which requires its management to take the necessary corrective measures to address this financial weakness, and with it the company resorts to borrowing sufficient funds to meet its immediate cash needs (Al-Jehmali, 2000: 73).

**3. The third stage: the stage of temporary (technical) financial hardship.**

It makes it difficult for the company to adopt a policy that enables it to obtain the cash required to meet its obligations owed to others on the one hand, as well as what helps it grow on the other hand. At this stage, the revenues of one unit will decline, which makes it unable to pay its expenses (Al-Najjar, 1999: 11-16), and it may resort to adopting new financial methods, such as selling its bonds at a rate relatively higher than the interest rate that the bond holder can accept to invest his money in other similar institutions. The institution is in its work, and there may be little possibility for the continuity and growth of the company if it is unable to obtain the necessary financing (Gordan, 1978:347).

**4. The fourth stage: the real financial hardship stage (total hardship):**

With it, the company is unable to meet its obligations, and the financial hardship can be considered an acute liquidity problem that it cannot develop solutions for without a significant curtailment of its structure (Foster, 2003: 491). The real financial hardship is more serious than the technical financial hardship, and when it occurs, it is The market value of all its assets is not sufficient to fulfill its financial obligations, and then its financial position becomes burdened with debts, and its receivables are considered as bad debts. Through this phase of real financial hardship, it passes **two main roles:**

**The: first legal failure:** in which the company cannot control the failure, which requires taking legal measures to declare bankruptcy in preparation for liquidation (Al-Najjar, 1999: 360), and it is considered a final stage of financial failure that polytheism has reached (Al-Johmani, 2000: 73).

**The second round:** declaring bankruptcy and liquidation: in which the company is unable to pay its debts, and its assets are assigned and handed over to its management (Ross & et.al, 1999: 340)) and given the continuing state of cash shortage and the continuous insolvency that the company faces, bankruptcy is an inevitable consequence Therefore, and then liquidate it for the purpose of providing the necessary cash to pay off its creditors. Bankruptcy usually takes two basic forms (Al-Amiri, 2010: 241):

**The first form:** voluntary bankruptcy: it begins by submitting a request to the court to declare its bankruptcy and take the necessary measures.

**The second form:** involuntary bankruptcy: It is the result of pressure from the creditors on the owners and management of the company to submit the application to the court.

The company may resort, at the stage of real financial insolvency, to deal with several solutions, commensurate with the situation it is going through, which is Ross & Other, 2002: 857):

1. Selling assets (whether fixed or current).
2. Merger of the company with another company.
3. Reducing capital spending and research and development.
4. Issuing new bonds.
5. Negotiating with banks and other creditors.
6. Converting debts into shares.

**2.2.5. Reasons for financial failure**

According to the researcher's knowledge, there are two points of view adopted by researchers about the causes of financial failure, which are as follows:

The first point of view: failure is classified into two groups of factors (Avot Lvars, 1969:76):

**The first group:** internal factors: which are factors resulting from the institution's various economic policies (such as mismanagement and the ineffectiveness of its operational investment policies, the disproportion between capital and loans, the existence of errors in the economic feasibility study, the lack of control over the

stocks, the high financing costs, the failure to work with the quality system In general, the company does not adopt the modern marketing concept, waste and weak control, as most researchers tend to give it great importance to this trend due to internal and administrative reasons, as it is attributed to about 90%) of bankruptcy cases.

**The second group:** external factors: which are factors outside the will of the financial institution and related to the political and economic environment that surrounds the institution's work.

Locally and internationally (such as fluctuations in exchange rates, inflation trends at the level of the global and local economy, economic globalization, problems of dealing with government departments, political and security instability and conflicts.

with political blocs, successive developments of the outcomes of the scientific and technological revolution (Zavgren, 1983:520).

The second point of view: the causes of financial failure are classified due to the presence of the following cases (Harrington, 1993:96):

1. Lack of capital
2. A defect in the costing system
3. Weakness in oversight.
4. Lack of consultations
5. The government under laws that do not provide protection for companies
6. External fluctuations, such as mergers and technological changes.
7. Business fraud and deception

**2.2.6 . Predicting financial failure**

**2.2.6.1.** The concept of prediction: The origin of the word (predictive) in the Arabic language goes back to the origin of the verb (Naba), and (Naba) was mentioned in the Holy Qur'an with the meaning of news. And possible future conditions affecting its activities. Monks (1997:273) defined prediction as the future estimate of the organization's business levels in environmental conditions dominated by uncertainty, quoting (Student, 2000: 22).

