جـــامـعـــة الـــشـرق الأوسـط
MIDDLE EAST UNIVERSITY
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The Prediction of Financial Failure in Insurance Companies listed in Amman Stock Exchange Using Altman & Kida Models

التنبؤ بالفشل المالي في شركات التأمين المدرجة في بورصة عمان باستخدام نموذجي ألتمان وكيدا

Prepared by

Riham Hamze AlKhuffash

Supervised by

Dr. Nawaf Abdallah AlJundi

Thesis Submitted as Partial Fulfillment of the Requirements for Master Degree in Accounting.

Accounting Department

Business Faculty

Middle East University

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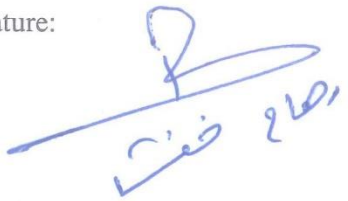

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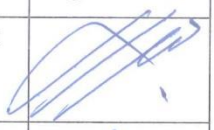
Examination Committee Members:

Name	Title	Work Place	Signature
Dr. Nawaf Abdallah AlJundi	Supervisor and Member	Middle East University	
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Dr. Ayman Mansour Khazaleh	Internal Member	Middle East University	
Dr Ahmad Adel Abdallah	External Member	Al-Zaytoonah University	

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Dedication

This thesis is dedicated to the memory of my **father**, who recently passed away. Your love, wisdom, and guidance have profoundly shaped my life. Though you are no longer with us, your legacy continues to inspire and drive me every day.

To **my mother**, your boundless love, support, prays, and sacrifices have been the cornerstone of my success. Your strength and encouragement have been my foundation throughout this journey.

To my **daughters Sara and Haya**, your unyielding support, love, and patience have been my greatest source of strength. Your belief in me has been instrumental in achieving this milestone.

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The Prediction of Financial Failure in Insurance Companies listed in Amman Stock Exchange Using Altman & Kida Models

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Supervised by: Dr. Nawaf Abdallah AlJundi

Abstract

The objective of the study is to evaluate the predictive capability of Altman and Kida models in determining financial failure of insurance companies listed in Amman Stock Exchange. Additionally, identify which of the two models is more reliable to predict financial failure of insurance companies listed in Amman Stock Exchange, relying on the financial statements of Jordanian insurance companies listed in Amman Stock Exchange for the period from 2018 to 2022, to accomplish its aims the study sample comprised all insurance companies listed in Amman Stock Exchange, totaling 23 companies. Among them, 2 companies have declared liquidation, 1 company suspended from Amman Stock Exchange, and 1 company has undergone a merger with total of 19 Un-failed companies and 4 Failed companies. The study utilized a descriptive analytical approach and (U) Mann Whitney test to examine the hypotheses, comparing the prediction capability of Altman and Kida models in predicting the financial failure of insurance companies listed in Amman Stock Exchange The predictive capability of Altman Model for the study period was 56.7% and for KIDA model was 8.7%, The study suggests that investors, financial analysts, and auditors should utilize Altman model to assess financial failure of Jordanian insurance companies also advises caution when using Kida model, as it is not reliable in predicting financial failure of Jordanian insurance companies.

Keywords: Insurance Companies, Financial Failure, Amman Stock Exchange, Altman Model, and Kida Model.

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إعداد: رهام حمزة الخفش

بإشراف: د. نواف عبدالله الجندي

الملخص

هدفت الدراسة إلى تقييم قدرة نموذجي ألتمان وكيدا على التنبؤ بالفشل المالي لشركات التأمين المدرجة في بورصة عمان وتحديد أي النموذجين أكثر دقة للتنبؤ بالفشل المالي في شركات التأمين المدرجة في بورصة عمان، من أجل تحقيق أهداف الدراسة ، تم الاعتمادا على البيانات المالية لشركات التأمين الأردنية المدرجة في بورصة عمان خلال الفترة 2018–2022. شمل مجتمع الدراسة جميع شركات التأمين المدرجة في بورصة عمان والبالغ عددها (23) شركة، منها (2) أعلنت تصفيتها، و(1) موقوفة اسهمها عن التداول في بورصة عمان، و(1) شركة مندمجة. بإجمالي 19 شركة ناجحة و 4 شركات فاشلة. تم استخدام المنهج الوصفي التحليلي وتم الاعتماد على اختبار Mann Whitney لإختبار فرضيات الدراسة، و بمقارنة القدرة التنبؤية لنموذجي ألتمان وكيدا في التنبؤ بالفشل المالي لشركات التأمين المدرجة في بورصة عمان، بلغت القدرة التنبؤية لنموذج ألتمان لفترة الدراسة 56.7٪ ولنموذج كيدا 8.7٪. وقد أوصت الدراسة تشجيع المستثمرين والمحللين الماليين والمدققين استخدام نموذج ألتمان لتقييم الفشل المالي لشركات التأمين الأردنية، كما تنصح بتوخي الحذر عند استخدام نموذج كيدا، حيث لا يمكن الاعتماد عليه في التنبؤ بالفشل المالي لشركات التأمين الأردنية.

الكلمات المفتاحية: شركات التأمين، الفشل المالي، ، بورصة عمان، نموذج ألتمان، نموذج كيدا.

Chapter One
Study Background and Significance

1.1. Background of the Study

Throughout history, individuals and companies have made continuous efforts to minimize exposure to risks, both at an individual and corporate level, and have devised various methodologies to achieve this objective. These techniques conceal up the implementation of effective control systems, avoiding from participating in any uncertain and danger activities, or distributing the risk by involving another party (Romney & Steinbart, 2015). Insurance companies are fundamental companies that carry the responsibility of minimizing risks by allocating them among the insured parties. They offer protection against many different types of risks, including those that affect companies (such as fire, theft, and natural catastrophes) and those that affect individuals (such as health, life, and vehicle insurance). Having insurance is now a legal necessity for certain businesses and professions. Insurance offers many benefits, but it has also increased people's expenses and put insurance companies at risk of financial position like failure. Consequently, this has had a negative impact on their clients (Yun, 2023)

Insurance is associated to risk, which is concerned with the possibility of any challenging or unfavorable event occurring and the consequent financial impact. (Williams, 2023). The primary objective of business entities is to maximize profits. In order to achieve this objective, it is crucial for the business to maintain continuity or a "going concern" status. This concept is a fundamental assumption in accounting theory. On the other hand, discontinuity in business operations is considered the main risk that the business entity and its shareholders face (Nurcan, Köksal, 2021).

Under the main role that insurance companies play in the economic system as a whole, in reducing risks and compensating those affected, which leads to the development and stability of economic activity, there is a strong correlation between insurance and economic growth in developed countries. From this perspective, countries were focused to regulate the insurance sector in accordance with the best professional standards and practices and put them into practice. (Fan, Song, 2024)

1.2. Problem statement of the study

Various quantitative models have been employed to forecast financial failure from the mid-20th century to the present day, in particular, Altman model and Kida model have gained prominence as widely used models (Aberkan, Safir, 2020). However, the classifications and predictive capabilities of these models differ when applied to different company's sectors and different environments. this difference raises doubts about the effectiveness of these models in predicting financial failure, Consequently, selecting between these models becomes challenging. (Alaa Aldeen,& Abduraziq, 2022).

Insurance operations are the most commonly utilized area of financial services, (Saoula, et al, 2024) When an insurance company fails, all individuals and groups with an interest in insurance company's clients, brokers, agencies (insurance parties) experience negative consequences. According to Elewa (2022), financial failure is a matter of great worry for accountants, investors, employees, managers, and creditors due to its significant impact on them. (Pulawska, 2021) asserts that the economic progress of a nation relies on the expansion of its insurance sector, and the overall society is directly influenced by the financial prosperity of insurance companies. This influence extends to insurers, shareholders, corporate staff, brokers, regulatory bodies, and potential investors. Based on information from Jordan's authorities, (Jordan Insurance federation (JIF),

Central Bank of Jordan (CBJ), Amman Stock Exchange (ASE)) it has been found that out of the twenty-three companies, four of them have experienced financial failure within five years. Specifically, two companies have declared liquidation, one has been suspended from Amman Stock Exchange, and one has merged with another company. In other words, 17.3 percent of the sector experience financial difficulty. Therefore, it is important to assess the effectiveness of financial failure models in predicting the failure of insurance companies. This study conducted to assess the predictive capabilities of Altman model and Kida model in determining financial failure in insurance companies listed in Amman Stock Exchange. Additionally, to determine which of the two models has more predictive capability and dependable in predicting financial failure in insurance companies, as Insurance companies works as financial system for any economy by collecting premiums, capital and reserves, saving them and then investing them in various economic projects whose effects are reflected in economic development, which achieves economic and social well-being and works to enhance national income through revenues represented by tax allocations. revenues, university fees, scientific research, and stamps collected by the government from insurance sector on annual basis

1.3. Questions of the study

The data provided in the problem statement and literature review has led to the following questions:

1. How effectively does Altman model predict the financial failure of insurance companies listed in Amman Stock Exchange?
2. How effectively does Kida model predict the financial failure of insurance companies listed in Amman Stock Exchange?

3. Are there significant differences in the predictive abilities of Altman and Kida models for financial failure among insurance companies listed in Amman Stock Exchange?

1.4. Hypotheses of the study

The following hypotheses were developed in order to answer the study questions.:

H01: There is no statistically significant difference at $\alpha \leq 0.05$ between Altman model Z-scores for financially failed and non-failed insurance companies listed in Amman Stock Exchange.

H02: There is no statistically significant difference at $\alpha \leq 0.05$ between Kida model Z-scores for financially failed and non-failed insurance companies listed in Amman Stock Exchange.

H03: There is no statistically significant difference at $\alpha \leq 0.05$ between the predictive abilities of Altman model and Kida model for financial failure of insurance companies listed in Amman Stock Exchange.

1.5. Significance of the Study

Over the past decade, the Jordanian insurance companies has faced significant financial challenges, out of the total of twenty-eight insurance companies, eight companies have already declared merge or declare bankruptcy. Based on the data provided by the Jordan Insurance Federation (2022) (www.jif.jo), it is reported that 28 percent of the insurance companies listed in Amman Stock Exchange are experiencing financial challenges. moreover, 17.3 percent of these companies had faced financial failure within the past five years. The Jordanian economy as well as insurance parties associated with these financial failure companies have experienced a negative impact. This study aims to investigate whether insurance parties of Jordanian insurance

companies and relevant governmental authorities can predict the financial failure of insurance companies using specific financial models that have been employed in similar circumstances. The prediction of financial failure is valuable for all insurance parties involved, the company itself, and the governmental regulatory agencies.

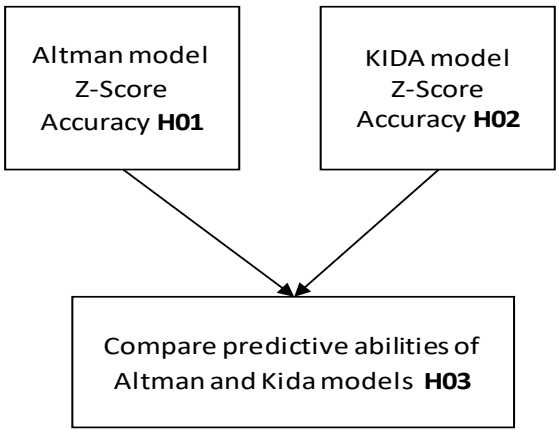
1.6. Objectives of the study

This study designed to evaluate the effectiveness of Altman and Kida models in predicting the financial failure of insurance companies listed in Amman Stock Exchange. It also seeks to identify which of these two models provides a more reliable prediction of financial failure for insurance companies. The objectives are as follows:

1- Evaluate the predictive capability of Altman model in forecasting the financial failure of insurance companies listed in Amman Stock Exchange.
2- Evaluate the predictive capability of Kida model in forecasting the financial failure of insurance companies listed in Amman Stock Exchange.
3- Determine which model, between Altman and Kida models, offers greater prediction ability of financial failure among insurance companies listed in Amman Stock Exchange.

1.7. Model of the Study

The researcher developed the model of this current study based on different previous studies The Following Figure (2-1) is the model of the study:



1.8. Procedural and Conceptual Definitions of the study

Insurance Companies: is defined here as any Jordanian insurance company or foreign insurance company with a local branch in Jordan that has the proper authorization to do insurance businesses (Article (2) of Insurance Law No. 33 of 1999 specifies which Jordanian insurance companies may operate for the sake of this study).

Altman Model: Altman model, developed in 1993, is a set of four financial statistics that reflect four different aspects of a company's financial health: profitability, liquidity, leverage, and activity (Altman, 1993).

Kida Model: A model for predicting financial failure based on five ratios, each assigned a weight, that reflect profitability, indebtedness, liquidity, and activity (KIDA, 1980).

Financial Failure: It is the company's failure to pay its debts by the due date (Ersin et al ,2023). Procedure-wise, it is defined for the purposes of this study as the company being declared liquidation, suspended from Amman Stock Exchange for merger or other reasons, or suspended from operation by government authorities.

1.9. Scope of the study

This study furnished in the field of accounting research and to (23) Jordanian insurance companies listed in Amman Stock Exchange, and for the period extends from 2018 to 2022. The study sample was limited to data obtained from Annual financial statements published in (ASE). Also, the study only examined the prediction ability of Altman & KIDA models for predicting financial failure.

Chapter Two
Theoretical Framework and Previous Studies

2.1. Review of Literature

This chapter gives a general outline of financial failure, covering its causes, significance and reasons (both internal and external), Additionally, furnish into the ideas and procedures employed for financial failure prediction as part of a theoretical framework, this chapter also delves into the meaning of insurance and the role of the insurance sector. It also explores the relevant studies and the history of the insurance industry in Jordan.

2.1.1 Financial Failure

Many organizations in both developed and developing economies face the significant problem of financial failure as a result of substantial risks. This is due to a combination of factors, both internal and external. It is essential to use quantitative models to predict the company's financial position and the probability of its failure in order to prevent the impact of this risk. The companies must take results to avoid financial failures that might cause insolvency and eventually lead to Bankruptcy.

2.1.1.1. Financial Failure Definition

Many risks, such as financial failure, are inherent in a company's financial activities. A wide variety of events can lead to Insolvency and bankruptcy. In the event of a financial failure, the company begins the process of financial decline. Many companies are facing financial failure despite their best efforts. According to Acosta-González et al. (2019), a situation known as financial failure occurs when a company's inability to pay for its daily expenses and activity requirements.

When a company is unable to pay its bills by the due date, it is considered to have financial failure. According to Nurcan and Köksal (2021), this is not a short-term effect, but rather the cumulative effect of a number of causes and variables that make it impossible for the company to fulfill its obligations or restore its financial, monetary, or operational stability. It can also be described as "the period before a company declares bankruptcy, during which it faces severe financial difficulties that prevent it from fulfilling its obligations to others." (Laitinen and Muñoz-Izquierdo, 2023).

Financial failure according to Bhaskar and Flower (2019) is the inability of the company to cover all of its cost, which includes cost of capital, and for management to generate a return on invested capital commensurate with the risks involved. There are two separate parts to the idea of financial failure: economic failure and financial failure. First, based on the return on capital. If, the company is unable to generate a satisfactory return on investment, it is considered to be failed. As for the second part, based on liabilities, as if the company not paying its bills by the due date considered failed (Tung, 2020). A corporation is considered financially failed if its costs exceed revenue, including the cost of capital. The failure of management to provide an adequate return on investment, in relation to the risks incurred is also a part of this. As to García-Quevedo et al. (2018), financial failure occurs when there is a situation the company could not pay lenders on time.

Financial situations typically experience a series of stages prior to officially declaring bankruptcy. Bankruptcy is the final stage of financial failure, if financial failure predicted so the bankruptcy can be avoided, it is crucial to identify problem areas and take appropriate actions before filing for bankruptcy. There are two categories in which failing firms can be classed, as identified by Nurcan and Köksal (2021), failed companies subject to voluntary liquidation and to mandatory liquidation, companies in the first type can be

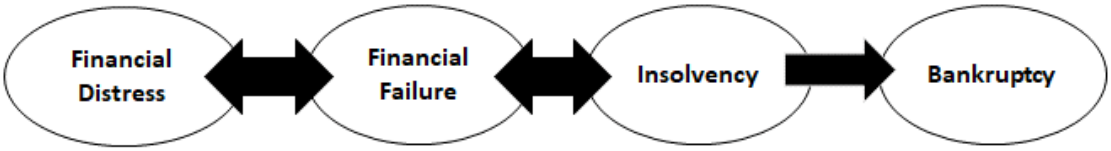
classified as failed companies that whose owners have the legal authority to continue operating. The second category refers to companies that have failed and will be liquidated in accordance with law. The management does not have the authority to challenge or avoid any legal actions imposed by the court in relation to this liquidation process. In this scenario, the liquidation process is conducted by a legally appointed liquidator designated by the Chamber of Commerce. The liquidator follows the procedures outlined in the Jordanian Companies Law and adheres to the directives set by the Jordanian Company Control Department. (Arabi & Hunaiti, 2022).

