USING KIDA MODEL IN PREDICTING FINANCIAL FAILURE IN EGYPTIAN FIRMS

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Abstract :

Understanding the financial failure of firms is a vital accounting research endeavour. Because of the critical importance of financial failure to managers' decision-making, investors, shareholders, and others, many studies examined several developed models for predicting financial failure using Linear multiple discriminant approaches (LMDA), logistic regression, artificial intelligence approaches and data mining techniques (neural network (NN), genetic algorithm (GA), expert systems (ESs), and support vector machines (SVMs). In Egypt, there doesn't seem to be much similar work. This study aims to close this knowledge gap, especially after many financial consequences, including financial failure, have been experienced by a number of Egyptian-listed firms in recent years despite government and professional initiatives to reduce financial failure in Egypt. The current study uses the Kida model for predicting financial failure in Egyptian firms. According to the findings, the Kida model is deemed adequate for predicting Egyptian firms' financial failure, which was negative for most study years/firms.

KEYWORDS: Kida model – Financial Failure – Bankruptcy – Firm performance- Egyptian firms..

JEL classification codes: Z02 ;Z21

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Introduction :

The global economic system has changed dramatically since the 2008 Global Financial Crisis. Negative effects of global economic growth, resulting in business closures.

Political events continued in the Middle East, significantly impacting the firm's financial and operational performance (Aboud & Diab, 2018; Akrout & Ben Othman, 2016; Malarvizhi & Matta, 2016).

In addressing financial failure, (Beaver, 1966) was one of the early researchers to use financial ratios to predict firms' financial failure. (Altman, Edward, Haldeman, & Narayanan, 1977, Dimitras, Zanakis, & Zopounidis, 1996, Lacher, Pamela, Sharma, & Fant, 1995, Leonard, 1993), Vapnik, 1995) presented different approaches to financial failure prediction models, including linear multiple discriminant approaches (LMDA), logistic regression, and artificial intelligence approaches and data mining techniques (neural network (NN), genetic algorithm (GA), expert systems (ESs), and support vector machines (SVMs).

The researchers used a variety of research designs (Altman & Narayanan, 1997; Baldwin et al., 1997; Gaskill et al., 1993; Hall, 1992, Zambrano et el., 2021) to discover a variety of factors that contributed to the firm's failure and explores the reasons for the firms' financial failure.

1.1 Reasons for the firm's failure

Financial failure is caused by a variety of reasons, some of which may be present in companies or may be coupled at the same time (e.g., Arditi et al., 2000; Baldwin et al., 1997; Blazy & Chopard, 2012; Gestel et al., 2006, and Laitinen and Lukason, 2014). These reasons include the following:

- ❖ **Administrative reasons:** These are the common denominator in most dysfunctional institutions. Thus, Management is unable to give adequate assistance to staff, even if they are well-qualified and have exceptional abilities.
- ❖ **Financial reasons:** this is necessary for a variety of reasons. It is due to a variety of factors, including failure to meet due commitments on time and the buildup of debt. Expansion of the activity in contravention of the feasibility study's recommendations, which necessitates unplanned spending and imposes financial obligations due to a lack of control over the exploitation cycle's financing due to a lack of working capital. On the subject of the blind.
- ❖ **Technical reasons**: the use of ineffective technological tools, combined with the use of low-quality raw materials, results in the appearance of low-

quality goods, affecting sales, bad investment planning, and errors in economic feasibility studies.

1.2 Indications of the possibility of firms' failure :

(Cochran, 1981, Nurcan and Deniz, 2021, Lukason and Hoffman, 2015, Tong and Serrasqueiro, 2021) Indicate that there are many factors that may refer to the firm's bankruptcy and failure, including;

❖ Successive periods of decreased profitability and deterioration.
❖ The facility's financial structure is unbalanced.
❖ There is a lack of competition.
❖ A lack of control over working capital resulted in a steady increase in debt volume and rescheduling.
❖ An inefficient financial and administrative management of the establishment's activities, as well as an ineffective organizational structure.
❖ Failure of the facility to identify profitable activities, as well as delays in paying suppliers' dues.
❖ The inaccuracy of the accounting policies used necessitates significant reserves to cover potential losses.
❖ Delay in preparing final accounts and inadequate disclosure affect understanding of the facility's true state.