**2.2.6.2.** The importance of predicting financial failure: There are a number of things that clearly highlight the importance of predicting financial failure as follows:

1.Through it, the necessary measures are taken to address failure in its early stages and avoid bankruptcy and liquidation (Saleh et al., 2000: 178.(

2.Through it, the parties related to the company's performance in the field of financial management benefit by taking precautionary measures to evaluate the company's financial performance and then its financial position (Al-Taleb, 2000: 22.(

3. It is of great importance to the following authorities (Foster, 2003: 490-491) (banks, investors, institutional management, official authorities), and auditors (Al-Sharif, 2006: 3) as:

**Banks:** When they are interested in predicting financial failure, they have implications for each of (their current loans, loans under study, prices and terms of their loans, the possibility of cooperation with borrowers to develop solutions to the problems they face, and setting withdrawal times.

**Investors:** Their interest leads to the rationalization of their investment decisions, the comparison between the available alternatives, and the avoidance of investing in high-risk projects.

**Institutional management:** to get acquainted with the indicators of financial failure, to deal seriously with its causes, and to develop successful solutions for it.

**Official authorities:** By enabling them to perform their oversight function over institutions operating in the economy in order to ensure their safety, such as the Office of Financial Supervision.

**Auditors:** It is their responsibility to audit the financial statements of these companies.

**2.2.7. The mathematical models adopted in measuring the process of predicting financial failure:**

Commercial banks are exposed to different types of risks, and these models represent a point of exploration for these risks by finding an appropriate way to manage them and try to avoid their recurrence. When using these models, they will lead to the success and stability of their system. The most prominent of those models that used the measurement are what was reviewed in Table (5) that follows:

**Table 5: the most prominent models used in measuring prediction of financial failure**

No.	Model name	The mathematical	Source
1	<b>Altman (1968)</b>  <b>It is called the Multiple Differentiation Analysis (MDA) model and it has five factors</b>	<b><math>Z=1.2(x1) +1.4(x2) +3.3(x3) +0.6(x4) + 1.0(x5)</math></b> Where: Z = Z-score (x1) = ratio of working capital to total assets (x2) = percentage of retained earnings to total assets (x3) = Profit before interest and taxes ratio of total assets (x4) = the ratio of market value of equity to total liabilities (x5) = the ratio of net sales to total assets If the score (Z) is greater than (3) 0, the company is considered financially secure (Z) between 2.7 – 2.99), the company considers its financial condition acceptable (Z) between 1.8-2.7), the company considers its situation threatened with bankruptcy within two years (Z) less than 1.8), the company is considered to have a high probability of bankruptcy	Swalith et, al. 2021:296
2	<b>CAMEL In the early seventies Five ratings</b>	<b><math>CAMEL=0.2(C)+0.25(A)+0.2(M)+0.25E+1.0(L)</math></b> Where: CAMEL = Z-score (C) = represents a capital adequacy of 20% (A) = represents the quality of assets by 25% (M) = represents the quality of management with a percentage of 20% (E) = Profitability of 25% L) = liquidity represents 10% This model is based on five ratings: strong (1-1.4), acceptable (1.5-2.4), moderate (2.5-2.4), marginal (3.5-4.4), unacceptable (4.5-5).	Abbas et.al,2019:24-25
3	<b>Springate (1978) The four factors</b>	<b><math>1.03 (x1) +3.07 (x2)+0.66 (x3) +0.44 (x4) = Z\text{-score}</math></b> Where: Z = Z-score (x1) = the ratio of the capital to the total assets of the company (x2) = the percentage of profits, interest and taxes weighted by the total assets of the company (x3) = the percentage of profits, interest and taxes weighted by the total current liabilities (x4) = the percentage of the company's total sales weighted by the company's total assets The classification is based on the value of (Z-score). If the value is greater than (0.862), then there are risks related to the financial failure of these companies. Otherwise, the company is safe from the risks of failure. The accuracy of this model is 92.5%.	Misu & Madaleno,2020:1-28
4	<b>Altman (1993)</b>	<b><math>Z=6.5(x1) +3.26(x2) +672(x3) +1.05(x4)</math></b>	(anjum,2012: 216)