Also, keep in mind that there are a lot of expenses that come with failed companies Included can be classified as direct and indirect costs. The engagement of advisors, legal accountants, and attorneys constitutes are direct expenditures associated with failure. However, indirect cost can't be limited to unemployment worker's rates, therefore decrease in demand and decrease on investment and they are the same reasons for economic failure (Appadurai, 2020).

2.1.1.2. Financial Failure Concepts

Financial distress, Financial Failure, insolvency, Bankruptcy all relevant and related concepts but they have special characteristics Legal point. (Moussa, 2018) Financial Distresses is a situation when individuals and companies can't generate adequate revenue and making it unable to pay its short-term commitments, Insolvency is a situation when assets is less than liabilities, and making it unable to meet its financial obligations, Bankruptcy is a legal process initiated by an individual or company that is unable to repay outstanding debts. It involves a court obligatory resolution to address the financial problems, either through debt restructuring or liquidation of assets. Bankruptcy is a legal remedy for coping with a situation that is insolvency.

In summary as per researcher point of view, financial failure is abroad term illustrate financial difficulties stages start with financial distress, and end up with Bankruptcy when it is a legal point when liabilities exceed its assets, financial distress, financial failure and Insolvency is a circumstance can be fixed if the reasons are solved on timely manner, while bankruptcy is the end point with legal action.



*Source: prepared by the researcher

2.1.1.3. Causes of Financial Failure

The main factors and caused engaging to financial failure are economic crises, legal failure, and management failure.

Economic crises When the return on capital is less than the average cost of capital, or when the return on trading ownership in the company is negative, a number of factors combine to produce this process (García-Quevedo et al., 2018). As a result, a company that cannot make enough money to pay its bills and whose rate of return on investment is less than its cost of capital is said to be economically unsuccessful. A corporation may experience economic loss yet still be able to satisfy its debts when they fall due.

Legal failure is the situation in which a company or individual has legal issues or consequences as a result of breaking rules, laws, or contracts. This might entail breaking contracts, not paying taxes, breaking regulations pertaining to corporate operations, or being involved in legal issues. Legal failure might lead to litigation against the organization or person, as well as fines, penalties, and other legal proceedings. It can result in financial losses, interfere with business operations,

and harm one's image. Legal failure emphasizes how crucial it is to follow rules and laws in order to prevent legal issues (García-Quevedo et al., 2018).

Management failure It is referring to the management system's inefficiency within the company, which produces unfavorable business outcomes and a decline in the enterprise's operations and earnings. Consequently, this devalues its shares. Incorrect projections of future events, a lack of flexibility and alignment with the external environment, and a failure to modify plans in the face of unforeseen circumstances are the main causes of inefficient management (Appadurai, 2020).

2.1.1.4. Reasons of Financial Failure

The causes of financial failure have been the subject of several research; according to Bouslah et al. (2018), 90% of these reasons may be traced to ineffective or inexperienced management, regardless of the size, kind, or age of the business. The foundations of a company's success or failure are management, strategic planning, control, organization, and decision-making. This suggests that management may be effective in all facets and strategy, with the company's success and survival being ensured as a consequence of their efforts. On the other hand, inadequate management within its operational environment may result in financial failure.

Effective and efficient management is ensured by successful management, but ineffective or unsuccessful management cannot secure the success of both (Keasey & Watson, 2019). In other words, efficiency means achieving specific results (outputs) with minimal use of resources (inputs). Efficiency focuses on maximizing benefits from available resources at the lowest cost. Effectiveness is related to achieving goals, ensuring that the use of available resources has led to achieving desired goals and objectives. Both efficiency and effectiveness relate to a company's ability to carry out tasks correctly.

According to a research (Oino, 2018), work is still being done to develop the ideas of effectiveness and efficiency, particularly in relation to performance evaluation.

Financial failure has several reasons, most of which are similar to economic failure. researchers have concluded that there are two categories of reasons for financial failure: external and internal. Although the causes of financial failure can overlap in some cases, these categories are meant to be distinct from one another. The following are the summarized reasons for these reasons (Keasey and Watson, 2019):

External Reasons: include, among other things, obsolescence of technology, the recession, intense competition, the absence of industry restrictions and limitations, and fluctuating of interest rates, (Keasey & Watson, 2019), Hubbard, (2020). add on external reasons of that contribute financial failure, including inefficient local product marketing in international markets, conflicts, regional crises, and negative investor and analyst expectations for local markets.

Internal Reasons: According to Sironi (2018), the following internal reasons may be responsible for financial failure:A lack of market awareness of external issues, weak investment and financial structure, as well as poor financial management. In addition to irrational product and market expansion and a lack of understanding of the company's objectives, poor strategic choices can contribute to company failure, An emphasis on unsustainable expansion, avarice, a drive for greater power and influence, and acquisitions that are not warranted and poorly thought out expansions, where the purchase cost frequently outweighs the profit, Executive management's self-interest, personal gain, and contentment with the company's success without sufficient audits are the reasons for this.

According to Amahalu (2020), the company's strategies and decision-making processes are what eventually leads to financial failure. These processes include

determining the kind of business strategies the company intended to pursue, as well as the kinds of human resources and forces it will need to operate with, and setting up a capable and trustworthy structure that will encourage employees to give their all in terms of experience and productivity. establishing fundamental strategies and procedures to accomplish the company's set goals and objectives.

2.1.1.5. Reasons for Jordanian Financial Failure

And after reviewing the issues generally, there are some issues that are particular to Jordan, As we previously stated, over the previous five years, a number of insurance companies have experienced financial failure in the Jordanian insurance market. The Insurance Federation and the insurance companies themselves have attributed these difficulties to the problem of mandatory insurance (Jawazneh, Alsheikh 2020). Because insurance companies receive a smaller percentage of their client revenue in exchange for providing full compensation based on the mandatory insurance policy, mandatory insurance is the main reason behind the failures of insurance companies. This is caused by the high accident rates and high car insurance premiums. Underwriting Losses: Insurance firms that overestimate the risks associated with their policies or generally undervalue them risk going bankrupt., Investment Risks: Insurers often invest their premiums to generate revenue. A decline in the economy or poor investment decisions might be costly for their financial status. Regulatory Compliance: Penalties, license cancellation, and unstable finances may result from noncompliance with regulatory standards.

2.1.2. Stages of Company Failure

Due to overlapping in stages between company failure and financial failure, (Wietzel, Johnsson, 1989) divided the company failure into five stages as the following:

Stage One – Blinded Stage: Financial management is now unable to identify and assess both internal and external issues that might endanger its long-term existence. Increased staffing, sluggish workflows, and a lack of customer-focused response are its defining characteristics. This stage may be passed by creating efficient information systems and monitoring and control systems that identify problems quickly. This stage may also be passed with the assistance of managers and leaders who can bring back excellent performance to their management and, by extension, the organization.

Stage Two – Inaction Stage: During this phase, there is a clear neglect for the signs of the company's declining financial performance, the discrepancy between acceptable and actual performance keeps growing, and upper management does not move decisively to resolve the issue. Rather, managers try to convince staff members that all is well with the company. However, this stage can be passed by taking committed and decisive action to bring the business back into compliance with the law and address financial a decline. This may include introducing new approaches to problem-solving, such as enhancing staff participation in decision-making, encouraging staff members to voice their disapproval when mistakes are made, and implementing doable actions like cutting costs and raising cash flows or altering the company's operations, structure, and strategy to break through organizational stagnation.

Stage Three – Faulty Stage: The company moves into the stage of error when management are unable to stop the financial decline that occurs during the

inactivity stage. In this stage, issues persist despite remedial action being taken. Conflicts within the senior management team might lead managers to make poor judgments or to adopt changes too late, thinking that a big restructure would have more negative effects than positive ones. The majority of managers believe that drastic changes might jeopardize and undermine the company's established operations model. The management' excessive attachment to the present structure and plan and their unwillingness to relinquish control are the main reasons the organization has reached the stage of mistaken action. Their unwillingness to adapt in spite of their incapacity to halt the slide emphasizes how crucial it is to match strategy with structure, Their unwillingness to adapt, in spite of their incapacity to halt the downturn, emphasizes how crucial it is to match the organization's structure and strategy to its life cycle in order to guarantee continued expansion, survival, and enhanced performance.

Stage Four – Crises Stage: At this point, disputes within the top management group force good managers to depart the organization. Suppliers avoid contributing because they want to make rapid profits, while investors are hesitant to risk their money. It is difficult and requires strong change management to implement change if managers wait until their companies reach this point before acting. Shareholder connections with the company become more limited. The formation of a new senior management team can help get over this stage, the business need creative approaches to adjust to the changing environmental scenario. The only way to stop the slide and save the company is to make radical changes to its structure and direction.

Stage Five – Dissolution Stage: When a company reaches this point, it can no longer be saved since its shareholders no longer support it, and its capacity to get

resources has decreased. Even if new leaders are selected to successfully implement improvements, they will still face limited resources. Either way, the business is certain to become bankrupt.

Table No (2-1) below shows stages of company failure and corresponding organizational reasons:

Table No (2-1).

Stages of Organizational Decline	
1. Blinded	Failure to anticipate or detect pressure toward
2. Inaction	Failure to decide on corrective action; decline becomes noticeable.
3. Faulty	Action Faulty decisions; faulty implementation of decisions.
4. Crisis	Given faulty-action stage and unforgiving environment, last chance for reversal. Given forgiving environment, slow erosion.
5. Dissolution	Given crisis stage and unforgiving environment, rapid demise. Given forgiving environment, slow demise.
* The consequences of decline are reversible in all stages except the dissolution stage, in which severely diminished resources prevent recovery.	
Source : (weitzel and Jonsson, 1989)	

By incorporating figure (2-1) into the Weitzel and Johnsson model of stages of corporate decline, we can enhance our comprehension of real-life correlation scenarios and get a greater level of insight regarding the connection between managerial actions and financial loss.

Correlation relationship between weitzel and Johnsson model and researcher understanding

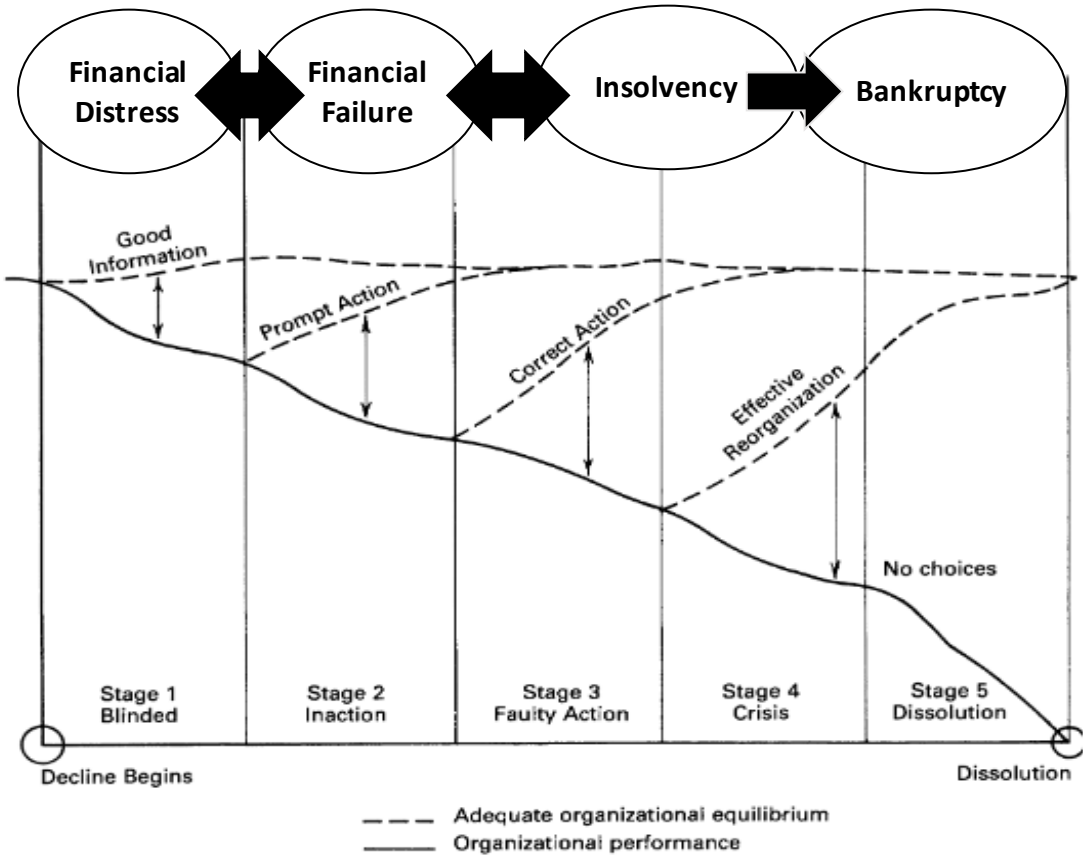


Figure (2-2): *Source prepared by researcher based on (Weitzel, Johnsson, 1989)

2.1.3. Dealing with Financial Failure

The proposed methods for dealing with financial failure are as follows: (Saida, 2021)

Restructure: This involves implementing new strategies to deal with financial problems. The following reorganization should apply to the company's administrative and financial aspects: Debt restructuring: Working with creditors to extend short-term debts into long-term ones gives the business a suitable amount of time to repay the debt. A temporary suspension of installment payments can be agreed upon, giving the company a fresh grace period and assisting in lowering cash outflows. Interest rate reductions may also be discussed during these negotiations, Asset revaluation: by

raising an asset's market value above its book value, debt ratios may be improved. This enhancement makes it easier to apply for loans from financial organizations, additionally Capital increase: To provide liquidity, new shares can be issued. However, this approach may encounter difficulties if investors are reluctant to buy these shares because of the company's financial circumstances, as well Debt-Equity Swap: Under agreements with creditors, some or all of the loans are exchanged for capital contributions, and Administrative Restructuring: cutting non-economic operations and concentrating on productivity and efficiency gains reduces costs.

Merge: Companies seek to address issues of financial failure, reduce competition with other companies, and decrease tax expenses.

Change Legal Form: For certain companies, changing the legal form—that is, going from a less flexible to a more flexible one—allows management more choice and decision-making power. This is an effective strategy to solve financial failure.

Leasing: In order to pay off debt, certain companies may decide to sell assets and subsequently lease them back. Nevertheless, depending on the capabilities and nature of the company, this alternative might not always be available.

Sale: The only way out for shareholders may be to sell the failing company to someone who can evaluate and fix it. Sales can take place through a variety of methods, such as public registrations with stock market.

Liquidation: Liquidation becomes the only option if the company cannot turn a profit or get out of debt and if its liquidation value is greater than its value as a going concern. This process entails filing for bankruptcy, going through the legal channels, selling off assets one by one, allocating the proceeds to creditors fairly, and following the rules regarding legal priority for each kind of securities.

2.1.4 Prediction of Financial Failure

Predicting financial failure has attracted a lot of attention from academics and industry professionals as it helps them make timely decisions, such reallocating resources for better use. Based on the evaluation of the preceding scenario, creditworthiness and insolvency indicators—which measure a company's capacity to grow its resources—have been used to more accurately anticipate a company's future position and its potential to survive or be liquidated. Regression analysis or mathematics were used in their creation to forecast how financial conditions would develop and to evaluate performance (Keasey & Watson, 2019).

Signs of creditworthiness indicate how well the company is performing currently now, and signs of insolvency show how unable it is to pay its financial obligations. Financial failure is predicted by financial analysis, which mostly depends on the analyst's judgment and expertise (Mselmi et al., 2017). One of the many problems with comparative analysis is that there are no set standards for ultimate judgment. Financial ratios may provide contradictory signals. An true picture of financial activity may not be provided by financial analysis, for instance, if a fall in the liquidity ratio and a rise in the profitability ratio occur concurrently. One ratio may imply solid financial standing, whereas another might point to financial trouble (Altman et al., 2017), Many researchers and financial analysts wondered about whether there are particular indicators or values that can be calculated to assess the financial situation of the company, and whether the analyst can rely on them to make their decisions, given the variety of financial ratios used and the challenges associated with interpreting some of these ratios (Bookstaber, 2017).