1.2 Financial failure models

Since (Beaver, 1966), several studies have developed and introduced financial failure models. Table (1) shows the most used and common financial failure prediction models;

Table (01) Most used and common financial failure prediction models

N	Model Name	Year	N	Model Name	Year
1	Beaver	1966	12	Moyer	1977
2	Altman,	1968	13	Taffler And Tishow	1977
3	Meyer and Pifer	1970	14	Ohlson	1980
4	Wilcox	1971	15	Kida	1981
5	Lev	1971	16	Veazey	1981
6	Deakin	1972	17	Taffler	1982
7	Altman and Mcgrough	1974	18	Booth	1983
8	Blum	1974	19	Fuimer	1984
9	Libby	1975	20	Zmijewski	1984
10	Sinkey	1975	21	Campisi	1985
11	Argenti	1976	22	Sherrod	1987

*Source: prepared by the authors; references for all models are available at the end of the paper.

1.3 Research Problem

The study's concern is the gravity of financial failure and its economic impact in Egypt. The research problem is to answer the following questions:

❖ What are the key factors for predicting financial failure using financial statements in Egyptian firms?
❖ Can we predict the financial failure of Egyptian firms by using the Kida model?

1.4 Research Aims

The current study aims to explore the financial failure in Egypt. The study investigates the ability of the Kida model to predict financial failure in the selected Egyptian firm sample.

1.5 Research objectives

The study objectives are to examine the validity of the Kida model in predicting financial Failure in Egyptian firms. This main objective is divided into the following sub-objectives:

- ❖ Explore the factors of financial failure in Egyptian firms.
- ❖ Testing the Kida model to predict financial failure in Egypt.
- ❖ Testing the validity of the Kida model for predicting financial failure in Egypt.

The current study will be formulated as follows; Literature review and hypotheses development, research importance, research methodology, discussion, limitations, recommendation, future research, and summary and conclusions.

I. Literature Review and hypotheses development

(Mohammed and Al Sunaidi, 2021) the study highlights financial failure prediction models and their applicability to 14 industrial companies listed on the Iraqi Stock Exchange from 2015 to 2019. Using three models to predict financial failure (Altman, Kida and Sherrod) to discover or predict financial failure. The study found agreement between the Altman & Kida models to a large extent, as they are concurrent and reliable results in the activity analysis to improve the company's performance in the future. In contrast, the results proved the incompatibility between Sherrod's model and the rest of the other models.

(Saida, 2021) aims to investigate the effectiveness of the Kida model for predicting financial failure in Algerian insurance companies using a sample of four Algerian insurance companies, for the period 2014-2019. The most important results of the study are the Kida model is considered adequate for predicting financial failure in Algerian insurance companies, as its results were positive during most of the study years.

(Alifiah et al., 2013) Using Logit Analysis based on the (Doumpos & Zopounidis, 1999) test, the study attempts to predict financial distress companies in Malaysia's trading and services sector. The study found that the debt ratio is the main ratio to predict financial distress in companies in Malaysia's trading and services sector. And the total assets turnover ratio, working capital ratio, net income to total assets ratio, and base lending rate follow in predicting financial distress.

(Alkhatib and Al Bzour, 2011) Using the Altman and Kida models in the Jordanian listed firms examines the ability of financial ratios models in bankruptcy prediction. Their study includes a sample of non-financial services and industries from 1990 to 2006. The study tests16 bankrupted firms from 1990 to 2006 and compares them with 16 successful firms preceding the incident liquidation. They reach the Kida and Altman models to recognize the model that gives an early warning the financial failure. Their findings show that of the two models, Altman's model of the five years has an advantage with a 93.8% average predictive ability in firm failure prediction before the liquidation incident, while the average for Kida's model is 69%. They also

mention that Jordanian firms should use one of the tested models in predicting corporate bankruptcy.