	<b>A modified model of the Altman model (1968) The four factors</b>	Where: Z = Z-score, and (x1), (x2), (x3), and (x4) bear the same interpretation of Altman (1968) model factors. If the value of (Z) is greater than 1.10, this means that the company is bankrupt. And if the value of (Z) is less than 2.60 = = = = safe. And if the value of (Z) is between (1.10-2.60) = = = = it falls in the gray area. This model had neglected the factor (x5) from it in order to reduce the impact of the potential industry. It is likely to be a sensitive variable for the industry. The modified model is used in privately owned companies or non-industrial companies.	
5	<b>PATROL 1993 The five factors</b>	<b><math>P=0.25(PAT)+0.25(R1)+0.15(R2)+0.1(O)+0.25(L)</math></b> Where: P = represents the evaluation of the bank's performance (PAT) = represents capital adequacy and is mathematically extracted from equity capital/total risk weighted assets. (R1) = represents profitability and is mathematically extracted through net income/total assets. (R2) = represents credit risk and is mathematically extracted from the provision for doubtful debts/total loans. (O) = represents the organization and is extracted mathematically through total operating expenses / total operating revenues. (L) = represents cash (liquidity) and is extracted mathematically through cash / total assets. Thus, the bank's management can through early detection of strengths and weaknesses to improve and raise the current performance of the bank according to the classifications: (1) the best performance,..... (5) the lowest performance. Then the components of the model are collected for the final evaluation of the bank	<b>Halbos, Amina,A.,2022:5</b>
6	<b>CAMEL (1996) The six factors</b>	<b><math>CAMEL =0.2(c) +0.2 (A) +0.25(M) +0. 5(E)+ 1.0(L)+0.1(S)</math></b> It is an upgraded version of CAMEL due to the addition of a sixth indicator, which is (S), and each indicator in the system is classified on a scale from (1) the best to (5) the worst, similar to the CAMEL system, and the weights for each of its elements are divided into ((adequacy Capital (c) by 20%, asset quality (A) by 20%, management quality (M) by 25%, profitability (E) by 15%, liquidity (L) by 15%, market sensitivity (S) by 10 %)).	<b>(Yuksel et, al.,2015:12) (Al Ali &amp; Al-yatama,2019:55 ) (Ouma &amp; kiror,2019: 95)</b>
7	<b>Altman (2000) The five factors</b>	<b><math>S=1.5(cA) + 1.2 (EA) +3.5 (CAR) +0.6 (NPL) +0.3 (CI) + 6.4 ( LA )</math></b> Whereas: S = Z-score according to the standard is less than 70% (cA) = capital-to-assets ratio as per standard less or equal to 4% (EA) = Equity Percentage of Standard Assets Less or Equal to 2% (CAR) = capital adequacy ratio according to the standard less or equal to 8% (NPL) = Non-performing loan to loan ratio of 15% (CI) = the ratio of operating expenses to operating income according to the standard is greater than or equal to 40% (LA) = the ratio of loans and advances to assets according to the standard is greater than or equal to 65% With it, the performance of the bank can be measured by	<b>Suresh et, al.,2019:443</b>

		measuring the solvency of each bank, and it is also possible to predict the financial distress and its money of critical importance to central banks, creditors and investors.	
8	Altman (2000)  The five factors	<p><b>Z-score= 0.012 (x1) +0.014 (x2) +0.033 (x3) +0.006 (x4) + 0.998 (x5)</b></p> <p>According to which the Altman (1968) model was developed as: - Z = Z-score</p> <p>(x1) = working capital percentage weighted by the company's total assets</p> <p>(x2) = the percentage of retained profits weighted by the total assets of the company</p> <p>(x3) = the percentage of profits before interest and taxes, weighted by the total assets of the company</p> <p>(x4) = the ratio of book value of equity weighted by total liabilities</p> <p>(x5) = the percentage of the company's total sales weighted by the company's total assets</p> <p>The classification depends on the value of (Z-score), if the value is less than (-1.23), then the company is in a state of complete financial failure, and if its value is greater than (-2.9), then the company is completely safe from the risks of financial failure, and if its value is Greater than (1.23) and less than (1.23), the company falls within the gray area. The defects of this model lie in its ineffectiveness when applied to companies that are not listed on the stock exchange (Misu &amp; Madaleno, 2020).</p>	Altman, E.J., 2000

After the researcher looked at the models reviewed in Table (5) above, the researcher settled on using the Altman (1968) model in measuring the risks of financial failure of the study sample bank for the following reasons:

1. Availability of available data on the variables of the model (Altman (1968) for the study sample.
  - 2.The adoption of many studies on predicting financial failure (according to the researcher's knowledge) on the use of this model.
  3. It is also possible to evaluate its results on different sectors because of the advantages that this model enjoys.
- Third. The theoretical relationship between the variables of financial leverage (L) and the prediction of financial failure (z):**