Consequently, the examination of financial failure prediction analysis depends on quantitative models that employ ratios and financial indicators to identify particular

balances or results; these are subsequently contrasted with threshold values and measure ratios that function as markers of potential financial challenges the company may encounter (Altman et al., 2017), A mismatch between revenues and financing expenses can result from decisions on investments and financing that are not in line with one another. When it becomes difficult to cover such expenses, this mismatch raises the chance of financial collapse (Sun et al., 2020). The incapacity of the company to pay its short-term debts by the due dates is usually the first indication. The business may eventually cease disbursing preferred stock rights (such as cumulative payments for preferred shares) and paying interest on bonds and loans. In order to determine which financial measures are most useful in identifying organizations that may be at risk of financial failure or in urgent need of restructuring, there has been a surge in interest in the development of mathematical models that can forecast a company's financial failure. Whether trend analysis and comparison analysis may be used to anticipate financial fdailure has been the subject of several research. These models fall into two categories: models that use the weighted averages of a collection of financial measures as a basis for prediction of financial failure, and models that rely on a single financial ratio (Ashraf et al., 2019). These models also include a collection of financial ratios that serve as a contemporaneous performance indicator. These ratios have the benefit of combining several financial ratios into a single model known as discriminant analysis. As such, while using these models, financial analysts should proceed with caution and try to evaluate them in order to choose the right model (Keasey & Watson, 2019).

Financial distress exists before the company experiences financial failure, or it exists when financial indicators start to decline and the company is unable to pay its debts. The company's stock prices are impacted by this circumstance on the stock market. Therefore, it suggests an ineffective auditing process and the lack of crucial information for owners,

investors, and stakeholders, harming them if the auditor does not identify the company's inability to continue (Ramey, 2019). Quantitative models are a useful tool that auditors may use to measure and anticipate failure in order to assess the company's present state and forecast its future. This can assist in taking the necessary precautions to avoid financial failure in implementing possible solutions to deal with associated problems, Early in the 1960s, the American Institute of Certified Public Accountants (AICPA) and the Securities and Exchange Commission (SEC) encouraged interest in financial failure prediction models due to the importance of financial failure for various stakeholders involved with the company (Ashraf et al., 2019). Researchers in the United States of America have worked very hard to find signs that are reliable in predicting the probability of financial failure.

Given the negative impacts that the failure of the companies in the financial and services sectors can have on society as a whole, the researcher anticipates that forecasting financial failure in publicly traded companies, in general, and financial companies (such as banks and insurance companies), in particular, is crucial. Jordan has gone through periods of financial failure, most notably the fall of Petra Bank , and Jordan and Gulf Bank It resulted in hundreds of millions of dinars being lost by the government treasury due to the guarantee of deposits for these banks. One of the activities that has a detrimental effect on all facets of society is financial failure in the insurance sector. This is due to the fact that every one of these industries has interests related to the insurance sector. This covers people as well as all sizes and types of economic and government organizations. Due to the fact that everyone depends on insurance companies, their failure would indicate a failure in economic activity and possible losses for all parties. This emphasizes how crucial it is to predict financial failurer in insurance companies.

2.1.4.1. Financial Failure Prediction Models:

Studies were conducted in the late 1960s to create models for predicting financial failure. Scholars have looked at a few of these models to see how well they anticipate companies financial failure, predicting models have their origins in the seminal research of Beaver and Altman. Expanding on their models, numerous scholars have created their own by using a wide range of financial ratios as independent variables in statistical models produced using different approaches, all with the goal of forecasting failure (Garcia-Gallego & Mures -Quintana, 2012). The most popular models for predicting financial failure are as follows:

Table No (2-2). Common Financial Failure Prediction models

#	Model Name	#	Model Name
1966	Beaver	1982	Taffler
1968	Altman	1982	Taffler and Tishow
1970	Meyer and Pifer	1983	Booth
1971	Wicox	1984	Fuimer
1971	Lev	1984	Zmijewski
1972	Deakin	1985	Campisi
1974	Altman and Mcgrough	1985	ZAVEGREN
1974	Blum	1986	CASEY
1975	Libby	1987	Sherrod
1975	Sinkey	1990	KOH
1976	Argenti	1992	HART
1977	Altman	1992	PAZ
1977	Moyer	1993	Altman
1977	Taffler and Tishow	1997	WARD and FOSTER
1980	Ohlson	1999	LENNOX
1980	Kida	1999	KOH and TAN
1981	Veazey	2002	SHIRATA

*Source: prepared by researcher based on the studies of (Elsayed, 2023), (Saida, 2021)

2.1.4.2. Altman Models

Altman model is a well-known financial model that was developed by Edward Altman in 1968 to determine the probability of company's failure during the following two years. Although it has been adapted to other industries, publicly traded manufacturing companies are the primary users of this model. The Altman model, also known as the Altman's Z-Score model, is a numerical indicator predicting a company's risk of declaring bankruptcy within the following two years. Altman's Z-score model is a useful tool for predicting any company's level of financial failure since it includes corporate income and numerous balance sheet metrics (Mohammed, 2021).

Altman model was created to predict a company's probability of failure in the next two years. Several times, the model showed itself to be an accurate predictor of failure. According to studies, the model predicted failure two years ahead of time with a 72% accuracy rate. The false-positive rate was 15% to 20% greater when the model was used to predict failure one year ahead of time. Conversely, there was a decreased false-positive rate (Aboud, 2019). Altman used a weighting technique in conjunction with other statistics that suggested a company's risk of failure to build the Z-score model.

Altman created three unique Z-scores for different types of companies. Originally designed for publicly listed manufacturing companies with assets over $1 million, the 1968 model was built specifically for them. Private and non-manufacturing companies with less than $1 million in assets were excluded from the initial model. The formula for Altman's Z-score (1968) is as follows (Altman, 1968):

$$Z = 1.2\,X1 + 1.4\,X2 + 3.3\,X3 + 0.6\,X4 + 1.0\,X5 \quad \ldots. \text{(Eq.1)}$$

Where;

Z: The cumulative score values

X1= Working Capital/Total Assets (Liquidity Ratio)

X2= Retained Earnings/Total Assets (Profitability Ratio)

X3= Earnings before Interest and Taxes/Total Assets (Profitability Ratio)

X4= Market Value of Equity/Total Liabilities (Market Value)

X5= Sales/Total Assets (Asset Turnover)

The Z-score model is based on five significant financial measures and is dependent on information from the ten thousand report. It enhances the model's accuracy in determining the possibility of failure and a company's financial situation. As the following table illustrates, the probability of declaring bankruptcy generally increases with decreasing Z-score:

Table No (2-3). Altman (1968) Z score

$Z < 1.8$	Financial distress and a high likelihood of bankruptcy
$1.8 < Z < 2.99$	The company is in a "gray zone," meaning it has a moderate possibility of bankruptcy in the near future.
$Z > 2.99$	The company is in the "safe zone," which means that the company has a strong financial position.
* Source: (Altman, 1968)	

For privately owned companies, the Z' model—an improved version of Altman's Z score model from 1983—was presented. book value was used as a stand-in for market value by variable X4. This model's variable values differ from the Z-Score model's value, as seen in Equation 2 below (Altman, 1983).

$$Z' = 0.717\ X1 + 0.847\ X2 + 3.107\ X3 + 0.420\ X4 + 0.998\ X5 \quad \ldots. \text{(Eq.2)}$$

Where;

Z': The cumulative score value

X1= Working Capital/Total Assets (Liquidity Ratio)

X2= Retained Earnings/Total Assets (Profitability Ratio)

X3= Earnings before Interest and Taxes/Total Assets (Profitability Ratio)

X4= Book Value of Equity/Total Liabilities (Book Value)

X5= Sales/Total Assets (Asset Turnover)

The company's situation will be as follows, according to the overall index:

Table No (2-4). Altman (1983) Z score

$\mathbf{Z'} < 1.23$	Financial distress and a high likelihood of bankruptcy
$1.23 < \mathbf{Z'} < 2.90$	The company is in a "gray zone," meaning it has a moderate possibility of bankruptcy in the near future.
$\mathbf{Z'} > 2.90$	The company is in the "safe zone," which means that the company has a strong financial position.
* Source: (Altman, 1983)	

Equation (3) describes the development of a new model named *Z*", which was created for industrial and non-industrial companies as well as private and public companies, after the original Z-score model received additional improvement. Since the population and research sample consist of non-industrial companies, (Altman et al., 2017) *Z*" will be applied for the purposes of this study.

Z"= 6.56 X1+ 3.26 X2+ 6.72 X3+ 1.05 X4 …. (Eq.3)

Where;

Z": The cumulative score value

X1= Working Capital/Total Assets (Liquidity Ratio)

X2= Retained Earnings/Total Assets (Profitability Ratio)

X3= Earnings before Interest and Taxes/Total Assets (Profitability Ratio)

X4= Book Value of Equity/Total Liabilities (Book Value)

X1 = Working Capital/Total Assets

Working capital is the difference between a company's current assets and current liabilities. Short-term financial stability of a company is determined by the amount of its working capital. A company that has positive working capital is able to pay off its short-term liabilities while keeping enough cash on hand to make additional investments and grow. On the other hand, a company with negative working capital is unlikely to meet its short-term liabilities since it won't have enough liquid assets. (Soseco, Maulidiyah, 2024).

X2 = Retained Earnings/Total Assets

Retained earnings as a percentage of total assets shows how much earnings a company remains after costs. A low ratio of retained profits to total assets suggests that the company is taking out loans to cover its costs rather than using its retained earnings. It increases the probability that a company may fail. On the other hand, a high ratio of retained earnings to total assets signifies that a company uses its retained earnings to pay for capital expenditures. It proves that the company has sustained profitability over time and is not reliant on loans (Malarvizhi, 2016).

X3 = Earnings before Interest and Tax/Total Assets

One measure used to evaluate profitability is the earnings before interest and tax (EBIT) ratio, which shows how much money a company can generate from its operations alone. A company's ability to create earnings from its total assets is measured by the EBIT/Total Assets ratio; a higher ratio indicates higher operational efficiency (Lukason, 2015).

X4 = Book Value of Equity/Total Liabilities

Book value of equity, which comprises share capital, general reserves, retained earnings, and revaluation reserves, represents the ownership or investment made by the

company's investors. It is also measured as the difference between total liabilities and total assets. Liabilities include obligations owed by the company, such as deferred taxes, long- and short-term loans, and creditors (Range et al., 2018).

To reduce the possible influence on the industry, the variable X5 has been subtracted in this calculation. Similar to Z', the variable X4 was also set to the book value of equity. The overall index predicts that the company's state will be as follows:

Table No (2-5). Altman (1993) Z score

$Z'' < 1.10$	Financial distress and a high likelihood of bankruptcy
$1.10 < Z'' < 2.60$	The company is in a "gray zone," meaning it has a moderate possibility of bankruptcy in the near future.
$Z'' > 2.60$	The company is in the "safe zone," which means that the company has a strong financial position.
* Source: (Altman, 2013)	

The following emphasizes the importance and broad adoption of Altman model: (Altman, 2013) It enhances judgment and analysis also Assessing the company's solvency and creditworthiness is significant moreover It is quite beneficial for stock market analysis. It enhances the decision-making process for investors. However, the Altman model has many disadvantages, including the following: The samples are required in order to compute the model. As a result, since these situations would not always yield precise and lucid data, the validity of the Altman Z score could be questioned as well the financial and commercial worlds are always changing, companies are occasionally exposed to various sorts of risk, which affects profitability. Thus, in such circumstances, previous data-based predictions will not be correct. Altman Z score's accuracy is also in doubt as it is unable to predict with any degree of precision when a company would actually have failed.

2.1.4.3. Kida Model

A financial model called the Kida model is used to predict the chance of a company failing financially. Kida came to this conclusion in 1980, and it is one of the fundamental quantitative techniques for predicting financial failure. The model selected five financial ratios that could be used with 91% accuracy using the multiple discriminant analysis approach. Professor Thomas Kida created the model in 1980. Five financial ratios form the foundation of the Kida model (Kida, 1980):

The discriminant function formulated by Kida is as follows:

Z= - 1.042X1 - 0.427X2 - 0.461X3 - 0.463X4 + 0.271X5

Z: Z-Cumulative score value

X1: ROA is measured as net income /total assets. (Profitability Ratio)

X2: Debt-to-equity measured as Shareholders' equity /total debts (Solvency Ratio)

X3: Current Ratio measured as Current assets / current liabilities (Liquidity Ratio)

X4: Asset turnover ratios are measured as sales (revenue)/total assets. (Turnover Ratio)

X5: Cash to total assets measured as Cash /Total assets. (Liquidity Ratio)

Based on how important the function each ratio plays in predicting financial failure, a weight is assigned; the ratios and their weights are as follows:

X1 = Net Income / Total Assets

This ratio, commonly referred to as the Return on Assets (ROA), assesses how profitable the company can make use of all of its assets. A greater Return on Assets (ROA), whose weight is (-1.042), indicates a more effective use of assets to produce earnings.

X2 = Total shareholders' equity / Total debt

This ratio, which stands for the equity-to-debt ratio, shows how much of the company's funding is provided by equity as compared to debts. Its weight is (-0.427), and a greater ratio denotes a stronger financial structure with less reliance on debt.

X3 = Quick assets / current liabilities

It assesses a company's capacity to meet its immediate commitments with its most liquid assets and is sometimes referred to as the Quick Ratio. The company can satisfy its short-term liabilities if the ratio is more than 1, and its weight is (-0.461).

X4 = Sales (revenue) / Total Assets

This ratio, called asset turnover, measures how well a company uses its resources to produce revenue. Better asset use is indicated by a greater ratio; whose weight is (-0.463).

X5 = Cash / Total Assets

The ratio of a company's assets held in cash is evaluated by this ratio. It provides illumination on the company's liquidity and short-term debt repayment capacity. A more liquid position is indicated by a larger ratio, and its weight is (0.271).

By multiplying each ratio by its weight and adding the ratio weights collectively, a company's Kida score is determined. This model is distinct from others in that it employs a different criterion to assess the company's success or failure. Specifically, a corporation is deemed unsuccessful if the equation's value of Z is negative. and the probability of failure increases with a smaller number. On the other hand, if Z seems to be positive, a company is likely to succeed and has a low failure probability; the higher the value, the less likely the company is to fail (Lukason, 2015). Numerous research have demonstrated the accuracy of the Kida model in predicting financial failure. Kida model should not be

the sole factor considered when making investment decisions, nevertheless, as no financial model is perfect (Aboud, 2019).

Kida model deserves consideration for the following reasons (Malarvizhi, 2016): It is very easy to understand and apply. The idea is supported by a strong theoretical basis. It has been shown via several studies to be accurate in predicting financial failure. However, there are many drawbacks to the Kida model, including the following: According to Manaseer (2018):

Other financial models, including the Altman Z-score model, are more accurate than Kida model. It may not accurately predict future performance because it is based on historical date. It ignores a number of elements that may be involved in financial failure.

In general, Kida model is a useful technique for predicting financial failure. But it's important to combine it with other financial models and take into consideration additional elements that might lead to financial failure (Mohammed, 2021).

2.1.4.4. Common Financial Failure Indicators

Financial ratios are statistical tools for evaluating the performance and overall condition of a company's finances. These ratios offer important information on the liquidity, solvency, profitability, and efficiency of the company. Several typical financial ratios consist of:

Liquidity Ratios: are used to evaluate a company's capacity to use its liquid assets to pay for short-term liabilities. These ratios provide insight into how well the company is able to manage its immediate financial responsibilities, also called Balance sheet ratios.

Current Ratio = Current Assets / Current Liabilities

Measure the company's capacity to employ its short-term assets to fulfill its short-term liabilities. a ratio of one or higher is preferable as it shows that the company has enough current assets to meet its current liabilities.

Acid-Test Ratio (or Quick Ratio) = Quick Assets / Quick Liabilities

Measures the company's capacity to use its most liquid assets to fulfill urgent short-term liabilities. Inventory is not included in this ratio since it could be difficult to turn into cash. Generally speaking, a ratio of one or higher is preferable as it shows that the company is capable of paying its dues in the near future without depending on inventory sales.