(Radhi and Sarea, 2018) using a sample of 122 listed industrial companies from 2014 to 2016. They aim to compare the statistical power of failure prediction models: Altman model 1968, Kida model, and Zmijewski 1984. The findings indicate that the Zmijewski model is more powerful in predicting the financial performance of Saudi-listed firms than Altman's (1986) and Kida's (1981) models.

(Alhamdi et al., 2019) Using (Rashid & Abbas Model, 2011), examine the failure of 38 Iraqi construction firms. They compare the Rashid and Abbas Model (2011) & Kida Model (1980) by testing a Wilcoxon test for 2012-2015. The study results show that the Kida Model accurately predicts failure in Iraqi construction firms.

(AlAli, 2018) aims to examine the listed mobile telecommunication sector in the Kuwait stock exchange (KSE) financial soundness. The study uses one of the most common models, the Altman Z-score model, to examine bankruptcy and financial soundness during the period from 2013 to 2016. The results show that only one of the samples has a healthy financial position, while the other two firms are facing financial distress. Also, the study finds that due to their negative working capital, Kuwaiti mobile telecommunication firms are facing the risk of bankruptcy, and Kuwaiti firms should= work to reduce the gap between their current assets and current liabilities.

(Manaseer and Al-Oshaibat, 2018) Reveal that the Z-Score model is a valuable instrumental indicator for many Amman Stock Exchange users (ASE) users. They mentioned that financial managers, auditors, lenders, and investors make the right decisions in the face of financial failure. By investigating the Altman z-score model in insurance firms listed on Amman Stock Exchange (ASE) from 2011-2016, they found a high predictive power for the Z-score model to predict financial failure in sample firms.

From the literature review, different and essential studies have examined the Kida model in predicting firms' financial failure. Either focus on comparing the Kida model with other models or analyze the accuracy of the Kida model to predict real failure cases. Furthermore, other studies tested the Kida model in insurance firms as it is a significant factor in the stability of financial systems, mainly as it presents the links between insurers and banks and safeguards the financial stability of firms' risks. Moreover, other studies have tested the model's accuracy for a specific sector or group of industries.

Based on this, the current study examines the Kida model to predict financial failure in Egyptian firms using the following hypothesis:

H_0:The Kida model cannot accurately differentiate and assist in determining the financial state of the company.

H_1:The Kida model can accurately differentiate and assist in determining the financial state of the company.

II. Research Importance

The current study provides evidence of the ability of the Kida model to predict the financial failure of Egyptian companies, coinciding with the increasing interest of the Egyptian government towards governance and transparency, achieving knowledge-based economic growth, achieving financial inclusion, and integrating the environmental and social dimension into economic development.

III.   Research Methodology

This study follows a quantitative approach and constructs an empirical model to investigate the evident impacts of the Kida model on predicting financial failure for Egyptian firms. The study methodology will be covered through the research design, Data sample and description, Research Model, statistical analysis, and empirical results.

4.1 Research design

The current study follows the (Given, 2008) approach as a quantitative method for testing the Kida model in Egypt. (Mohammed & Al Sunaidi, 2021; Saida, 2021; Alifiah et al., 2013; Alkhatib & Al Bzour, 2011; Radhi & Sarea, 2018; Alhamdi et al., 2019; AlAli, 2018, and Manaseer and Al-Oshaibat, 2018) address and examines the Kida model in predicting the financial failure and shows that Kida model positively engages in predicting financial failure in their studies. The current study examines the ability of the Kida model to predict the financial failure of Egyptian firms. The study analysis utilizes descriptive statistics, and analysis of variance -Way ANOVA -was used.

The following sections discuss the data sample and description, research model, statistical analysis, and empirical results to show whether the hypotheses are supported.