The competitive environment has always been the main source that influences and is affected by business organizations through their risky investment activities, including financial risks resulting from obtaining sufficient cash flows to cover interest or pay the principal of money borrowed from others, or not obtaining profits as a result of investment, which makes investors with their shares They bear part of those risks, and it is worth noting that there are other financial risks such as changes in market prices, rates, exchange rates and interest rates, as well as a set of procedures related to poor planning processes to address failures that occurred during work, which requires the management of these organizations to study and determine the amount of fixed costs as a result of the indebtedness used in Production operations, as well as the funds that it requires to

generate profits for the owners, in other words lead to the payment of fixed costs on the debt, and if the debt is expanded, then this means bankruptcy. In both cases, it is possible for the management of the organization to make a correct decision about the extent to which it uses a method that makes it attractive to the debt of its activities, which is what is called financial leverage. And when the decision is taken to adopt financial leverage in debt expansion operations This was not accompanied by taking precautionary measures to ensure the payment of those debts, such as the lack of experience in this field or the absence of a specialized cadre to manage planning operations, which will lead to the inability of the organization to meet its financial obligations that it owed to creditors, and in some cases the organization's liabilities become more than its assets, meaning that Its net capital becomes less than zero, as this will lead it to financial failure. It is worth noting that the relationship between risk and financial leverage is a direct relationship, so with increasing the financial leverage the risk increases because it will lead to financial pressure on the company obliging it to pay interest and installments on specific dates regardless of its current financial position. Financial turmoil has costs that may outweigh the expected benefits of borrowing. The disclosure of cases of fraud and fraud included in the financial reports will expose the company to heavy penalties by its organizers, which may result in an increase in the risk of bankruptcy (Et, al., 2015, Ghazal.), and the company may face lawsuits as a result of that by investors, creditors and others. From stakeholders, which will harm its reputation

in the market, and then cash flows will decrease as a result of increased costs and decreased sales, which is the first indicator of financial failure, then other successive stages of failure begin with a decline in distributions, and then technical failure or the company's inability to pay its obligations or debt restructuring (Turetsky & McEwen, 2001: 323-343).

### III. THE THIRD TOPIC: THE APPLIED FRAMEWORK OF THE STUDY FIRSTLY

Financial and statistical analysis of the values related to the financial leverage variable (L) for the bank, the study sample:

#### 3.1.1. Financial analysis

3.1.1.1. Review of the total values related to the financial leverage variable (L) for the study sample bank: The following is a review of the total values of loans and advances and total assets for the same sample and for the period from 2014-2022)) shown in Table (6) below:

**Table 6: Review of the values of each of the total loans and advances and the total assets of the study sample for the period from( 2014-2022)**

General Average	2022	2021	2020	2019	2018	2017	2016	2015	2014
	0.1248	0.0519	0.0789	0.0997	0.1320	0.1454	0.1555	0.1624	0.1521

1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
2	6	.	9	.	2	.	4	.	4	.	6	.	6	.	9	.	3	.	2
6	5	7	.	5	1	4	1	1	9	1	1	0	9	2	5	5	5	8	6
7	7	2	4	3	.	1	.	3	.	1	.	9	.	0	.	4	.	2	.
6	0	4	9	9	6	9	6	2	6	3	9	0	5	0	0	9	7	7	6
7	9	.	6	.	3	.	2	.	0	.	5	.	7	.	6	.	1	.	9
2	3	1	.	8	6	5	9	7	2	5	4	1	9	4	6	5	8	5	9
9	1	9	4	0	.	2	.	4	.	3	.	5	.	2	.	3	.	0	.
2	8	9	0	8	2	8	9	4	7	8	7	2	2	4	0	6	8	5	6
5	.	.	7	.	8	.	1	.	1	.	2	.	0	.	7	.	5	.	7
	8	5		6	2	2	8	2	8	5	6	6	8	1	9	6	8	3	3
		7		5		3		0		5		4		1		9		2	
		8		6		7		5		8		7		7		8		5	

The values are extracted from the original financial reports of the study sample bank

3.1.1.2. Extracting the values related to the financial leverage variable (L) for the study sample bank: The following is a review of the total financial leverage values for the same sample and for the period from 2014-2022)) after applying equation (1) related to financial leverage and as shown in Table (7) below:

**Table 7: Values of the financial leverage variable (L) for the study sample bank for the period (2014-2022)**

over all average	2022	2021	2020	2019	2018	2017	2016	2015	2014	year
0.1248	0.0519	0.0789	0.0997	0.1320	0.1454	0.1555	0.1624	0.1521	0.1459	Value

From table (7) above, we note that the general average of the financial leverage values of the bank (sample of the study) for the period (2014-2022) reached (0.1248), and it ranged between the lowest value reached in the year 2022, when it was (0.0519), and the largest value in the year 2016, reaching (0.1624), while the rest of the leverage values that fall between the two values above for the study period are divided between high and low. In an increase in the financial leverage ratios, this will lead to a decrease in the weighted rate of its financing costs, and at the same time it also leads to an increase in the rate of return from the equity, assuming the other variables are constant, and vice versa. It also leads to a decrease in the rate of return from equity, assuming other variables are constant.