Working Capital Ratio = Current Assets - Current Liabilities

Measures the company's difference between current assets and current liabilities. Greater current assets than current liabilities is a sign of a positive working capital, which is usually preferable for liquidity: (Sekhar, 2018)

Solvency Ratios are financial indicators that assess a company's capacity to fulfill its long-term debt and maintain long-term financial stability. These ratios evaluate the company's capacity to fulfill its obligations out of debts and have a stable capital structure. A few typical solvency ratios are:

Debt to Assets Ratio: This ratio measures the percent of total assets that are financed by debt; greater debt ratio indicates greater financial risk and, consequently, lower solvency.

Debt to Capital Ratio: This ratio measures the percentage of debt that makes up a company's capital (debt + equity). greater debt ratio indicates greater financial risk and, consequently, lower solvency.

Debt to Equity Ratio: This ratio measured the amount of debt capital relative to equity capital. A different way to define this ratio is to implement he market value of shareholders' equity instead of its book value, as a greater ratio indicates lower solvency due to increased financial risk. (Robinson, 2012)

Profitability Ratios are a type of financial indicator used for evaluating how profitable a company is in relation to its sales, assets, or equity. These measurements provide asign on how well the company manages its operations and produces returns for shareholders. Some typical profitability ratios are as follows:

Gross Profit Margin: measures the percentage of income that remains as gross profit after subtracting the cost of the goods sold. A greater margin of gross profit is an indication of more effective cost control in production.

Net Profit Margin: measures the percentage of income that remains as net profit after all costs, such as interest, taxes, depreciation, and operational expenditures, have been subtracted. Increased profitability and effective cost control are indicated by a higher net profit margin.

Return on Assets (ROA): Measure profitability by referring to profit that should be distributed to shareholders and creditors while ignoring the impact of leverage. The optimal scaling factor are supposed to be assets rather than shareholders' equity.

Return on Equity (ROE): evaluates the profitability of the company in relation to the shareholder’s equity. It indicates the return earned by shareholders on their investment. A higher ROE indicates better profitability and efficiency in generating returns for shareholders.

Operating Profit Margin: measures the percentage of revenue that remains in operational profit after operating costs are subtracted. It shows how well the company generates money from its primary lines of operations. (Preve, 2010).

Cash flow ratios are financial indicators that are used to assess how well a company can manage its cash flow and produce cash from its activities. The company's liquidity, solvency, and financial health are all shown by these measures. The following are typical cash flow ratios:

Operating Cash Flow Ratio measures the capacity of the company to produce cash from its main operations in relation to all of its liabilities. It shows the percentage of obligations that operational cash flow may be used for.

Cash Flow to Debt Ratio measures the company's operational cash flow in relation to its overall debt. It shows the amount of cash flow from activities the company can use to cover its debt.

Cash Flow Adequacy Ratio measures the company's capacity to use cash flow from operations to pay for all of its outflows of cash, such as interest, capital expenditures, and operational costs, (Cameron, Crozier, 2003).

Table No (2-6) summarizes the most common financial indicators, and their formula:

Table No (2-6). Common Financial Failure Indicators

#	Name	Definition	Category
1	CACL	Current ratio= Current assets / Current liabilities	Liquidity
2	AT	Acid test = Current assets Inventories / Current liabilities	
3	CCL	Quick ratio= Cash / Current liabilities	
4	WCTA	Working capital / Total assets	
5	WCE	Working capital / Equity	
6	ROA	Return on assets = Net income / Total assets	Profitability
7	ROE	Return on equity=Net income / Equity	
8	EBTE	Earnings before taxes / Equity	
9	TLTA	Total liabilities / Total assets	Leverage and solvency
10	CLTA	Current liabilities / Total assets	
11	FLTA	Fixed liabilities / Total assets	
12	ETA	Equity / Total assets	
13	ECL	Equity / Current liabilities	
14	EFLFA	(Equity + Fixed liabilities) / Fixed assets	
15	ORFE	Operating result / Financial expenses	
16	FES	Financial expenses / Sales	
17	STA	Sales / Total assets	Turnover and activity
18	Var(SALES)	Sales T / Sales T-1	
19	WCS	Working capital / Sales	
20	CAOI	Current assets / Operating income	
21	CFTA	Cash flow / Total assets	Cash-flow
22	CFTL	Cash flow / Total liabilities	
23	CFCL	Cash flow / Current liabilities	
24	CATA	Current assets / Total assets	Economic structure
25	FATA	Fixed assets / Total assets	
26	CTA	Cash / Total assets	

*Source: prepared by researcher based on (Garcia-Gallego, 2012)

The researcher believes that under all circumstances, the process of predicting financial failure remains a forecast of the future, and that indicators of financial failure are diverse, some relate to activity, some to management, and some to liquidity. Perhaps this diversity extends to financial aspects that cannot be measured or expressed mathematically. Therefore, there is no perfect model for predicting financial failure, and using more than one model is more feasible. Similarly, using models that utilize more

variables than those used in Altman and Kida models would certainly be more complex and costly.

2.1.5. Insurance Service

2.1.5.1. Insurance Services Emergence

The insurance concept started as a bet according to the first instance of life insurance contract that we are aware of, it was made in 1583 (Baker et al , 2021), in 1601 in the United Kingdom, the first insurance legislation was issued which dealt with ship and product insurance,(www.iii.org), insurance services as financial and reducing risk concepts developed during the historical period following the Industrial Revolution, which caused significant innovations in technology, society, and the economy, It was during this time that insurance companies formed and changed how they worked to adapt to the new conditions: (Zelizer, 2018)

Industrial Development: The Industrial Revolution led to rapid industrialization, introducing new technologies and manufacturing processes. While this brought about economic growth, it also introduced new risks associated with industrial activities.

Population Growth and Civilization: The shift from agrarian societies to urban centers resulted in increased population density in industrialized areas. Civilization brought its own set of risks, including higher instances of accidents, property damage, and other unforeseen events.

Insurance Product Diversity: The changing nature of risks prompted the diversification of insurance products. Insurance companies began to offer coverage beyond traditional areas like maritime trade. New types of policies emerged to address risks associated with factories, machinery, and the workforce.

Actuarial Science and Risk Assessment: The need for a more systematic approach to risk assessment led to the development of actuarial science. Actuaries played a crucial role in quantifying risks, setting premium rates, and ensuring the financial stability of insurance companies.

Specialized Insurance Companies: The emergence of specialized insurance services occurred as risks became more specialized and diverse, leading to the formation of insurance companies that focus on specific forms of coverage. Companies prioritize life insurance, property and accident insurance, and other specialized sectors to effectively meet the requirements of policyholders.

Regulatory and Legal Frameworks: The emergence of legal and regulatory frameworks can be attributed to the increasing impact of insurance in economic operations. Governments created regulations to control the insurance sector after realizing the importance it was to maintain economic stability.

Global Expansion: Insurance firms grew internationally as industrialization spread around the world. Global risk management required insurance solutions due to interrelated economies and international trade.

Technological Development: Technological developments throughout the latter stages of the Industrial Revolution had an even greater influence on the insurance sector. Policy management and information exchange were made faster by the technology revolution.

2.1.5.2 Insurance Services Importance

The increasing risk environment of a society led to the development of insurance services both during and after the Industrial Revolution, due to their capacity to provide stability and financial protection against changing dangers, insurance companies have been essential in supporting economic development. The insurance industry performs a number of other services in addition to its basic responsibility of paying claims, reach to financial insurance against losses caused by commitments, it takes part in the distribution of the country's income. Following the rules that government authority and control in different countries, it attempts to distribute some of its excess reserves via a variety of investment channels. As per Ramey (2019), the importance of insurance services may be briefly explained as follows:

The main objective of insurance is to protect individuals and companies and society in general against risks that might result in unexpected tangible loss. Reducing risk and uncertainty always leads to an increase in economic efficiency. Since risk may be moved to other risks especially substantial one or avoided altogether, the company can focus its efforts on creating competitive advantages, Insurance helps to expand credit, which is essential for any operation. As an example, if a lender does not have insurance that covers the property against potential threats, they will not grant credit for a mortgage loan, Insurance ensures that a person may maintain their independence and does not turn them into a burden. In this way, the people continue to be a resource rather than a liability, moreover Insurance companies collect insurance premiums from the insured; in this way, they help create national savings, In addition they work to invest the money the company has accumulated because insurance is a significant and helpful tool for raising capital. This helps the community economically during the long period of time that pass between the insurance company's earning obligations—the amount of money it receives from

policyholders in the form of premiums—and its obligations—the company's obligations, which are represented by compensation or policyholder savings, beside An insurance company's supervisory responsibility is to attempt to prevent risk from occurring. One important element in reducing the possibility of risk is the terms and conditions of insurance policies. As the probability of an occurrence decreases, so does the cost of the insurance. This encourages policyholders to work toward risk reduction in order to lower the insurance cost represented by premiums. This is on top of the studies and trials that insurance firms carry out across a range of domains to lessen the probability of risks and prevent their causes, particularly in the area of general insurance, as well an element of prevention: Because insurance works to reduce risks and accidents, it is a component of prevention in society. Insurance companies can achieve this in a number of ways, such as by evaluating the causes of specific risks, such as fires, workplace injuries, and traffic accidents; attempting to prevent them; and putting in place the appropriate policies and procedures to decrease the probability that they will occur. In addition to sending out periodicals and safeguards adverts, they engage the assistance of experts and professionals who carry out studies and research Finally Increasing the foreign currency payments, insurance companies get in exchange for the insurance services they offer to foreigners, will increase the balance of payments. increase in value in line with the growth in the value of insurance services that domestic companies provide to foreign customers, or with the expansion of their global insurance transactions. The return on their investments abroad, the return on reinsurance they undertake, and the receipts from ongoing operations that appear in the balance of payments under the insurance item.

2.1.5.3. Types of Insurance Services

Insurance companies are an essential element of the financial services industry and can categorized based on the following criteria and:

1. Types based on services provided

Companies cover a variety of life events with insurance, but they may concentrate on certain insurance-related activities that fall into one of four categories, Ilkevich et al. (2022):

Life Insurance: These companies concentrate on providing insurance coverage to policyholders for incidents that may affect their life or death; some even provide combined types of coverage. They are called hybrid insurance companies.

General insurance: These companies focus on providing insurance to policy holders for their possessions, protecting them against fire and theft. Additionally, they provide members civil responsibility protection against third parties, including vehicle accidents, as well as coverage for other types of transportation insurance.

Social Security insurance (Long-Term Disability Coverage): These companies consider the medical functionality that the coverage holders have. He will pay part of the cost of any medical care he needs; the insurance company will cover the remainder of the expenses.

Comprehensive insurance service companies: These companies offer life, death, property, insurance against others, and insurance on accidents in addition to the three insurance kinds stated above.

2. Types based on legal structure

Insurance companies can be categorized into two categories based on their legal framework (Talonen et al., 2022):

Limited liability companies (Stock Insurers): These are companies owned by shareholders who hold stocks in the company. Where they reap the rewards of the company's profits. In order to oversee and facilitate the company's operations, they also elect a board of directors.

Mutual Insurance companies (Mutual Insurers): Mutual insurance companies are owned by policyholders rather than shareholders. Policyholders are entitled to participate in the company's profits through dividends or reduced premiums. The focus of mutual insurers is on serving the interests of policyholders.

2.1.6. Jordan Insurance Sector

Dr. Raouf Saad Abu Jaber founded the inaugural insurance agency, Al Sharq Agency, for an Egyptian insurance business in Amman in 1946. The agency focused exclusively on life insurance because to the lack of demand for other insurance types in the Jordanian market at that time. The Jordanian Insurance Association was founded in 1956. This organization was the inaugural professional association for the insurance industry in Jordan. The association aims to oversee and advance the insurance industry while enhancing the quality of insurance practices. The Unified Mandatory Insurance Office for car Insurance was created in 1987 in Jordan. Its primary responsibility is to issue mandatory car insurance coverage, with oversight from the Jordanian Insurance Association. The Jordanian Insurance Federation was founded in 1989. This federation is the entity that has taken over the responsibilities and functions of the Jordan Insurance Association. Its primary function is to oversee and promote the insurance industry while advocating for its interests to the government. The Jordanian Insurance Brokers

Association was founded in 2005. This association has the responsibility of overseeing and advancing the insurance brokerage industry in Jordan. Jordan's insurance business is seeing tremendous growth, with a total of twenty-one insurance companies as resented in table (2-7) the changes on insurance companies during the period (2000- 2023) now functioning in the country as of 2024 (www.jif.jom 2024). The industry employs more than 5,000 individuals and generates an annual revenue of over $1 billion.

2.1.6.1. Types of Jordanian insurance companies

There has been an increase in demand for insurance services as companies and people realize how important it is to be protected against unexpected disasters. In response, Jordanian insurance companies have introduced a wide range of coverage alternatives. According to (Nawwar, Abu Laila, 2021), insurance companies are categorized according to the types of insurance operations they engage in.

Life Insurance Company's companies provide life insurance products to individuals and sometimes groups. These companies offer policies that pay money upon the insured person's death or after a specified period, offering financial security to the policyholder's beneficiaries.

General Insurance Companies provide various insurance products that protect individuals, companies and organizations from multiple financial risks. Unlike life insurance, which covers risks related to an individual's life, general insurance deals with risks associated with property, liability, and other non-life aspects.

Health Insurance Companies provide insurance coverage for medical expenses and healthcare services. Individuals or groups purchase health insurance policies to mitigate the financial impact of medical treatments, hospitalization, and other healthcare-related costs.

Comprehensive Companies provide insurance coverage across various types of risks and perils. Unlike specialized insurance companies that focusing on specific areas such as health, life, or property, comprehensive insurance companies offer a broader range of coverage options; these companies provide policies encompassing multiple areas, including property, liability, health, and more.

2.1.6.2. Jordanian Insurance Sector Challenges

The rules controlling the operations of insurance companies reflect their dual position as financial and insurance companies. Policies for investments and insurance are also available. There are, however, some challenges to which insurance companies may be revealed, and these risks fall into four primary categories (Sweis et al., 2018):

The first category is an unexpectedly high compensating volume brought on by a particular disaster or significant increase in the rate of inflation. This risk might arise from a devaluation of the true size of the risks and the corresponding compensation value.

The second category is represented by a loss in sales as a result of a recession cycle, which makes it difficult for certain policyholders to pay premiums or a drop in some prospective customers' intentions to buy insurance policies. Furthermore, under inflation, people might decide not to purchase life insurance policies because investing the equivalent of the invested asset's saving portion would yield higher returns than the policyholder's cash value, which is typically determined using a low interest rate on the saving portion of the insurance premium.

The third category is represented by a possible decline in the market value of the investment portfolio's constituent parts. Interest rates rise and fixed-income instruments (bonds, preferred stocks, etc.) lose market value during inflationary periods. Common stocks also experience a decline in market value due to inflationary waves that affect the

yield they provide. The market value of the investment portfolio's constituent parts decreases during recessions. Either the bond's value or the suspension of interest payments becomes apparent. Under such conditions, the market value of the investment portfolio components of the insurance company decreases along with the capital market prices.

Risks of policy cancellation and some life insurance policyholders requesting loans constitute the fourth category of risk. During times of recession and inflation, when the purchasing value of money declines, this risk rises.

The researcher concludes that mandatory insurance and government intervention in insurance service pricing, and relying on solvency margin which by law should not be less than 150% are two of the most significant factors that resulted in Jordanian insurance companies' failure. It should be noted that during the study period, Accounting Standard IFRS 4 was adopted, and as of January 1, 2023, Accounting Standard IFRS 17 will be implemented, this standard depends on risk ratios, and discounted future cash flows rates to fulfill insurance contracts, which will impact total capital needed and, consequently, solvency margin ratios.

2.1.6.3. Insurance Companies in Jordan

The growth of insurance sector in Jordan indicate is a considerable change in the nation's financial environment. Jordan has a significant economic expansion and diversification over the last few decades, which has raised awareness of the need of risk management. This need has been greatly met by the insurance sector development, which provide people, companies, and government with a way to reduce a variety of risks. Table 2-7 presents the changes of insurance companies in Jordan from 2000 to 2023.