4.2 Data sample and description

The study data span a 3- and 5-year period between 2017 to 2021. The sample includes nine distressed Egyptian firms. The study data are collected from:

1- Egyptian Stock market.
2- Egyptian Financial Supervisory Authority.
3- Mubasher Egypt website.
4- Egypt for Information Dissemination – EGID.
5- Firms web sites.

The Kida model has been applied in nine Egyptian firms represented as follows in Table (2):

Table (02) Sample companies

N	Company	Code
1	**South Valley Cement Company**	**SVCE**
2	**Iron and Steel Company**	**IRON**
3	**National Cement Company**	**NCEM**
4	**Ascom Geology & Mining**	**ASCM**
5	**Canadian Gulf Arab Real Estate Investment**	**CCRS**
6	**Eastern National Food Security**	**SNFC**
7	**Rakta for Paper**	**RAKT**
8	**Sheeni - The General Co. For Ceramic & Porcelain Products**	**PRCL**
9	**Genial Tours**	**GETO**

4.3 Research Model

The study aimed to determine the predictability of the financial failure of Egyptian firms by constructing a prediction model, the Kida model, based on the method of discriminatory analysis step-by-step based on five financial ratios and a sample of 9 companies, of which are distressed and other non-defaulted. The time spanned from 2017 to 2021.

The current study examines the Kida model in predicting financial failure in Egypt. The Kida model has been applied to the firms under study. The financial ratios that make up the model were calculated, and the value of the z index was extracted to predict their future financial success or failure. The current study adopts the quantitative research approach, emphasizing quantification in collecting and analyzing data. Based on the above, the current study hypothesis includes the following:

H_0: The Kida model cannot accurately differentiate and assist in determining the financial state of the company.

H_1: The Kida model can accurately differentiate and assist in determining the financial state of the company.

Kida's model relied on five separate financial indicators to predict financial failure. The discriminate function developed by Kida is as follows:

$$Z= 1.042X1+0.42X2+0.461X3+0.463X4+0.271X5$$

Where :

Z: Z-Cumulative score value

X_1 : ROA measured as Net income /total assets .

X_2 : Debt-to-equity measured as Shareholders' equity /total debts .

X_3 :Current Ratio measured as Current assets / current liabilities .

X_4 : Asset turnover ratios measured as Sales (revenue)/total assets .

X_5 : Cash to total assets measured as Cash /Total assets .

A negative Z-score implies a problem firm, where as a positive Z-score implies a safe or non–problem firm.

1. **For SVCE company:**
Table (03) SVCE Kida Z-score

Years	2019	2020	2021
X1	-.072	-.052	-.054
X2	.60	.55	.47
X3	1.12	1.29	1.48
X4	.10	.08	.068
X5	.011	.013	.024
Z	1.77	1.89	2.00
Result	Safe firm		

Through Table (3), the value of Z was positive for all years (2019 to 2021), this is confirmed by the value of Z during the years 2019, 2020, and 2021 which was positive, and this is what predicts its success in the coming years.

2. For IRON company

Table (04) IRON Kida Z score

Years	2018	2019	2020
X1	-.20	-.44	-.34
X2	-.86	-1.4	-2.03
X3	.38	.29	.21
X4	.41	.34	.32
X5	.098	.081	.097
Z	-.368	-1.29	-1.93
Result		Problem firm	

The results are shown in Table (4), which were all Negative for all years (2018 to 2020), which is confirmed by the value of Z during the years 2018 to 2020, which was negative, and this predicts the occurrence of financial failure in the company and the liquidation of the company. And indeed, The Iron and Steel Company was liquidated after 67 years due to increased losses.

3. For NCEM company

Table (05) NCEM Kida Z score

Years	2016	2017
X1	-.10	-.00
X2	.20	-.11
X3	.49	.45
X4	.28	.000
X5	.043	.076
Z	.827	.264
Result		Safe firm

Table (5) results show that calculating the value of Z based on the financial ratios that compose the model is positive for all years (2016 and 2017). Therefore, the company is safe and not subject to financial failure in the future.