3.2.1. Presentation of the total values related to the components of the Altman (1993) model in its mathematical form Z-score for the financial failure prediction variable (Z) for the study sample bank From 2014-2022)) and extracted from his financial reports:

**Table 8: shows the total values related to the components of the Altman (1993) model in its mathematical form Z-score for the financial failure prediction variable ((Z for the study sample bank for the period 2014-2022)**

year net working capital	year net working capital x5	year net working capital x4	year net working capital x3	year net working capital x2	year net working capital x1	year net working capital
1.827.505.325	76.046.364	292.419.198	32.847.000	19.741.625	235.001.581	2014
1.549.536.698	79.912.426	262.144.618	13.992.536	3.820.511	180.769.412	2015
1.200.424.117	73.620.067	282.821.705	26.801.406	23.525.818	125.301.860	2016
1.090.152.647	53.474.086	266.271.162	9.577.266	14.367.974	126.668.734	2017
1.113.538.558	36.568.001	266.742.720	5.427.845	7.649.644	266.742.190	2018
1.132.744.205	39.990.540	273.641.424	10.837.194	14.376.083	273.641.424	2019
1.419.528.237	60.552.064	278.435.852	25.775.190	17.190.627	278.435.852	2020
1.539.808.656	82.962.789	309.129.878	37.148.542	45.641.421	1.538.577.978	2021
1.724.199.578	112.021.952	349.676.266	63.789.805	83.976.483	349.626.266	2022

**3.2.2. Extracting the proportions that make up the model Altman (1993) in its mathematical formula Z-score for the study sample bank and the final result of the value of z:**

The following is a review of the total values of the percentages that make up the Altman (1993) model in its mathematical Z-score formula, and the final result for the same sample and period after applying the special equation (2), as shown in Table (9) below:

**Table 9: The values of the percentages that make up the Altman (1993) model in its mathematical form Z-score for the financial failure prediction variable ((Z) and the final result for the same sample and period**

overall aver	Z-score	X5	X4	X3	X2	X1	year
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age							
13.8328	0.36599	0.0416	0.1600	0.0179	0.0108	0.1285	2014
	33.54391	0.0515	0.1691	9.0301	2.4655	0.1166	2015
	0.42871	0.0613	0.2356	0.0223	0.0195	0.1043	2016
	29.34434	0.0490	0.2442	8.7852	0.0131	0.1161	2017
	26.16686	0.0328	0.2395	4.8744	6.8696	0.2395	2018
	32.05939	0.0353	0.2415	9.5672	0.0126	0.2415	2019
	0.47225	0.0426	0.1961	0.0181	0.0121	0.1961	2020
	1.49423	0.0538	0.2007	0.0241	0.0296	0.9992	2021
	0.61977	0.0649	0.2028	0.0369	0.0487	0.2027	2022
	<b>124.49536</b>	<b>the total</b>					

From Table (9) above, we find that when the value of the Altman (1993) model was extracted in its mathematical formula, the Z-score for the study sample bank for the period 2014-2022), it was found that:

The total values of the (Z-score) were (124.49536) with a general average of (13.8328). The highest value was (33.54391) in 2015, and the lowest value was from the 2014 share is (0.36599). And that the years 2015, 2019, 2017, 2018 with its values: (33.54391), (32.05939), (29.34434), (26.16686), and it is arranged in descending order. The study sample achieved the highest degrees of safety, while the years 2021, 2022, 2020, 2016, 2014 were: ( 1.49423), (0.61977), (0.47225), (0.42871), (0.36599), which are arranged in descending order, so the study sample achieved varying degrees of the possibility of bankruptcy. The interpretation of the results was detailed according to the time periods as follows:

1. In 2014, when the value of (Z) = (0.36599) appeared, and since it falls within the category ((less than the value 1.8)), the bank in the study sample has a high probability of bankruptcy, and its management must work to study the negative aspects of its investment activity to overcome them And treat it to correct its path and keep it in its working environment.
2. In 2015, when the value of (Z) = (33.54391) appeared, and since it falls within the category ((greater than the value 3.0)), the bank in the study sample considers its financial position and has achieved the highest degrees of safety and in first place, and its management must continue with its plans right and future growth.
3. In 2016, when the value of (Z) = (0.42871) appeared, and since it falls within the category ((less than the value 1.8)), the bank in the study sample has a high probability of bankruptcy, and its management must

work to study the negative aspects of its investment activity to overcome them And treat it to correct its path and keep it in its working environment.