Table No (2-7). Changes of insurance companies during the period (2000- 2023)

Year	Number of companies	Interpretation
2000	27	
2001- 2006	26	The bankruptcy of Jordan Company and Gulf Company in 2001
2007- 2012	28	The number of companies increased in 2007 with the entry of two insurance companies into the market, namely Darcom Company and Medgulf Company.
2013-2014	25	The number of companies decreased in 2013 due to the bankruptcy of Gerasa Company, Al Baraka Company, and the Arab-German Insurance Company.
2015-2020	24	The number of companies decreased in 2015 due to the merger of Yarmouk Insurance and First Insurance.
2021	23	The number of companies decreased in 2021 due to the merger of the Gulf Insurance Group and the Arab Insurance Company.
2022-2023	21	The number of companies decreased in 2022 due to bankruptcy of the Holy Land Company and Al Safwa Insurance Company.

Source: (www.jif.jo, 2024)

The number of total companies will be differ from Jordan Insurance Federation and Amman Stock exchange due to declaration dates differences and suspend companies from Amman Stock Exchange, and for the purpose of this research based on conceptual and procedural definition the total of nineteen companies will be classified as Un-failed, and four companies classified as failed companies as shown in study sample and population in Table No (3-1) and Table No (3-2) members of Jordanian insurance companies operating in Jordan in 2024, according to Jordan Insurance Federation in 2024.

In table No (2-8) below represent the latest financial ratios for Jordan Insurance Market Results Issued by Jordan Central Bank:

Table No (2-8). Main Financial Ratios for Insurance companies for the period ended 31/12/2022

#	Registration No.	Name	Loss Ratio	Operating Profit Margin	Retention ratio	Return on assets	Return on equity	Solvency margin	Market share of total written premiums inside Jordan
1	121002	Middle East Insurance Company	76.00%	3.30%	44.90 %	3.20 %	7.30%	291.00 %	6.50%
2	121003	AL-Nisr Al-Arabi Insurance Company	83.20%	5.80%	79.10 %	2.30 %	14.50 %	266.00 %	6.40%
3	121004	Jordan Insurance Company	91.70%	-0.20%	70.20 %	-9.10 %	-39.80 %	121.00 %	3.50%
4	121005	Arabia Insurance Company – Jordan	96.30%	-3.00%	61.60 %	-1.20 %	-3.70%	156.00 %	3.90%
5	121006	Delta Insurance Company	80.70%	3.00%	68.10 %	2.20 %	7.00%	186.00 %	3.50%
6	121007	Jerusalem Insurance Company	86.50%	4.80%	63.70 %	5.30 %	14.90 %	208.00 %	4.70%
7	121008	United Insurance Company	81.80%	5.30%	69.30 %	4.00 %	10.20 %	190.00 %	4.00%
8	121009	Jordan French Insurance Company	106.30 %	-2.20%	83.20 %	-3.20 %	-10.10 %	148.00 %	4.50%
9	121013	AL Manara Islamic Insurance Company	91.40%	-0.80%	72.20 %	-0.80 %	-3.60%	141.00 %	2.40%
10	121014	Gulf Insurance Group – Jordan	83.30%	8.00%	48.90 %	5.70 %	16.30 %	183.00 %	14.30%
11	121020	Arab Union International Insurance Company	73.90%	24.90%	90.70 %	-0.80 %	-5.80%	66.00 %	1.40%

#	Registration No.	Name	Loss Ratio	Operating Profit Margin	Retention ratio	Return on assets	Return on equity	Solvency margin	Market share of total written premiums inside Jordan
12	121021	National Insurance Company	86.10%	3.60%	66.30%	4.50%	11.90%	188.00%	3.40%
13	121022	Jordan International Insurance Company (Newton)	110.70%	-14.10%	34.80%	-7.20%	-13.70%	193.00%	2.10%
14	121023	Euro Arab Insurance Group	89.00%	2.70%	76.80%	3.90%	14.50%	161.00%	5.80%
15	121025	Islamic Insurance Company	77.20%	-1.90%	63.50%	4.50%	8.40%	278.00%	4.40%
16	121026	The Arab Assurers Company	101.50%	-10.50%	84.30%	-9.80%	-40.50%	86.00%	1.60%
17	121027	Arab Jordanian Insurance Group	79.10%	5.10%	43.80%	0.60%	1.50%	181.00%	10.60%
18	121032	The Mediterranean & Gulf Insurance Company	95.30%	0.20%	83.50%	1.50%	7.00%	112.00%	3.20%
19	121034	Solidarity-First Insurance Company	88.60%	0.70%	49.70%	4.10%	7.60%	223.00%	8.00%
20	-	American Life Insurance - Metlife	75.90%	10.80%	90.20%	3.70%	103.80%	211.00%	5.80%
Total Insurance Sector			87.10%	3.30%	62.80%	2.20%	7.10%	190.00%	100.00%

* Source: (www.cbj.gov.jo, 2024)

Regarding the performance of insurance companies as shown in table (2-10), the researcher infers the following findings. for the time period ending on 31/12/2022:

Loss Ratio provides insurance companies with overview of their financial performance to provide an indication of a company's profitability, the lower the ratio, the greater the potential profitability of the company, as per above table Arab Union International Insurance Company has the lowest loss ratio and Arab Assurers Company, Jordan French Insurance Company, Jordan International Insurance Company (Newton) has more than 100%, and the total insurance sector ratio 87.1%

Operational profit margin is a profitability or performance ratio that shows how much of an organization's profit comes from its operations before interest and taxes are deducted, and how effectively a business manages its costs to optimize profitability the higher the rate the better, as per above table (13) insurance companies above zero, and (7) insurance companies has negative ratio, with total sector 3.30%, and Arab Union International Insurance Company has the higher operational profit margin 24.90% and Jordan International Insurance Company (Newton) has the lowest rate -14.10%.

Retention ratios measure how much of a company's earnings are retained internally instead of being distributed as dividends to shareholders, the higher the ratio is better and as per above Arab Union International Insurance Company has the highest ratio 90.70% and Jordan International Insurance Company (Newton) has the lowest 34.80% with total sector 62.80%.

Return on assets (ROA) is a profitability ratio that shows how much profit a business can make from its assets and evaluates how well management performs in turning a profit from all of the assets shown on the balance sheet, the higher the ratio is

better and as per above (7) out of (20) companies has negative ratio Gulf Insurance Group – Jordan has the highest rate and Arab Assurers Company has the lowest and total sector 2.20%.

Return on equity (ROE), which is calculated by dividing a company's net income by the equity held by its shareholders, provides an indicator for both the profitability and efficiency of the way a business makes profits, the higher the ratio is better, as per above table (7) out of (20) companies has negative ratio and Gulf Insurance Group – Jordan has the highest rate and The Arab Assurers Company has the lowest rate -40.50% with total sector 7.10%.

Solvency margin provides an indicator of a company's financial position by indicating whether its cash flow is adequate to cover its long-term commitments, a company can be considered to be financially solid if its solvency ratio increases beyond 20% and the Jordanian insurance companies law has specialized instructions for the solvency margin requirements (article 4) The insurance company is obliged to have a capital on hand of at least 150% of the minimum capital required and if the firm has branches outside of the Kingdom, it must maintain capital on hand of at least 200% of the required capital. (www.cbj.gov.jo) As per above table Middle East Insurance Company has the highest solvency rate 291% and (6) out of (20) has solvency margin below 150%, Arab Union International Insurance Company, The Arab Assurers Company, The Mediterranean & Gulf Insurance Company, Jordan Insurance Company, AL Manara Islamic Insurance Company. And total sector margin 190%.

2.2 Previous Studies

Study of (Elsayed et al, 2023) Titled: Using Kida model in predicting financial failure in Egyptian firms

The study aimed to investigate the prediction capability of Kida model in predicting financial failure for (9) failed companies in Egypt using available and published financial statements for the period 2016 – 2021; the study used descriptive statistics, variances analysis utilized ANOVA approach. The study's findings indicated that Kida model is considered adequate and valuable indicator for predicting financial failure in Egyptian firms. The study recommended using Kida model to predict financial failure in Egyptian firms, and encourage researcher to investigate using other prediction models and different periods.

Study of (Deribie, 2022), Titled: Determinants of Financial Distress: Evidence from Insurance Companies in Ethiopia

The study aimed to investigate financial failure determinants utilized Altman Z" model in predicting financial position for (11) listed companies in Ethiopia, using available and published financial statements for the period 2010 - 2021; the study used quantitative research approach and explanatory research design. The study's findings indicated that Altman Z" model classified all insurance companies in gray zone, and that earnings growth, firm size, profitability and liquidity levels, have a positive impact on the financial position of insurance companies whereas claim ratio, leverage, inflation and asset tangibility have a negative impact on the financial position of insurance companies in Ethiopia. The study recommended using Altman model to predict financial failure in Ethiopian companies, and management should adopt new modern insurance services, with support from government and policy makers.

Study of (Elewa, 2022), Titled: Using Altman Z-Score Models for Predicting Financial Distress for Companies: The Case of Egypt Panel Data Analysis

The study aimed to investigate the prediction capability of Altman model Z-Score in predicting financial failure for (44) companies listed in Egyptian Exchange using available and published financial statements for the period 2016 – 2020; the study used deductive research method. The study's findings indicated that Altman Z" model has higher prediction ability than Altman Z model. The study recommended using Altman Z" model to predict financial failure in Egyptian firms, and encourage management and decision makers to adopt the use of financial failure prediction models.

Study of (Khanoof and Daifallah, 2022), Titled: The use of Altman Z-Score Model to Predict Financial Distress – a Case study of Condor Electronics and Iris Sat Companies

The study aimed to investigate the prediction capability of Altman model Z-Score in predicting financial failure for (2) Algerian companies using available and published financial statements for the period 2010-2019; the study used descriptive analytical method. The study's findings indicated that Altman model has high prediction ability to differentiate between failed and non-failed companies, and encourage the use of Altman model in Algerian environment is further enhanced by its accuracy and ease to implement in assessing financial position and the probability of company’s failure.

Study of (Cindik, 2021) Titled: A revision of Altman Z-score model and comparative analysis of Turkish companies financial distress prediction

The study aimed to investigate the prediction ability of Altman model with other three prediction models, and to evaluate the effectiveness on Turkish environment, the study sample include listed and private companies with total (80) companies for the period 2013-2018; the study used multivariate discriminant analysis. The study's findings the

effectiveness of Altman model and the prediction power of models, and encourage the use of Altman model in Turkish environment especially for private companies.

Study of (Marwa, 2021) Titled: Using Altman Zeta model to predict financial failure in economic companies listed on the Qatar Stock Exchange

The study aimed to evaluate the efficiency of employing Altman Z" model for predicting financial failure in non-industrial companies. The study sample include (8) companies that are listed on Qatar Stock Exchange for the period 2018 - 2019. The study employed a descriptive analytical technique and conclude that Altman model effectively categorized organizations as either failed or – Non-failed companies. The study suggests using Altman Z" model in services companies since it is capable of assessing performance and has a strong ability to forecast financial failure, and companies should rely on prediction models as early warning for financial failure.

Study of (Saida, 2021) Titled: The Effectiveness of Kida model for predicting financial failure of insurance companies in Algeria –A field study-

The study aimed to assess the efficiency of Kida model in predicting financial failure in Algerian insurance firms. The study sample comprises (4) Algerian insurance companies for the period 2014 - 2019. The study employed a descriptive analytical technique The study found that Kida model effectively predict financial failure in Algerian insurance companies. The study suggests that it is great importance to focus on the prediction of financial failure in insurance companies due to its significant importance and impact on the economy and all insurance related parties.

Study of (Medjdoub, Houas, 2021) Titled: Study of Kida model for predicting financial failure for listed companies in Amman Stock Exchange

The study aimed to evaluate the prediction capability of Kida model for listed companies in Amman Stock Exchange. The study sample include (15) failed and liquidated companies and (15) non-failed companies. For the period 2011 – 2018 The study employed a descriptive analytical method. The study conclude that Kida model has acceptable rating prediction ratio with accuracy rate 66.67%. The study recommends rely on prediction models as warning system as there are several stages the company goes through before reaching financial failure.

Study of (Munira et al, 2021) Titled: The Effectiveness of Altman Z-Score and Springate Methods in Analyzing the Potential for Company Bankruptcy

The study aimed to investigate the prediction capability of Altman & Springate model in predicting financial failure for (37) mining companies listed in Indonesia Stock exchange using available and published financial statements for the period 2015 – 2019; the study used quantitative descriptive method. The study's findings indicated that Altman Model has higher predictive ability than Springate with total accuracy rate 66.49% and can be used as indicator for sustainability of mining sector. The study recommended using Altman model to predict financial failure in Indonesia environment, and encourage financial users to rely on Altman model as benchmark for financial position.

A study of (Abdurrahman and Alkhamis, 2020) Titled: The Role of Financial Analysis Using Financial Models to Predict the Financial Failure in Saudi Public Utilities Sector: An Applied Study

The study aimed to assess the predictive ability of financial failure models in Saudi public utilities sector, The study sample include (2) listed companies in Saudi Stock Exchange (Tadawul) for the period 2009 - 2018 The study employed a descriptive

analytical approach using Altman, KIDA, and Abdulrahman model, The study conclude that Altman and Kida models has low effectiveness predictive ability in Saudi Arabia, and Abdulrahman model has higher predictive ability in Gulf Area, and the study recommend the high demand to formulate new modules that can adopt in different environments.

Study of (Mallem and Tiar 2019) Titled: Using Altman Z-Score Model to Predict Financial Distress of Insurance Companies in Algeria

The study aimed to assess the predictive capability of Altman model in determining the financial failure of Algerian insurance companies. The study sample include (12) insurance companies listed in National Commercial Register Center in Algeria for the period 2013 – 2015. The study employed descriptive-analytical method. The study concludes that 50% of insurance companies in the sample experienced failure, and Altman Z" model demonstrated a substantial capacity to forecast this financial difficulty. The study suggests employing Altman model in insurance companies, due to its high efficiency in predicting financial failure.

A study of (Abu Shehab,2018) Titled: The Effectiveness of Kida Model to Predict the Financial Failure in Companies Listed in Amman Stock Exchange.

The study aimed to evaluate the prediction ability of Kida model in listed companies in Amman Stock Exchange The study sample include (10) failed and liquidated companies and (10) ongoing companies, for the period 2011- 2016. The study employed both descriptive-analytical method and experimental tests. The study concludes that Kida model has a tendency for prediction financial failure, with total accuracy rate 55%, The study recommends the necessity to use KIDA model as an indicator to predict financial

failure, although it has proven successful, but with a low degree of confidence, and it needs to be modified in order to suit the Jordanian environment.

Study of (Alqaisi, 2016), Titled: Do Models Based on Financial Ratios Have the Predictive Ability to Distinguish between Distressed and Non-Distressed Companies?

The study aimed to develop a model using the financial ratios that can be adopted in Jordanian environment compared with results from Altman model. The study sample include (38) companies, that is classified as failed and non-failed companies for the period 2008 - 2011. The study employed discriminate Analysis. The study created a model with five financial factors that were used to measure market, profitability, and liquidity. According to the study, Altman model has low predictive ability with accuracy rate 66.66% and the new model has 88.97% accuracy rate. The study recommends that Jordanian industrial companies need to use financial models to predict financial failure, to be early warning systems for companies that are likely to be failed in the near future, to obtain company, investors, and the economy from failure.

Table No (2-9). Summary of Previous studies

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Elsayed et al, 2023) Titled: Using Kida model in predicting financial failure in Egyptian firms	2023	The study aimed to investigate the effectiveness of Kida model in predicting financial failure in listed companies in Egyptian Exchange	(9) failed companies listed in Egypt Exchange from 2016 to 2021	The study recommended using Kida model as adequate indicator for predicting financial failure for companies listed in Egyptian Exchange	The study support using KIDA model to predict financial failure.