4. For ASCOM company

Table (06) ASCOM Kida Z score

Years	2018	2019	2020	2021
X1	-5.4	-6.3	-2.5	-4.6
X2	2.3	3.5	4.2	2.9
X3	-4.5	-3.2	-2.1	3.1
X4	.12	.24	-1.1	-2.1
X5	-6.2	-4.3	-5.2	-3.2
Z	-1.28	-1.46	3.7	2.5
Result		Non problem firm for years 2020 and 2021		

Table (5) results show that calculating the value of Z based on the financial ratios that compose the model is positive for all years (2018 to 2021). Therefore, the company is safe and not subject to financial failure in the future. The company had decided to continue the activity despite the realized losses that exceeded half of the

capital, according to the financial statements for the year ending in December 2021, despite achieving profits amounting to 11.58 million pounds during the period from January to the end of last March, compared to losses amounting to 30.06 million pounds in the comparative quarter. In 2021, the company's activity revenues rose the period to 286.36 million pounds, compared to 230.41 million pounds in the comparative quarter of 2021, which is considered a ray of hope for the company.

5. For CCRS company

Table (07) CCRS Kida Z score

Years	2017	2018	2019	2020	2021
X1	-12.5	-10.2	-13.5	-14.6	-15.22
X2	-10.5	-6.5	-14.3	-16.2	-19.37
X3	-3.2	-5.6	-4.3	-2.5	-7.4
X4	-4.1	-5.6	-3.6	-3.4	-3.2
X5	-2.5	-7.4	-5.4	-6.2	-3.6
Z	-27.8	-20.5	-30.3	-30.5	-41.59
Result		Problem firm			

Table (7) results show that calculating the value of Z based on the financial ratios that compose the model is negative for all years (2017 to 2021) .Therefore, the company is not safe and is subject to financial failure in the future. However, the CCRS revealed that for the first half of 2022, its losses decreased by 87% annually. The company achieved results amounting to 216,277 thousand pounds from January to June 2022; In comparison, losses amounted to 1.66 million pounds from 2021. The company achieved 2 million Egyptian pounds in sales and assumptions for the period. The Canadian Gulf Real Estate Investment Company achieved profits of 77.57 thousand pounds from January to March 2022; In comparison, losses amounted to 1.31 million pounds in 2021.

6. For SNFC company

Table (08) SNFC Kida Z score

Years	2018	2019	2020	2021
X1	-.02	-1.2	.09	1.28
X2	-1.2	-2.3	-1.02	1.37
X3	-3.2	-2.5	-1.2	-5.5
X4	-5.2	-7.1	-5.1	-7.3
X5	-4.2	-1.3	-5.4	-2.2
Z	-5.42	-11.8	-1.83	-7.95
Result		Problem firm		

Table (8) results show that calculating the value of Z based on the financial ratios that compose the model is negative for all years (2018 to 2021). Therefore, the company is not safe and is subject to financial failure in the future. Early this year, in August 2022, SNFC announced that it sold 222.41 thousand treasury shares, bringing the balance of the company's treasury shares to "zero." However, the company recorded a net profit of 125.48 thousand pounds from the beginning of January until the end of June, compared to losses of 11.21 million pounds during the same period

last year. Also, the company's net sales increased during the six months, recording 10.11 million pounds at the end of June, compared to 5.96 million pounds during the same period last year.

7. For RAKT company

Table (09) RAKT Kida Z score

Years	2018	2019	2020	2021
X1	-4.5	-0.9	-3.1	-6.2
X2	-30.1	-24.2	-22.5	-37.5
X3	-3.2	-5.2	-8.9	-5.7
X4	-4.3	-5.6	-6.3	-8.4
X5	-2.1	-1.2	-1.5	-3.2
Z	-40	-34.7	-39.3	-54.6
Result	Problem firm			

Table (9) results show that calculating the value of Z based on the financial ratios that compose the model is negative for all years (2018 to 2021). Therefore, the company is not safe and subject to future financial failure.