4. In 2017, when the value of (Z) = (29.34434) appeared, and since it falls within the category ((greater than the value 3.0)), the bank in the study sample considers its financial position and has achieved the highest levels of safety and in third place, and its management must continue with its plans right and future growth.

5. In 2018, when the value of (Z) = (26.16686) appeared, and since it falls within the category ((greater than the value of 3.0)), the bank in the study sample considers its financial position and has achieved the highest degree of security and in fourth place, and its management must continue with its plans right and future growth.

6. In the year 2019, when the value of (Z) = (32.05939) appeared, and since it falls within the category ((greater than the value 3.0)), the bank in the study sample considers its financial position and has achieved the highest degree of safety and in second place, and its management must continue with its plans right and future growth.

7. In the year 2020, when the value of (Z) = (0.47225) appeared, and since it falls within the category ((less than the value 1.8)), the bank in the study sample has a high probability of bankruptcy, and its management must work to study the negative aspects of its investment activity to overcome them And treat it to correct its path and keep it in its working environment.

8. In the year 2021, when the value of (Z) = (1.49423) appears, and since it falls within the category ((less than the value 1.8)), the bank in the study sample has a high probability of bankruptcy, and its management must work to study the negative aspects of its investment activity to overcome them And treat it to correct its path and keep it in its working environment.

9. In the year 2022, when the value of (Z) = (0.61977) appeared, and since it falls within the category ((less than the value 1.8)), the bank in the study sample has a high probability of bankruptcy, and its management must work to study the negative aspects of its investment activity to overcome them And treat it to correct its path and keep it in its working environment.

**3.1.2. Statistical analysis of the two variables financial leverage and prediction of financial failure to show the relationship between them:**

After entering the results of tables (7) and (9) for the independent variable (financial leverage L) and the dependent variable (prediction of financial failure (Z) in its Altman (1993) model and in its mathematical formula Z-score), and processing them in the statistical program to reach the fact that there is a relationship between These two variables or not, according to the hypothesis of the study, which assumed that there is no relationship between them, the results were as follows:

**Table 10: Model Summary**

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.73 <sup>a</sup>	.5329	.058	15.599394874

a. Predictors: (Constant), L

Through Table (10), we note (R = 0.73), which indicates that the relationship is good between the independent variable, financial leverage (L) and the dependent variable, financial failure (Z). We also note that the value of (R Square = 0.5329), which means that the model is average. Also, the random error value is less, and the regression equation explains 53.29% of the change in the dependent variable, the financial failure that occurred due to the change caused by leverage, and the rest of the change of 46.61% occurred due to other factors other than the independent variable, financial leverage.

**Table 11: ANOVA**

Model	Sum of Squares	df	Mean Square	F	P-value
1 Regression	348.509	1	348.509	3.432	.037 <sup>b</sup>
Residual	1460.047	6	243.341		
Total	1808.556	7			

a. Dependent Variable: Z

b. Predictors: (Constant), L

Through table (11) above, we find that (F = 3.432) and (P-value = 0.037), which indicates a significant relationship between the dependent variable financial failure and the independent variable financial leverage, and this confirms that financial leverage has a significant effect in reducing financial failure.

**Table 12: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	Beta		
1 (Constant)	-9.386	21.413		-.438	.676
L	109.577	98.412	.234	2.197	.037

a. Dependent Variable: Z

Through Table (12) above, we find that increasing the value of the independent variable, the financial leverage, by one value leads to a reduction in financial failure by (109.577), and this change is significant and the percentage is 53.29, as shown in Table (12) above.

We can say through the statistical analysis shown in tables (10), (11) and (12) above, that there is a good significant relationship between the two variables: (the independent variable: financial leverage with the symbol L and the dependent variable: prediction of financial failure with the symbol Z) and that the increase

is by one value for the variable The independent will result in a reduction of 109,577 in the dependent variable. This proves, categorically, that there is no doubt that there is a good moral relationship between the financial leverage and the prediction of the financial failure of the bank, the study sample. This contradicts the hypothesis of the study, which stated that ((there is no relationship between financial leverage and prediction of financial failure in its mathematical formula for the commercial bank).