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Deribie, 2022), Determinants of Financial Distress: Evidence from Insurance Companies in Ethiopia	2022	the study aimed to analyze the factors of financial failure in Ethiopian insurance companies. used Altman's Z-score model to identify the financial strength of insurance companies.	(11) insurance companies operating in Ethiopia from 2010 to 2021	The study found that profitability (ROA), liquidity levels, insurers' size, earnings growth, and diversification all have a significant impact on the financial distress condition of insurance companies in Ethiopia, whereas claim ratio, leverage, and asset tangibility all have a negative impact.	The study support using Altman model to predict financial failure
Study of (Elewa, 2022), Using Altman Z-Score Models for Predicting Financial Distress for Companies: The Case of Egypt Panel Data Analysis	2022	The study aimed to determine the effect of using Altman Z-Score models on the quality of financial distress predictability in non-financial companies listed in Egyptian Exchange.	(44) Companies listed in Egyption Exchange from 2016 to 2020	Altman Z-Score models have a significant impact on the quality of financial distress predictability also indicate that the modified Altman Z score (1993) model presents better results than the Altman Z-Score (1968) model	The study support using Altman model to predict financial failure

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Khanoof, and Daifallah, 2022), Titled: Using the Altman Z-Score Model to Predict the Financial Distress of Companies in Algeria	2022	The study aimed to determine the efficiency of the Altman model (1968) to predict the likelihood of financial failure in Algerian companies	(2) companies Condor Electronics and Iris Sat companies , from 2010 to 2019	Altman model had a significant predictive ability in discriminating between the two companies in the long term and detecting their probability of financial failure.	The study support using Altman model to predict financial failure, also in the litreture review
Study of (Cindik, 2021) Titled: A revision of Altman Z-score model and comparative analysis of Turkish companies financial distress prediction	2021	The study aimed to investigate the prediction ability of Altman model in Turkish environment	(80) listed and private companies from 2013 to 2018	Altman Z-score model contributed to classification of companies into successful and unsuccessful ones.	The study support using Altman model to predict financial failure
Study of (Marwa, 2021) Titled: Using the Altman Z-score model to predict financial failure in economic companies listed in Qatar Stock Exchange	2021	The study aimed to explore the effectiveness of using Altman Z-score model in predicting financial failure in services companies	(8) services companies listed in Qatar Stock Exchange from 2018 to 2019	Altman Z-score model contributed to classification of companies into successful and unsuccessful ones.	The study support using Altman model to predict financial failure

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Saida, 2021) Titled: The Effectiveness of Financial Failure Prediction Models in Insurance Companies: A Case Study of Algerian Insurance Company CAAT	2021	The study aimed to explore the usefulness of the Kida model in forecasting financial failure in Algerian insurance firms	(4) Algerian insurance companies from 2014 to 2019.	Kida model is successful for predicting financial failure in Algerian insurance sector.	The study support using KIDA model to predict financial failure
Study of (Munira et al, 2021) Titled: The Effectiveness of Altman Z-Score and Springate Methods in Analyzing the Potential for Company Bankruptcy	2021	The study aimed to investigate the prediction capability of Altman & Springate model in listed companies in Indonesia Stock exchange	(37) mining sector companies from 2015 to 2019	The study recommended using Altman model to predict financial failure in Indonesia environment	The study support using Altman model to predict financial failure
Study of (Medjdoub, Houas, 2021) Titled: Study the Kida model for predicting financial failure for companies by applying to joint stock companies at the Amman Stock Exchange	2021	The study aimed to investigate the effectiveness of Kida model in predicting financial failure in listed companies in Amman Stock Exchange	(15) failed liquidated companies , and (15) un-failed companies, from 2011 to 2018	The study recommended using Kida model as acceptable rating ratios for predicting financial failure for companies listed in Amman Stock Exchange	The study support using KIDA model to predict financial failure.

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Abdurrahman and Alkhamis, 2020) Titled: The role of financial analysis using financial models to predict the financial failure in Saudi public utilities sector: an applied study	2020	The study aimed to determine the role of using financial models to predict financial distress in the Saudi public utilities sector	(2) companies Gas and Manufacturing Company (Gasco) and the Saudi Electricity Company from 2009 to 2018.	Abdul Rahman model is more effective than Altman model and Kida model in predicting financial failure in the public utilities sector.	The study support using all models to predict financial failure
Study of (Mallem and Tiar 2019) Titled: Using the Altman Z-Score Model to Predict Financial Distress of Insurance Companies in Algeria	2019	The study aimed to determine the Altman model's ability to predict financial failure of Algerian insurance companies	(12) insurance companies registered on the National Commercial Register Centre in Algeria from 2013 to 2015	Altman model had a significant predictive ability to detect this financial distress	The study support using Altman model to predict financial failure
Study of (Abu Shehab,2018) Titled: The Effectiveness of the Kida Model to Predict the Financial Failure in Companies Listed in Amman Stock Exchange	2018	The study aimed to determine the effectiveness of the Kida model in predicting financial failure in listed companies on the Amman Stock Exchange	(10) companies that were referred for liquidation and (10) continuous companies that were not referred for liquidation from 2011 to 2016	Kida model tended to predict financial failure	The study support using KIDA model to predict financial failure

Name	Year	Purpose	Sample	Conclusion	Benefit
Study of (Alqaisi, 2016), Titled: Do Models Based on Financial Ratios Have the Predictive Ability to Distinguish between Distressed and Non-Distressed Companies?	2016	This study aimed to build a model from Jordanian industrial companies' financial ratios to distinguish between distressed and non-distressed companies	(38) companies, half of which are distressed and the other half are non-distressed, from 2008 to 2011	Altman model can distinguish between distressed and non-distressed companies before three years of failure	The study support using all prediction models and financial ratios to predict financial failure

*Source: prepared by researcher reference to all previous studies

2.3 What differentiates this study from previous studies?

This work differs from earlier studies in that it applies two forecasting financial models Altman and Kida models to financial sector which is insurance companies listed in Amman Stock Exchange, a sector that is experiencing financial difficulties and has not been studied after experiencing these difficulties.

Chapter Three
Method and Procedures

3.1 Introduction

This section details the study's methodology, which includes the study's design, demographic and sample, data sources, and statistical methods for analyzing and assessing hypotheses.

3.2 Study Methodology

The study employed the descriptive analytical approach because it is the most efficient method of achieving its goals, which included gathering, and evaluating data in order to examine its hypotheses as well as answers the study questions. Altman and Kida models were applied to all insurance companies during the study period in the following manner since the goal of the research is to determine whether these models can be used to predict financial failure in insurance companies listed in Amman Stock Exchange, first the study get the financial statements of all the insurance companies listed in Amman Stock Exchange for the study period, and getting the financial ratios used in both models, moreover apply each model individually and obtain the model index (Z-Score) for each company and year within the study period, furthermore analyzing and evaluating the results of each model with each company's real position; that is, determining whether an index's value indicates a company has failed and has truly failed, or if an index's value indicates a company has failed but has not failed financially, then measure the number of times the model's prediction was accurate by the total number of companies in the study to get the prediction accuracy ratio for each model, as well as multiply the value by 100% to get the prediction accuracy ratio, finally the study hypotheses were examined using the

Mann Whitney test. since data does not follow a normal distribution method, the study utilized non-parametric test (Ben et al, 2021).

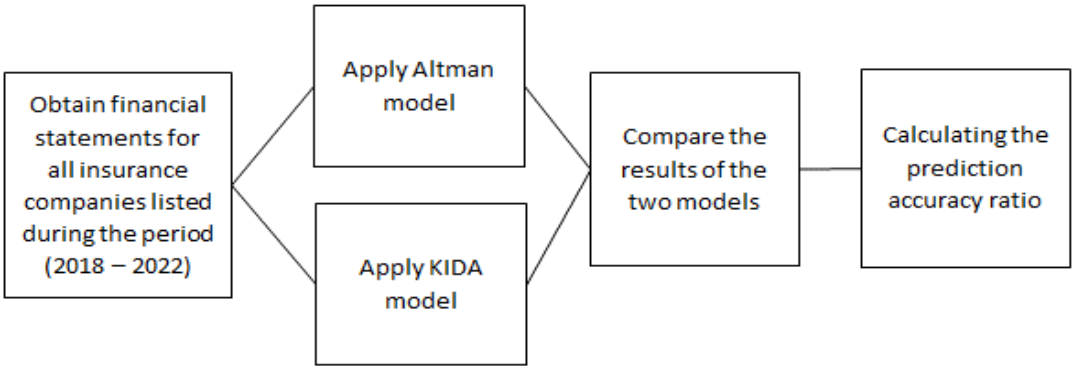


Figure No (3-1). Researcher's Study Procedure

3.3 Study Sample and population

The study encompasses all insurance companies listed in Amman Stock Exchange between 2018 and 2022, totaling 23 companies. Among these, 2 companies have declared liquidation, 1 company has been suspended from the Amman Stock Exchange, and 1 company has undergone a merger. The study sample includes both financially failed insurance companies and those in a sound financial position.

Table No (3-1) below shows the un-failed Jordanian Insurance Companies

Table No (3-1). Un-failed Jordanian insurance Companies list

#	Registration No.	Name	Established Year
1	121002	Middle East Insurance Company	1962
2	121003	AL-Nisr Al-Arabi Insurance Company	1976
3	121004	Jordan Insurance Company	1951
4	121005	Arabia Insurance Company – Jordan	1975
5	121006	Delta Insurance Company	1976
6	121007	Jerusalem Insurance Company	1975
7	121008	United Insurance Company	1972
8	121009	Jordan French Insurance Company	1976
9	121013	AL Manara Islamic Insurance Company	1973
10	121014	Gulf Insurance Group – Jordan	1996
11	121020	Arab Union International Insurance Company	1976
12	121021	National Insurance Company	1965
13	121022	Jordan International Insurance Company (Newton)	1996
14	121023	Euro Arab Insurance Group	1996
15	121025	Islamic Insurance Company	1996
16	121026	The Arab Assurers Company	1996
17	121027	Arab Jordanian Insurance Group	1996
18	121032	The Mediterranean & Gulf Insurance Company	2007
19	121034	Solidarity-First Insurance Company	2008

Source: (www.jif.jo, 2024), (www.ase.com.jo,2024)

Table No (3-2) includes the insurance companies declared financially failed by the government.

Table No (3-2). Failed Jordanian insurance Companies list (2018-2022)

#	Registration No.	Company Name	Year of suspended or liquidation
1	121010	The Holy Land Insurance Company	2022 liquidation
2	121015	ALSafwa Insurance Company	2023 liquidation
3	121017	Arab Life and Accident Insurance	2021 Merge
4	121018	Philadelphia Insurance Company	2020 Suspended

Source: (www.jif.jo, 2024), (www.ase.com.jo, 2024)

As shown in Table No (3-2) and according to the Jordan Insurance Federation report, one firm merged, two companies were announced as failed, one company stopped from trade owing to its poor financial status.

3.4 Statistical Methods

For the purpose of testing the study hypotheses, the following statistical approach included in the Statistical Package for the Social Sciences (SPSS) were used:

- **Descriptive statistics** help glean information from samples, including median, upper and lower values, standard deviation, and Z-scores for each model
- **Normal distribution test (Shapiro-Wilk):** To test the study data whether it follows a normal distribution or does not follow a normal distribution.
- **Mann Whitney analysis:** to test the study hypotheses, since data does not follow a normal distribution method, the study utilized non-parametric test.

3.5 Models Variables

The objective of the study is to utilize Altman and Kida models in order to forecast the probability of financial distress for insurance businesses that are listed in the Amman Stock Exchange. The models will calculate the values of the Z-Score indicator, with each model using a different set of financial ratios that are assigned different weights. The financial ratios used in both models are considered independent variables, whereas the Z-Score value, which indicates failure, is considered a dependent variable. This is seen below:

Table No (3-3). Altman Model *Z*'' Variables (1993)

Symbol	Ratio (Independent Variable)	Weight
X1	Working Capital / Total Assets	6.56
X2	Retained Earnings / Total Assets	3.26
X3	Earnings Before Interest and taxes / Total Assets	6.72
X4	Book Value of Equity / Book Value of Total Liabilities	1.05
Indicator value (Dependent variable) Z-Score = (6.56*X1) + (3.26*X2) + (6.72*X3) + (1.05*X4)		

Source: Altman (1993)

Table No (3-4). KIDA Model Variables

Symbol	Ratio -Independent Variable	Weight
X1	Net Profit before Tax / Total Assets	1.042
X2	Total Equity / Total Liabilities	0.427
X3	Liquid Assets / Current Liabilities	0.461
X4	Net Sales / Total Assets	0.463
X5	Cash Assets / Total Assets	0.271
Indicator value (Dependent variable) Z Score = - (1.042*X1) - (0.427*X2) - (0.461*X3) - (0.463*X4) + (0.271*X5)		

Source: (KIDA, 1980)

3.6 Source of Data Collection

The study used the following sources for data collection:

Primary sources: The study gathered the necessary information for financial ratio calculations and other pertinent details from the following sources: the website of the Central Bank of Jordan, the Jordan Federation of Insurance businesses, and the Amman Stock Exchange financial statements of insurance businesses.

Secondary sources: The study built its theoretical framework and identified the variables by referencing existing literature, including books, scientific publications, and research articles from journals, as well as information available on the internet relevant to the study's subject matter. The relationships between these variables were determined based on the insights and findings documented in these sources.

Chapter Four
Statistical Analysis and Hypothesis Testing

4.1 Introduction

In accordance with the study's aims and assumptions, this chapter summarizes the findings of statistical analysis tests performed on data retrieved from the financial statements of Jordanian insurance companies.

Multiple major parts make to this chapter. The first part examines the predictive ability tests of both Altman and Kida models for predicting financial failure in Jordanian insurance companies. The second part focuses on descriptive analysis, including measures such as the mean, standard deviation, and the study's models' data. The third part examines the validity of the study's data for statistical analysis through tests of normal distribution. Lastly, in the fourth part, the hypotheses were tested using the Mann Whitney- U test.

4.2 Testing the predictive ability of Altman and Kida models

In order to determine the predictive ability of Altman and Kida models in predicting financial failure of Jordanian insurance companies, the researcher relied on the actual status of the companies and evaluated the predictive ability of Altman and Kida models by comparing the results of the study's models (Altman and Kida) with the actual status of the companies for the period (2018-2022). Altman model categorized the results into three categories, which are:

Z'' < 1.10	Financial distress and a high likelihood of bankruptcy
1.10 < Z'' < 2.60	The company is in a “gray zone,” meaning it has a moderate possibility of bankruptcy in the near future.
Z'' > 2.60	The company is in the "safe zone," which means that the company has a strong financial position.
* Source: (Altman, 1993)	

In Kida model, the results were divided into two categories. The first category represents the prediction of financial failure when the result Z-score is negative, while the second category represents the absence of financial failure when the result Z-Score is positive. Therefore, the success or failure of Altman and Kida model in prediction was determined by comparing the results of the models with the actual status of the company.