8. For PRCL company

Table (10) PRCL Kida Z score

Years	2017	2018	2019	2020	2021
X1	-13.2	-16.2	-14.2	-15.3	-35.2
X2	-4.3	-3.2	-5.6	-5.5	-3.2
X3	-2.4	-5.2	-7.5	-6.8	-9.7
X4	-9.8	-7.4	-8.2	-9.6	-10.2
X5	-.021	-.22	-.12	-1.2	.12
Z	-29.679	-31.78	-35.38	-36	-58.42
Result		Problem firm			

Table (10) results show that calculating the value of Z based on the financial ratios for RAKT that compose the model is negative for all years (2018 to 2021) with a high Z-score for each year. Therefore, the company is not safe and is subject to financial failure in the future. The company's financial indicators for the last fiscal year, 2021-2022, showed an increase in its losses by 11%, and it is worth noting that it recorded losses of 68.97 million pounds during the period from July to the end of June 2022, compared to losses of 62.3 million pounds in the comparable period of the last fiscal year. The company's revenues also declined during the last fiscal year to 198.75 million pounds, compared to 217.84 million pounds during the previous fiscal year.

9. For GETO company

Table (11) GETO Kida Z score

Years	2017	2018	2019	2020	2021
X1	-5.6	-8.9	-9.4	-8.7	-7.4
X2	-5.6	-4.5	-2.3	-3.5	-6.8
X3	-2.3	-3.6	-4.5	-8.2	-2.3
X4	1.2	.02	-1.2	-1.4	.4
X5	-10.1	-8.4	-9.2	-7.5	-12.1
Z	-2.2	-8.58	-8.2	-14.3	-4
Result		Problem firm			

Table (11) results show that calculating the value of Z based on the financial ratios for GETO that compose the model is negative for all years (2017 to 2021), with a high Z-score for each year. Therefore, the company is not safe and is subject to financial failure in the future. It is worth noting that the Egyptian Stock Exchange suspended trading on the shares of GETO in June 2022 due to the company's failure to submit the financial statements for the fiscal year ending on December 31, 2020. The company announced that it faced a net loss of 431.48 thousand pounds during the period from January to September 2020, compared to a net profit of 95.23 thousand pounds during the same period in 2019. The lists showed that no revenues and sales were achieved during the nine months, compared to 5.31 million pounds in revenues during the same period. The comparative period of 2019.

4.4 Statistical Analysis and Empirical Results

4.4.1 Statistical Descriptive

Descriptive statistics provide simple summaries of the sample and the observations that have been made; it is used to describe the initial characteristics of the data and to provide background information on the data used in the study (Gujarati, 2003). Table (12) reveal the descriptive statistics for all the Z-score values, X1, X2, X3, X4, and X5.

Table (12): Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
X1	-35.200	1.280	-6.70651	7.520166
X2	-37.50	4.20	-6.2429	9.86926
X3	-9.70	3.10	-3.1969	3.21443
X4	-10.200	1.200	-3.33206	3.583486
X5	-12.100	0.120	-3.23994	3.436263

4.4.2 Empirical results

This hypothesis aims to compare the Z values calculated according to the Kida Model. Between independent groups, which are the observations of companies referred to liquidation, for this analysis of variance was used. One-way ANOVA results are in the following table:

Table (13) ANOVA Analysis results

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Z	**Between Groups**	0.214	34	0.013		
	Within Groups	0.001	0	2.71	4.31	0.003
	Total	0.147	34			

The Table shows that there are no significant differences in the (Z) values calculated according to the Kida model among the firms, where the calculated (F) values were statistically significant (4.31) and at the significance level of Sig = 0.003, which is less than 0.005 P-value.