#### IV. THE FOURTH TOPIC: CONCLUSIONS AND RECOMMENDATIONS FIRSTLY. CONCLUSIONS

##### 4.1.1. *Conclusions of the theoretical side*

There are a number of conclusions that emerged from the results of the study, as follows:

1. By using the mathematical formula to extract the degree of financial leverage, it was possible to obtain different percentages of the financial leverage values, and this discrepancy had occurred between the rise and the decrease, as in its rise, this explained the state of decline in its financing costs that appear in its financial reports, and the lower it is, the more it is Explain the rise in its financing costs shown in its financial reports.
2. By using the Altman (1993) model in its mathematical formula (Z-score), it was possible to obtain different values to predict financial failure, some of which got the first, second, third and fourth positions, respectively, for the years (2015, 2019, 2017, 2018) for safety cases By predicting financial failure, including what has obtained the first, second, third, fourth and fifth positions, respectively, for the years (2014, 2016, 2020, 2022, 2021) for predicting financial failure, and in both cases (cases of safety and financial failure) it was an indicator for determining strengths vulnerabilities and develop appropriate solutions for each case individually.
3. Companies, whether large or small (including financial institutions), have always faced over time and in light of the developed and developing economies of the world many financial risks due to the dynamic and rapidly changing environments such as the high fixed costs of their products and the lack of funds that make it difficult for them to fulfill their obligations to others, which forced them to use leverage Financial (L) to meet its needs, but within deliberate plans, since the increase in it leads to bankruptcy and failure, so it has become a general phenomenon in which researchers must take a share of attention to study and research its direction, and the researcher believes the reason behind this interest lies in two factors:

- **The first factor:** the fact that the issue of predicting financial failure falls within the control of the company's management through its poor performance efficiency (a direct factor).

- **The second factor:** the fact that the subject of predicting financial failure falls outside the control of the company's management through its influence on the surrounding environmental conditions that are characterized by uncertainties (an indirect factor).

4. The deterioration in the financial position of companies or financial institutions comes as a result of their poor performance and is an early warning to them about economic failure and then insolvency and then failure and liquidation. The phenomenon with studied plans that include successive and correct procedures in order to mitigate financial risks with the least possible losses.

5. The lack of awareness of the relevant parties (investors, beneficiaries, and creditors) of the laws and regulations governing the work of the Iraq Stock Exchange made it a fertile ground for the occurrence of financial failure in certain periods.

6. There is a good significant relationship between the two variables (the financial leverage being an independent variable bearing the symbol L, and the variable predicting financial failure as a dependent variable bearing the symbol Z, as the change in the dependent variable Z by 53.29% was caused by a change in the independent variable L, while the remaining percentage of the ratio The percentage of (46.61%) was caused by the interaction of other factors that affected other than the independent variable L, and this was shown through the statistical analysis Model Summary in Table (10).

7. The degree of good significant relationship between the two variables was confirmed as it appeared through the results of the ANOVAa statistical analysis in Table (11): (F = 3.432) and ((P-value = 0.037).

8. Any increase by one value in the independent variable L will lead to a decrease in the dependent variable Z by (109.577), and this is confirmed by the Coefficientsa statistical analysis in Table (12).

##### 4.1.2. *Conclusions from the practical side*

The results of the financial analysis, in its practical aspect, for the years (2014-2022) for the study sample bank (Bank of Baghdad), based on its financial reports, showed the following aspects:

The high value of the degree of financial leverage (L) reflects the efficiency and ability of the bank's management to exploit the funds borrowed from advances and loans to enhance its financial position through

1. Its investment in various activities generates money for it that covers the interest of those advances and loans on the one hand, and on the other hand it generates money for it that covers the interest of those advances and loans on the one hand, and on the other hand it generates profits for it that increase its financial position, as is the case in 2016, when the financial leverage reached (L) with a value of (0.16244).

2. The decrease in the value of the degree of financial leverage (L) reflects the efficiency and ability of the

bank's management to exploit the funds borrowed from advances and loans to enhance its financial position, which does not enable it to enter into profitable investment projects that would reduce its fixed costs and also cannot fulfill its obligations towards creditors. As is the case in the year 2022, where the financial leverage (L) amounted to (0.0519).

3. The slight increase and decrease in the value of the degree of financial leverage (L) came as a result of the increase and decrease in the values of advances and loans for total assets according to the formula of the mathematical model used in extracting the values of financial leverage (L), where the values were confined between the years (2014-2021).