The following Table No (4-1) below presents the predictive ability of Altman model in forecasting financial failure with the actual status of Jordanian insurance companies to assess the success or failure of each model:

Table No (4-1). Results of Altman Model with the Actual Status of Financially Failed and Un-failed Jordanian Insurance Companies

No.	Company	Year	Z'' Score	Zone	Result
1	**Middle East Insurance Company**	2018	0.298	**Bankruptcy**	**Not effective**
		2019	0.366	**Bankruptcy**	**Not effective**
		2020	0.928	**Bankruptcy**	**Not effective**
		2021	1.244	**Gray**	**Effective**
		2022	1.336	**Gray**	**Effective**
2	**AL-Nisr Al-Arabi Insurance Company**	2018	(2.751)	**Bankruptcy**	**Not effective**
		2019	(2.889)	**Bankruptcy**	**Not effective**

No.	Company	Year	Z'' Score	Zone	Result
		2020	(3.137)	**Bankruptcy**	**Not effective**
		2021	(3.385)	**Bankruptcy**	**Not effective**
		2022	(3.756)	**Bankruptcy**	**Not effective**
3	**Jordan Insurance Company**	2018	0.180	**Bankruptcy**	**Not effective**
		2019	0.746	**Bankruptcy**	**Not effective**
		2020	1.425	**Gray**	**Effective**
		2021	1.325	**Gray**	**Effective**
		2022	1.035	**Bankruptcy**	**Not effective**
4	**Arabia Insurance Company – Jordan**	2018	0.180	**Bankruptcy**	**Not effective**
		2019	0.746	**Bankruptcy**	**Not effective**
		2020	1.425	**Gray**	**Effective**
		2021	1.325	**Gray**	**Effective**
		2022	1.035	**Bankruptcy**	**Not effective**
5	**Delta Insurance Company**	2018	0.594	**Bankruptcy**	**Not effective**
		2019	0.726	**Bankruptcy**	**Not effective**
		2020	1.051	**Bankruptcy**	**Not effective**
		2021	0.815	**Bankruptcy**	**Not effective**
		2022	1.192	**Gray**	**Effective**
6	**Jerusalem Insurance Company**	2018	2.440	**Gray**	**Effective**
		2019	2.444	**Gray**	**Effective**
		2020	2.256	**Gray**	**Effective**
		2021	2.163	**Gray**	**Effective**
		2022	2.206	**Gray**	**Effective**
7	**United Insurance Company**	2018	0.413	**Bankruptcy**	**Not effective**
		2019	0.846	**Bankruptcy**	**Not effective**
		2020	0.924	**Bankruptcy**	**Not effective**
		2021	0.908	**Bankruptcy**	**Not effective**
		2022	1.173	**Gray**	**Effective**

No.	Company	Year	Z'' Score	Zone	Result
8	**Jordan French Insurance Company**	2018	4.662	**Safe**	**Effective**
		2019	4.935	**Safe**	**Effective**
		2020	5.307	**Safe**	**Effective**
		2021	5.037	**Safe**	**Effective**
		2022	4.515	**Safe**	**Effective**
9	**AL Manara Islamic Insurance Company**	2018	1.896	**Gray**	**Effective**
		2019	2.382	**Gray**	**Effective**
		2020	4.463	**Safe**	**Effective**
		2021	2.739	**Safe**	**Effective**
		2022	2.360	**Gray**	**Effective**
10	**Gulf Insurance Group – Jordan**	2018	0.904	**Bankruptcy**	**Not effective**
		2019	1.671	**Gray**	**Effective**
		2020	1.681	**Gray**	**Effective**
		2021	1.491	**Gray**	**Effective**
		2022	1.995	**Gray**	**Effective**
11	**Arab Union International Insurance Company**	2018	(0.306)	**Bankruptcy**	**Not effective**
		2019	(0.751)	**Bankruptcy**	**Not effective**
		2020	(1.005)	**Bankruptcy**	**Not effective**
		2021	(4.372)	**Bankruptcy**	**Not effective**
		2022	(3.493)	**Bankruptcy**	**Not effective**
12	**National Insurance Company**	2018	0.565	**Bankruptcy**	**Not effective**
		2019	0.540	**Bankruptcy**	**Not effective**
		2020	0.715	**Bankruptcy**	**Not effective**
		2021	1.194	**Gray**	**Effective**
		2022	1.056	**Bankruptcy**	**Not effective**
13	**Jordan International Insurance Company (Newton)**	2018	3.181	**Safe**	**Effective**

No.	Company	Year	Z'' Score	Zone	Result
		2019	3.160	**Safe**	**Effective**
		2020	2.749	**Safe**	**Effective**
		2021	2.234	**Gray**	**Effective**
		2022	1.226	**Gray**	**Effective**
14	**Euro Arab Insurance Group**	2018	1.798	**Gray**	**Effective**
		2019	1.914	**Gray**	**Effective**
		2020	1.898	**Gray**	**Effective**
		2021	0.751	**Bankruptcy**	**Not effective**
		2022	1.145	**Gray**	**Effective**
15	**Islamic Insurance Company**	2018	8.580	**Safe**	**Effective**
		2019	8.660	**Safe**	**Effective**
		2020	9.120	**Safe**	**Effective**
		2021	9.311	**Safe**	**Effective**
		2022	3.824	**Safe**	**Effective**
16	**The Arab Assurers Company**	2018	1.060	**Bankruptcy**	**Not effective**
		2019	0.881	**Bankruptcy**	**Not effective**
		2020	1.365	**Gray**	**Effective**
		2021	(0.544)	**Bankruptcy**	**Not effective**
		2022	(2.247)	**Bankruptcy**	**Not effective**
17	**Arab Jordanian Insurance Group**	2018	0.728	**Bankruptcy**	**Not effective**
		2019	1.109	**Gray**	**Effective**
		2020	1.364	**Gray**	**Effective**
		2021	0.606	**Bankruptcy**	**Not effective**
		2022	(0.201)	**Bankruptcy**	**Not effective**
18	**The Mediterranean & Gulf Insurance Company**	2018	1.114	**Gray**	**Effective**
		2019	(0.734)	**Bankruptcy**	**Not effective**
		2020	(1.267)	**Bankruptcy**	**Not effective**
		2021	(1.017)	**Bankruptcy**	**Not effective**
		2022	(0.629)	**Bankruptcy**	**Not effective**

No.	Company	Year	Z'' Score	Zone	Result
19	**Solidarity-First Insurance Company**	2018	6.764	**Safe**	**Effective**
		2019	6.450	**Safe**	**Effective**
		2020	6.457	**Safe**	**Effective**
		2021	6.946	**Safe**	**Effective**
		2022	3.508	**Safe**	**Effective**
20	**The Holy Land Insurance Company**	2018	(1.711)	**Bankruptcy**	**Effective**
		2019	(4.916)	**Bankruptcy**	**Effective**
		2020	N/A	**N/A**	**N/A**
		2021	N/A	**N/A**	**N/A**
		2022	N/A	**N/A**	**N/A**
21	**AL Safwa Insurance Company**	2018	(0.984)	**Bankruptcy**	**Effective**
		2019	(2.475)	**Bankruptcy**	**Effective**
		2020	N/A	**N/A**	**N/A**
		2021	N/A	**N/A**	**N/A**
		2022	N/A	**N/A**	**N/A**
22	**Arab Life and Accident Insurance**	2018	(1.188)	**Bankruptcy**	**Effective**
		2019	(0.135)	**Bankruptcy**	**Effective**
		2020	N/A	**N/A**	**N/A**
		2021	N/A	**N/A**	**N/A**
		2022	N/A	**N/A**	**N/A**
23	**Philadelphia Insurance Company**	2018	2.564	**Gray**	**Not effective**
		2019	(0.792)	**Bankruptcy**	**Effective**
		2020	(0.059)	**Bankruptcy**	**Effective**
		2021	N/A	**N/A**	**N/A**
		2022	N/A	**N/A**	**N/A**

*Source: prepared by researcher based on Altman Z" model results.

Table No (4-1) presents the prediction results of Altman model with the actual status of financially Failed and un-failed Jordanian insurance companies for the period (2018-2022). Based on Table No (4-1) the following observations can be made:

- **In 2018**, Altman model was effective to predicted financial position for (11) companies from a total of (23) companies, represent accuracy rate % 47.80.
- **In 2019**, Altman model was effective to predicted financial position for (13) companies from a total of (23) companies, represent accuracy rate % 56.5.
- **In 2020**, Altman model was effective to predicted financial position for (13) companies from a total of (20) companies, represent accuracy rate % 65.
- **In 2021**, Altman model was effective to predicted financial position for (11) companies from a total of (19) companies, represent accuracy rate % 57.9.
- **In 2022**, Altman model was effective to predicted financial position for (11) companies from a total of (19) companies, represent accuracy rate % 75.9.

Therefore, the predictive ability of Altman model for the study period with total of 59 effective result from a total of 104 available financial statement is %**56.7.**

Table No (4-2). Results of KIDA Model with the Actual Status of Financially failed and UN-failed Jordanian Insurance Companies

No.	Company	Year	Z'' Score	Zone	Result
1	**Middle East Insurance Company**	2018	(0.759)	**Bankruptcy**	Not Effective
		2019	(0.737)	**Bankruptcy**	Not Effective
		2020	(0.782)	**Bankruptcy**	Not Effective
		2021	(0.819)	**Bankruptcy**	not Effective
		2022	(0.812)	**Bankruptcy**	Not Effective

No.	Company	Year	Z'' Score	Zone	Result
2	**AL-Nisr Al-Arabi Insurance Company**	2018	(0.408)	**Bankruptcy**	Not Effective
		2019	(0.384)	**Bankruptcy**	**Not Effective**
		2020	(0.346)	**Bankruptcy**	**Not Effective**
		2021	(0.327)	**Bankruptcy**	**Not Effective**
		2022	(0.280)	**Bankruptcy**	**Not Effective**
3	**Jordan Insurance Company**	2018	(0.795)	**Bankruptcy**	**Not Effective**
		2019	(0.872)	**Bankruptcy**	**Not Effective**
		2020	(0.956)	**Bankruptcy**	**Not Effective**
		2021	(0.923)	**Bankruptcy**	**Not Effective**
		2022	(0.874)	**Bankruptcy**	**Not Effective**
4	**Arabia Insurance Company – Jordan**	2018	(0.795)	**Bankruptcy**	**Not Effective**
		2019	(0.872)	**Bankruptcy**	**Not Effective**
		2020	(0.956)	**Bankruptcy**	**Not Effective**
		2021	(0.923)	**Bankruptcy**	**Not Effective**
		2022	(0.874)	**Bankruptcy**	**Not Effective**
5	**Delta Insurance Company**	2018	(0.772)	**Bankruptcy**	**Not Effective**
		2019	(0.801)	**Bankruptcy**	**Not Effective**
		2020	(0.822)	**Bankruptcy**	**Not Effective**

No.	Company	Year	Z'' Score	Zone	Result
		2021	(0.782)	**Bankruptcy**	**Not Effective**
		2022	(0.802)	**Bankruptcy**	**Not Effective**
6	**Jerusalem Insurance Company**	2018	(1.001)	**Bankruptcy**	**Not Effective**
		2019	(0.996)	**Bankruptcy**	**Not Effective**
		2020	(0.978)	**Bankruptcy**	**Not Effective**
		2021	(0.946)	**Bankruptcy**	**Not Effective**
		2022	(0.899)	**Bankruptcy**	**Not Effective**
7	**United Insurance Company**	2018	(0.794)	**Bankruptcy**	**Not Effective**
		2019	(0.837)	**Bankruptcy**	**Not Effective**
		2020	(0.806)	**Bankruptcy**	**Not Effective**
		2021	(0.802)	**Bankruptcy**	**Not Effective**
		2022	(0.830)	**Bankruptcy**	**Not Effective**
8	**Jordan French Insurance Company**	2018	(2.389)	**Bankruptcy**	**Not Effective**
		2019	(2.621)	**Bankruptcy**	**Not Effective**
		2020	(3.291)	**Bankruptcy**	**Not Effective**
		2021	(2.831)	**Bankruptcy**	**Not Effective**
		2022	(2.954)	**Bankruptcy**	**Not Effective**
9	**AL Manara Islamic Insurance Company**	2018	(1.536)	**Bankruptcy**	**Not Effective**

No.	Company	Year	Z'' Score	Zone	Result
		2019	(1.153)	**Bankruptcy**	**Not Effective**
		2020	(1.919)	**Bankruptcy**	**Not Effective**
		2021	(1.648)	**Bankruptcy**	**Not Effective**
		2022	(1.286)	**Bankruptcy**	**Not Effective**
10	**Gulf Insurance Group – Jordan**	2018	(0.758)	**Bankruptcy**	**Not Effective**
		2019	(0.793)	**Bankruptcy**	**Not Effective**
		2020	(0.809)	**Bankruptcy**	**Not Effective**
		2021	(0.827)	**Bankruptcy**	**Not Effective**
		2022	(0.893)	**Bankruptcy**	**Not Effective**
11	**Arab Union International Insurance Company**	2018	(0.845)	**Bankruptcy**	**Not Effective**
		2019	(0.773)	**Bankruptcy**	**Not Effective**
		2020	(0.750)	**Bankruptcy**	**Not Effective**
		2021	(0.398)	**Bankruptcy**	**Not Effective**
		2022	(0.771)	**Bankruptcy**	**Not Effective**
12	**National Insurance Company**	2018	(0.846)	**Bankruptcy**	**Not Effective**
		2019	(0.842)	**Bankruptcy**	**Not Effective**
		2020	(0.848)	**Bankruptcy**	**Not Effective**
		2021	(0.908)	**Bankruptcy**	**Not Effective**

No.	Company	Year	Z'' Score	Zone	Result
		2022	(0.870)	**Bankruptcy**	**Not Effective**
13	**Jordan International Insurance Company (Newton)**	2018	(1.583)	**Bankruptcy**	**Not Effective**
		2019	(1.512)	**Bankruptcy**	**Not Effective**
		2020	(1.344)	**Bankruptcy**	**Not Effective**
		2021	(1.147)	**Bankruptcy**	**Not Effective**
		2022	(1.029)	**Bankruptcy**	**Not Effective**
14	**Euro Arab Insurance Group**	2018	(0.938)	**Bankruptcy**	**Not Effective**
		2019	(0.965)	**Bankruptcy**	**Not Effective**
		2020	(0.946)	**Bankruptcy**	**Not Effective**
		2021	(0.833)	**Bankruptcy**	**Not Effective**
		2022	(0.818)	**Bankruptcy**	**Not Effective**
15	**Islamic Insurance Company**	2018	(1.200)	**Bankruptcy**	**Not Effective**
		2019	(1.222)	**Bankruptcy**	**Not Effective**
		2020	(1.291)	**Bankruptcy**	**Not Effective**
		2021	(1.365)	**Bankruptcy**	**Not Effective**
		2022	(1.155)	**Bankruptcy**	**Not Effective**
16	**The Arab Assurers Company**	2018	(1.038)	**Bankruptcy**	**Not Effective**
		2019	(1.057)	**Bankruptcy**	**Not Effective**

No.	Company	Year	Z'' Score	Zone	Result
		2020	(1.009)	**Bankruptcy**	**Not Effective**
		2021	(0.772)	**Bankruptcy**	**Not Effective**
		2022	(0.670)	**Bankruptcy**	**Not Effective**
17	**Arab Jordanian Insurance Group**	2018	(0.862)	**Bankruptcy**	**Not Effective**
		2019	(0.912)	**Bankruptcy**	**Not Effective**
		2020	(0.946)	**Bankruptcy**	**Not Effective**
		2021	(0.856)	**Bankruptcy**	**Not Effective**
		2022	(0.767)	**Bankruptcy**	**Not Effective**
18	**The Mediterranean & Gulf Insurance Company**	2018	(0.749)	**Bankruptcy**	**Not Effective**
		2019	(0.774)	**Bankruptcy**	**Not Effective**
		2020	(0.728)	**Bankruptcy**	**Not Effective**
		2021	(0.751)	**Bankruptcy**	**Not Effective**
		2022	(0.835)	**Bankruptcy**	**Not Effective**
19	**Solidarity-First Insurance Company**	2018	(1.245)	**Bankruptcy**	**Not Effective**
		2019	(1.255)	**Bankruptcy**	**Not Effective**
		2020	(1.267)	**Bankruptcy**	**Not Effective**
		2021	(1.385)	**Bankruptcy**	**Not Effective**
		2022	(1.076)	**Bankruptcy**	**Not Effective**

No.	Company	Year	Z'' Score	Zone	Result
20	**The Holy Land Insurance Company**	2018	(0.932)	**Bankruptcy**	**Effective**
		2019	(0.407)	**Bankruptcy**	**Effective**
		2020	N/A	N/A	**N/A**
		2021	N/A	N/A	**N/A**
		2022	N/A	N/A	**N/A**
21	**ALSafwa Insurance Company**	2018	(0.884)	**Bankruptcy**	**Effective**
		2019	(0.577)	**Bankruptcy**	**Effective**
		2020	N/A	N/A	**N/A**
		2021	N/A	N/A	**N/A**
		2022	N/A	N/A	**N/A**
22	**Arab Life and Accident Insurance**	2018	(0.749)	**Bankruptcy**	**Effective**
		2019	(1.046)	**Bankruptcy**	**Effective**
		2020	N/A	N/A	**N/A**
		2021	N/A	N/A	**N/A**
		2022	N/A	N/A	**N/A**
23	**Philadelphia Insurance Company**	2018	(1.140)	**Bankruptcy**	**Effective**
		2019	(0.688)	**Bankruptcy**	**Effective**
		2020	(0.683)	**Bankruptcy**	**Effective**
		2021	N/A	N/A	**N/A**
		2022	N/A	N/A	**N/A**

*Source: prepared by researcher based on Kida model results

Table No (4-2) presents the prediction results of KIDA model with the actual status of financially failed and un-failed Jordanian insurance companies for the period (2018-2022). Based on Table No (4-2), the following observations can be made:

- **In 2018**, KIDA model was effective to predicted financial position for (4) companies from a total of (23) companies, represent accuracy rate % 17.4.
- **In 2019**, KIDA model was effective to predicted financial position for (4) companies from a total of (23) companies, represent accuracy rate % 17.4.

- **In 2020**, KIDA model was effective to predicted financial position for (1) company from a total of (20) companies, represent accuracy rate % 5.0
- **In 2021**, KIDA model was effective to predicted financial position for (0) companies from a total of (19) companies, represent accuracy rate % 0.0
- **In 2022**, KIDA model was effective to predicted financial position for (0) companies from a total of (19) companies, represent accuracy rate % 0.0.