4.4.3 Hypothesis results

Based on the previous point, Table (13) shows the hypotheses results as follow:

Table (13) Hypotheses results

Research Hypotheses	sig
H_0: **The Kida model cannot accurately differentiate and .assist in determining the financial state of the company**	**Rejected**
H_1: *The Kida model can accurately differentiate and assist .in determining the financial state of the company*	**Accepted**

5. <u>Discussion</u>

This study aims to investigate the Kida model for predicting financial failure in Egyptian companies. All study samples examined a sample of nine distressed firms based on actual data from the financial statements for the period between 2016-2021. Indeed, as initially predicted by (Mohammed & Al Sunaidi, 2021; Saida, 2021; Alifiah et al., 2013; Alkhatib and Al Bzour, 2011 Radhi and Sarea, 2018; Alhamdi et al., 2019; AlAli, 2018; Manaseer & Al-Oshaibat, 2018) the current study found that the Kida model is considered adequate for predicting financial failure in Egyptian firms. The current study hypothesis was accepted during most of the sample years. The SVCE and NCEM in all years were positive, indicating that the company is safe and does not have financial failure.

Furthermore, the results of the IRON company were negative in the three years (2018, 2019, and 2020), indicating the company's financial failure, which is supported by the fact that the company has already been liquidated.

Furthermore, the results of the ASCOM company were negative for years (2018 and 2019) and positive for years (2020 and 2021). These results are considered a sign of hope for financial health after the company revealed in July 2022 that it achieved profits amounting to 11.58 million pounds from January to the end of last March, compared to losses amounting to 30.06 million pounds in the comparative quarter of 2021. The company also announced in August 2022 that it is in final negotiations to sign a contract Supplying a new production line to manufacture glass drainage pipes. The results of (CCRS, SNFC, RAKT, PRCL, and GETO) were negative in all tested years, which significantly supports the KEDA model test results to predict the same financial failure of the same companies, as those companies have already stumbled in the mentioned years.

The Kida model can be used to categorize businesses as liquidators or non-liquidators. Companies should be more open and transparent when releasing published financial statements, as some departments may conceal facts or intentionally mislead investors to further their interests.

6. Limitations

This study provided knowledge in accounting research and to Egyptian firms, but there are some limitations; the study examined only nine Egyptian firms' annual reports from 2017 to December 2021. The study sample was restricted to data obtained from the Financial Supervisory Authority. Also, some data is provided from other resources. Also, the study only examined the Kida model for predicting financial failure due to the availability of application data and testing it on the financial statements of Egyptian forms. On another side, the study did not examine the reasons for the prevalence of financial failure.

7. Recommendation and future research

Several recommendations can be presented for future research based on the study results and its related discussion, including:

1. Using a large sample with a different time for replications of the current study is needed to validate the current study results.
2. Future research may broaden the financial failure by testing bankruptcy and other financial failure types.
3. Addressing longitudinal changes investigation is also needed for more validation.
4. Future research may examine similar data in other countries to verify the study results.
5. Using a more complex model and different research methods (e.g., questionnaire) would permit a look into the specifics of failure causes and, therefore, facilitate finding out more elaborate and interesting connections between firm failure and its causes.
6. Future research for examining the prevalence of financial failure causes in Egypt is needed.
7. Future research at the population level that relies on deterministic theories – population ecology is also needed in Egypt.

8. Summary and Conclusions

Following the studies on the prediction of bankruptcy and financial distress field, this study aims to investigate the validity of the Kida model to predict financial failure by analyzing the financial information of distressed Egyptian listed firms over the period 2016-2021. The result of the study finds a high predictive power for the Kida model. An empirical analysis of nine distressed Egyptian firms supports many model predictions, including financial failure and a significant lack of liquidity.

Moreover, the findings reveal that the Kida model could be a valuable indicator for predicting financial failure in Egypt and for many financial statement users such as managers, auditors, creditors, and investors .

This paper contributes to the mainstream research on financial failure predictions.

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