4. The increase in the value of the Altman model (1993) in its mathematical formula (Z-score) from the rule ((3.0))(which is the percentage determined in the original Altman model (1993)) from a financial point of view (far from financial failure) as is the case for the years (2015), 2019, 2017, 2014) with its numbers, respectively (33.54391), (32.05939), (29.34434), (26.16686), and in advanced first, second, third, and fourth positions, respectively, as well.

5. The decrease in the value of the Altman (1993) model in its mathematical formula (Z-score) from the base ((1.8)) (which is the percentage determined in the original Altman (1993) model), this means that the bank (the probability of bankruptcy is very high) as it is The case for the years (2014, 2016, 2020, 2022, 2021) with their numbers (0.36599), (0.42871), (0.47225), (0.61977) and with consecutive first, second, third, fourth and fifth positions.

6. The increase and decrease in the value of the Altman (1993) model in its mathematical formula (Z-score) came as a result of the increase and decrease in the values of the percentages that make up the formula The mathematical model of (Z-score) that was used for the Bank of Baghdad.

7. The use of the Altman (1993) model in its mathematical form (Z-score) allows the Bank of Baghdad administration to take the necessary control measures in successive stages to face cases of financial failure, provided that the performance diagnosis is realistic to help control accurately.

8. Through the use of the Altman (1993) model in its mathematical form (Z-score) in the process of predicting financial failure, it achieves the goals of accounting disclosure for the study sample.

#### **Secondly. Recommendations:**

The researcher must present a number of recommendations in the light of the theoretical and practical conclusions of the financial and statistical analyzes, which will work to strengthen the financial position of the study sample on the one hand, and to detect the possibilities of financial failure and take the necessary measures and precautions to confront them in scientific and studied ways, which are as follows:

1. An objective policy must be put in place in selecting, appointing, training and qualifying workers in the field of banking and trying to benefit from those with academic qualifications and accumulated experience in the field of banking work and working on following them up and developing the skills of the old ones and involving them in training courses inside and outside Iraq to ensure keeping up with what has been reached in the field of work .

2. The management of the Bank of Baghdad should clarify the essential facts that accompany its credit activity with full transparency and its financial position going through strengths and weaknesses, so that the stakeholders are aware of the bank's work firsthand, so that its management can early detect (the state of prediction) about the phenomenon of financial failure.

3. The necessity of working by the Bank of Baghdad administration by taking advantage of the previous experiences of banks that were subjected to a threat in their financial position and what was dealt with to strengthen it on the one hand, and to generate revenues and profitability necessary for its sustainability and survival in the work environment. This comes within the flexible plans that are prepared to face such future cases.

4. The management of the Bank of Baghdad must use the quantitative aspect in dealing with the cases that its financial position is going through, whether it is from the use of financial leverage (L) or the use of the Altman (1993) model in its mathematical form (Z-score) to predict cases of financial failure through the use of ratios Finance accurately as it is the basis in the analysis process.

5. The Bank of Baghdad must continuously follow up on the financial bulletin for currency trading issued by the Iraq Stock Exchange to ensure its communication with the credit activity within the sector.

6. The supervisory and accounting authorities should work continuously to develop a supervisory training program run by qualified and experienced people in the field of banking work to audit the work of Iraqi banks to find out about financial risks early and then how to use the financial leverage (L) to enhance its financial capabilities to ensure that it fulfills its obligations The direction of the creditors on the one hand, and on the other hand to cover its fixed costs and achieve financial savings as a result of its optimal exploitation of those funds and not to expand it in an ill-conceived manner, as it leads to financial failure. Where the Bank of Baghdad (the study sample) is a representative of those private banks, and what applies to it will apply to the banking sector to which it belongs.

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## Appendix A

### **A brief summary of the study sample bank (Bank of Baghdad)**

The bank was established as a private joint stock company with a nominal capital of (100) million Iraqi dinars according to the incorporation certificate numbered M/4512 dated 2/18/1992 issued by the Companies Registration Department under No. (36) for the year 1983 as amended. It is the first private Iraqi bank to allow the amendment of the Central Bank of Iraq Law No. (12) for the year 1991 to be approved, and the bank began its activity in the licensed banking business as of the date of 9/12/1992. Hence, its total nominal capital and shareholder rights reached more than (309) billion Iraqi dinars, and its affiliated branches amounted to (33) branches at the end of 2022 distributed over a number of Iraqi governorates, including the capital, Baghdad.