Therefore, the predictive ability of KIDA model for the study period with total of (9) effective result from a total of (104) available financial statement is **% 8.7.**

4.3 Descriptive statistics for Altman and Kida model data

In order to extract descriptive results from data of Altman and Kida models; The researcher sorted the data from the financial statements of Jordanian insurance companies, where the study sample consisted of (19) financially un-failed companies with 95 available published financial statements and (4) financially failed companies with 9 available published financial statements, and the following is a descriptive analysis of the results of Altman and Kida models.

Table No (4-3). Descriptive Analysis for Altman and Kida Models Data

Model		Minimum	Maximum	Mean	Std. Deviation
Altman model Z-Score	Financially un-failed	-4.37	9.31	1.571	2.66081
	Financially failed	-4.92	2.56	-1.078	2.01191
Kida model Z-Score	Financially un-failed	-3.29	-0.28	-1.023	0.50899
	Financially failed	-1.14	-0.41	-0.790	.23184

Table No (4-3) presents a descriptive analysis of data for Altman and Kida models, where it turned out that the mean of Altman model results (Z score) for **financially un-**

failed companies has reached (1.571), and the lowest value of Altman model result for financially un-failed companies of (-4.37) indicates the existence of financially failed companies because their performance is low, and this value belongs to the company (Arab union international insurance) in 2021, and the highest value reached (9.31) belongs to Islamic insurance company in 2021, which is an indicator of the difference in the value of Z score between the companies of the study sample, so that Altman model was able to predict success for some companies and financial failure for others. It also turned out that the mean of Altman model (Z score) results for **financially failed companies** has reached (-1.078), and the lowest value of Altman model result for financially failed companies of (-4.92) indicates the existence of financially failed companies because their performance is low, and this value belongs to the company (the Holy Land Insurance) in 2019, the highest value was (2.56) it belongs to the Philadelphia Insurance Company in 2018, which is an indicator of the disparity in the value of Z score between companies of the study sample, and Altman model was able to predict financial failure for some companies and others could not predict.

It is also noted from Table No (4-3) that the means of the results of Kida model (Z-score) for **financially un-failed companies** reached (-1.023), and the lowest value of Kida model score for financially un-failed companies of (-3.29) indicates the presence of financially failed companies. Because its performance is low, this value belongs to the company (Jordan French Insurance) in the year 2020, while the highest value (-0.28) belongs to the company (AL-Nisr Al-Arabi Insurance) in the year 2022, which is an indication of the lack of differences in the value of Z between the study sample companies, Kida model predict financial failure for all companies. It was also shown that the average results of Kida model (Z score) for the **financially failed companies** reached (-0.790), and the lowest value of Kida model score for financially failed companies of (-

1.14) indicates the presence of financially failed companies because their performance is low, and this value belongs to the company (The Holy Land Insurance Company) in 2019, and the highest value (-0.41) belongs to (Philadelphia Insurance) in 2018, which is an indication of the lack of difference in the value of Z score between companies in the study sample, and such that Kida model was able to predict financial failure for all companies.

4.4 Testing the validity of the data for a normal distribution

To begin testing the study hypotheses about Altman and Kida's predictive abilities, we must first check that the data follows a normal distribution. This will guide us what statistical tests to use, parametric or non-parametric data. For samples with less than 30 items, the Shapiro-Wilk test is reliable, and for samples with more than 30 items, the Kolmogorov-Smirnov test is necessary to get accurate results when testing the normal distribution. Accordingly, the study relied on the Shapiro-Wilk test to test the normal distribution of the data because it was less than 30 items. Table No (4-5) below shows the results of the normal distribution test:

Table No (4-4). Results of Shapiro – Wilk test normal distribution

Model	Statistic	df	Sig.
Altman model	**.933**	**104**	**.000**
Kida model	**.716**	**104**	**.000**
All data	**.842**	**208**	**.000**

Table No (4-4) shows the result of Shapiro-Wilk test for normal distribution for each of the study variables, and since the probability value is less than 0.05, this indicates that the study data is not normally distributed, and therefore parametric statistical tests cannot be used, so we will use non-parametric statistical tests (Razali & Wah, 2011).

4.5 Testing the study hypotheses

After determining that data does not follow a normal distribution, the study will employ non-parametric statistical tests to examine data. So, to test the study's hypotheses, the Mann-Whitney U-test was used. This test is non-parametric and measures the difference between the Z-scores of the models. The decision rule for accepting or rejecting the hypotheses is as follows: if the probability value (Sig U) is less than 0.05, then the null hypothesis is rejected. Otherwise, the null hypothesis is accepted, and the Mean Rank is used to determine which variable is the difference (Hair et al. 2017).

4.5.1 Result of the First Main Hypothesis Testing

H01: There is no statistically significant difference at $\alpha \leq 0.05$ between Altman model Z-scores for financially failed and non-failed insurance companies listed in Amman Stock Exchange.

Table No (4-5). Mann Whitney Test Results for the first main hypothesis testing

Item	N	Mean Rank	Reject Ho1
Financially un-failed	95	55.37	
Financially failed	9	22.22	
Mann-Whitney (U) 155		Sig (U) 0.002	

By reviewing Table No (4-5), which displays the results of the Mann Whitney (U) test for the difference between Altman model Z-score for financially failed and un-failed insurance companies listed in Amman Stock Exchange, the value of the test reached (155) =(Mann-Whitney (U) It was also shown that the probability value (Sig) fell below a significance level of less than (0.05), reaching (0.002), which indicates the presence of a differences between Altman model Z-score for financially failed and un-failed insurance companies listed in Amman Stock Exchange At a level of statistical significance less than (0.05), based on the above, the null hypothesis is rejected and the alternative hypothesis

is accepted, which states that There is a statistically significant difference at α≤ 0.05 between Altman model Z-score for failed and un-failed insurance companies listed in Amman Stock Exchange. By comparing the values of the mean ranks, it becomes clear that this difference is in favor of the financially un-failed companies.

4.5.2 Result of the Second Main Hypothesis testing

H02: There is no statistically significant difference at α≤ 0.05 between Kida model Z-scores for financially failed and non-failed insurance companies listed in Amman Stock Exchange.

Table No (4-6). Results of the second main hypothesis

Item	N	Mean Rank	Accept Ho2
Financially un-failed	95	51.01	
Financially failed	9	68.22	
Mann-Whitney (U) 286		Sig (U) 0.102	

By reviewing Table No (4-6), which displays the results of the Mann Whitney (U) test for the difference between KIDA model Z-score for financially failed and un-failed insurance companies listed in Amman Stock Exchange, the value of the test reached (286) =(Mann-Whitney (U) It was also shown that the probability value (Sig) fell above a significance level of (0.05), reaching (0.102), which indicates the presence of no differences between KIDA model Z-score for financially failed and un-failed insurance companies listed in Amman Stock Exchange at a level of statistical significance more than (0.05), based on the above, the null hypothesis is accepted, which states that There is no statistically significant difference at α≤ 0.05 between KIDA model Z-score for failed and un-failed insurance companies listed in Amman Stock Exchange. By comparing the values of the mean ranks, the difference is in favor of the financially failed companies.

4.5.3 Result of the Third Main Hypothesis testing

H03: There is no statistically significant difference at $\alpha \leq 0.05$ between the predictive abilities of Altman model and Kida model for financial failure of insurance companies listed in Amman Stock Exchange.

Table No (4-7). Results of the third main hypothesis

Item	N	Mean Rank	Reject Ho3
Altman Model	104	141.24	
KIDA Model	104	67.76	
Mann-Whitney (U) 1587		Sig (U) 0.000	

Looking at Table No (4-7), which displays the results of the Mann Whitney (U) test for the difference between Altman and Kida models, it becomes clear that the value of the test reached (1587) = (Mann-Whitney (U), and it also showed that the probability value (Sig) decreased. At a level of significance less than (0.05), where it reached (0.000), which indicates that there is a difference between the models Altman and Kida at a level of statistical significance less than (0.05). Based on the above, the alternative hypothesis is accepted, which states: There is a statistically significant difference at $\alpha \leq 0.05$ between the predictive abilities of Altman model and Kida model for financial failure of insurance companies listed in Amman Stock Exchange. When the mean ranks of Altman model and Kida model are compared, Altman model's results has a greater predictive ability than KIDA model. and this confirms what was previously concluded when the predictive ability of these two models was examined, as the predictive ability of Kida model was poor, as Kida model predicted financial failure of all insurance companies.

And another test used to examine the third hypothesis using the yearly percentage results:

Table No (4-8). Summary of Altman and Kida model yearly Prediction accuracy level

Year	Prediction accuracy level - Altman Model	Prediction accuracy level - KIDA Model
2018	47.8 %	17.4 %
2019	56.5 %	17.4 %
2020	65.0 %	5.0 %
2021	57.9 %	0.0 %
2022	57.9 %	0.0 %
Total	**56.7%**	**8.7%**

Looking at Table No (4-8), which displays the results of Altman and KIDA Model with the Actual Status of Financially Failed and Un-failed Jordanian Insurance Companies which shows higher percentage for Altman Model through years , as of **2018** the prediction accuracy for Altman was 47.8% and KIDA model 17.4% , as of **2019** Altman Model has success rate 56.5% while KIDA model rate 17.4%, as of **2020** Altman reached 65% while KIDA model was 5%, for the years **2021 and 2022** the percentage was the same, for Altman model prediction percentage 57.9% and KIDA model reached 0% , and the total for all inputs Altman Model prediction accuracy level was **56.7%** , and KIDA model **8.7%**

Chapter Five
Discussion of Study Findings and Recommendations

5.1 Introduction

In this chapter, the results of the study were reviewed and the results were discussed in light of what resulted from the process of descriptive statistical analysis of the data of Altman and Kida models, as well as testing the predictive ability of each model, and finally the results of testing the study hypotheses were discussed.

5.2 Discussing the results of the descriptive statistics and testing the predictive ability of Altman and Kida models

1. The results of the study showed that the number of companies that achieved Altman model was, in 2018, (11) companies, and in 2019, was effective to predict the financial position for (13) companies. In 2020, (13) companies. Likewise, in 2021, (11) companies predict financial position, and finally in 2022, Altman model predict financial position for (8) companies, from a total of (104) available financial statement with total accuracy percent **56.7 %.**

In this regard, Sumaira et al. (2019) demonstrated the accuracy of Altman model with 66.3% accuracy in predicting financial failure of companies, the study also found that the effectiveness of models in forecasting decreases during financial crises. Samkin (2012) found that Altman model could accurately predict financial position of New Zealand's financial companies 69.8 %, and the study recommended that companies calculate the probability of failure in their financial statements as part of the published annual reports, as this would increase users' confidence in the financial statements. For instance, Al-Farra (2017) used Altman and Springate models to examine the likelihood of financial failure prediction in Saudi cement companies listed in financial market, the results

demonstrated a convergence of the two models in predicting financial failure, with Altman model achieving an accuracy rate of 60% and Springate model of 70%. Additionally, Salina et al. (2023) found that Altman model can accurately forecast financial failure in Kazakh banks with accuracy rate of 44.05%. Numerous studies have found that Altman model is useful for predicting when a company will financially failed; for example, Deribie (2022) and Elewa (2022) both supported the use of Altman model to predict financial failure. Marwa (2021) found that Altman model was a good tool for predicting when a company will go financial failure. In addition to the study (Mallem and Tiar 2019), which concluded that Altman model had a significant predictive ability to detect financial failure.

The researcher believes that accuracy success rate is (56.7%) are deemed adequate, and can be used to predict financial failure in insurance companies.

2. The results of the study showed that the number of companies that achieved KIDA model was in 2018, (4) companies, and in 2019, was effective to predict the financial position for (4) companies. In 2020, (1) companies. Likewise, in 2021, (0) companies predict financial position, and finally in 2022, KIDA model predicts financial position for (0) companies, from a total of (104) available financial statement with total accuracy percent 8.7 %.

The result of this study agreed with the study (Abu Shehab, 2018), which concluded that Kida model tended to predict financial failure with low degree of confidence. The results of the current study differed from the study (Al-Sayed et al., 2023), which found that Kida model is adequate in predicting financial failure in Egyptian companies. Also, a study (Saida, 2021), which concluded that Kida model is considered effective for predicting financial failure in Algerian insurance sector, the study supports using KIDA

model to predict financial failure, also a study (ALHisnawy, 2017) which supports using KIDA model to predict financial failure along with other models.

The researcher believes that KIDA model accuracy rate is very low to depend on, as KIDA predict financial failure for all insurance companies, and this is due to high solvency margin in Jordanian insurance companies.

3. The results of the study showed that the total accuracy rate for Altman model to predict financial failure in Insurance companies listed in Amman stock exchange for the period (2018 – 2022) accuracy rate **56.7%,** and KIDA model accuracy rate **8.7%**

The researcher believes that the reason for differences in the decision area may be due to the inappropriateness of financial ratios derived from these two models and to the nature of financial statement of Jordanian insurance companies, which depend on current assets and current liabilities, to maintain a high rate of solvency margin which explains the inconsistency of the predictive ability of both models and leads to the importance of reconsidering some of the financial ratios that make up these two models so that they become more appropriate for Jordanian insurance companies and reflects their true reality position.

5.3 Discussing the Results of the Study Hypotheses

Based on results of the study hypotheses test, following discussion of outcomes:

5.3.1. First Hypothesis

The result of the current study agreed with many studies, including (Khanoof, and Daifallah, 2022), which found that Altman model could distinguish between the financial failed and Un-failed companies. Additionally, Marwa (2021) found that Altman Z-score model helped in determining financial position of companies and classify them into successful and failed companies.

This finding is in line with that of a study (Alqaisi, 2016) that found that Altman model can differentiate between failed and un-failed companies before three years of failure.

The researcher believes that this difference is due to different financial factors between failed and un-failed financial insurance companies, such as capital structure, financial management policies, and the company's ability to achieve profits and manage risks.

5.3.2. Second Hypothesis

In contrast to a previous study (Medjdoub, Houas, 2021) that found appropriate rating ratios for utilizing Kida model to forecast financial failure for Amman Stock Exchange-listed companies, the present study lends credence to the use of KIDA model for this purpose.

The researcher believes that the lack of differences may be due to factors related to the financial period of the study and the size of the study population, specifically the financially failed companies, which amounted to only four companies compared to 19 financially successful companies, and Kida model tended to predict financial failure.

5.3.3. Third Hypothesis

This result for third hypothesis that there is a difference between the ability of Altman and Kida model to predict financial failure, and it was similar to the findings of the study of (Naullage, Sudasinghe, 2023) which concluded that Altman model is more effective than Kida model in predicting financial failure in listed hotels companies in Sri-Lanka with accuracy rates 89.6% for Altman and 69.5% for KIDA, Also similar to the findings of a study (Alaa Aldeen , Abdurazaq, 2022) that Altman model has higher predictive ability with accuracy rate 55.56% , and Kida model accuracy rate 47.78%.

The researcher believes that due to the fact that Altman model *Z*", which was developed for both industrial and non-industrial companies, and insurance companies belong to financial companies' classification, which is may explain the difference between the two models which aligns with Altman model.

5.4 Conclusion and Recommendations

5.4.1 Conclusions

1- Based on results, Altman model *Z*" predicted financial failure in insurance companies listed in Amman Stock Exchange with accuracy rate **56.7%.**

2- Based on results, KIDA model predicted financial failure in insurance companies listed in Amman Stock Exchange with accuracy rate **8.7%.**

3- Altman model demonstrates higher predictive ability compared to Kida model, and there is a significant difference between the two models in terms of their ability to predict financial failure in insurance companies listed in Amman Stock Exchange.

5.4.2 Recommendations

- Encouraging investors, financial analysts, and auditors to use Altman model *Z*" to assess financial failure of Jordanian insurance companies and make appropriate investment decisions
- Financial analysts and investors should avoid utilizing Kida model to assess the financial failure of Jordanian insurance companies. As a result of Kida model has a tendency to anticipate financial failure for all insurance companies.
- It is essential to focus on establish financial failure prediction models that can adapt the changing environment of Jordanian insurance companies.
- The study suggests that researchers should evaluate other forecasting models for predicting financial failure in insurance companies, particularly in the present challenges facing the insurance industry.
- The study recommends to evaluate Altman and KIDA model for Jordanian Insurance companies after the adoption of IFRS 17, to evaluate differences.

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