Qualis A3 ISSN: 2178-2008

ARTIGO

Listas de conteúdos disponíveis em DOAJ

Revista Processus de Estudos de Gestão, Jurídicos e Financeiros

REVISTA PROCESSSUS

DE POLÍTICAS PÚBLICAS E DESENVOLVIMENTO SOCIAL

Is negligence the tools of financial failure a role in the bankruptcy of companies?

A negligência é uma ferramenta do fracasso financeiro que desempenha um papel na falência das empresas?

Recebido: 28/03/2022 | Aceito: 09/06/2022 | Publicado *on-line*: 20/06/2022

Soufyane Bouali
https://orcid.org/0000-0002-2621-8329
Faculty of Economics, Commerce & Management Sciences, Sétif 1 University, Algeria
E-mail: soufiane.bouali@univ-setif.dz

Abstract:
Corporate financial analysis tools is an important determinant of corporate performance. Poor corporate financial analysis tools accessories truly ill-treat the interests of shareholders, and may lead to business collapse. This paper expands the literature the effectiveness of aspects of corporate financial analysis tools for predicting financial distress in a dynamic analysis model. The inherent aim financial analysis tools is to provide a basis for economic decision-making, and any decision requires information acquisition, processing and data analysis as well as logical and correct interpretation of information. It is a comprehensive, up-to-date and thorough study, Furthermore the paper addresses Developing models for predicting financial crisis and comparing the capabilities of existing models can help to alert management about ongoing activities about economic decision for purchase shares or granting loan facilities. The results suggest that although corporate financial analysis tools alone is not sufficient to accurately predict financial distress, it can add to the predictive power of financial ratios and macroeconomic factors; So, the purpose of this study is the predict Financial failure of One of the listed companies on the Algerian Stock Exchange using Financial analysis tools.

Keywords: Financial Failure. Kida & Sherrod Model. predict financial distress.

Resumo:
Ferramentas de análise financeira corporativa são um determinante importante do desempenho corporativo. Ferramentas inadequadas de análise financeira corporativa podem realmente prejudicar os interesses dos acionistas e podem levar ao colapso do negócio. Este artigo expande a literatura sobre a eficácia dos aspectos das ferramentas de análise financeira corporativa para prever dificuldades financeiras em um modelo de análise dinâmica. O objetivo inerente das ferramentas de análise financeira é fornecer uma base para a tomada de decisões econômicas, e qualquer decisão requer aquisição de informações, processamento e análise de dados, bem como interpretação lógica e correta das informações. É um estudo abrangente, atualizado e minucioso. Além disso, o artigo aborda o desenvolvimento de modelos para prever crises financeiras e comparar as capacidades dos modelos existentes

pode ajudar a alertar a administração sobre atividades em andamento relacionadas à decisão econômica de compra de ações ou concessão de facilidades de empréstimo. Os resultados sugerem que, embora as ferramentas de análise financeira corporativa por si só não sejam suficientes para prever com precisão dificuldades financeiras, elas podem aumentar o poder preditivo das razões financeiras e dos fatores macroeconômicos; Portanto, o objetivo deste estudo é prever o fracasso financeiro de uma das empresas listadas na Bolsa de Valores da Argélia utilizando ferramentas de análise financeira.

Palavras-chave: *Fracasso Financeiro. Modelo Kida & Sherrod. Prever dificuldades financeiras.*

1. Introduction

Producer companies go through different stages of the business life cycle because of a variety of factors, both internal and external, that constrain their managers to assess their performance to adapt to the changes that occur (Basuki., Widyanti, R., & Rajiani, I, 2021). Most manufacturing companies use their financial performance to determine how long they will survive and whether they will go bankrupt later. This is the preoccupation of all corporate management to reach the ultimate goal of continuity (Acosta-González, E., Fernández-Rodríguez, F. & Ganga, H, 2019). Since the beginning of the 21st century, corporate failure has completely changed, leading to an increase in the number of companies experiencing financial difficulties and/orhaving to stop their activities altogether (Acosta-González, E., Fernández-Rodríguez, F, 2014).

The recent financial crisis revealedweak financial systems around the world and leading to massive instability, almostthe failure of some financial markets. Thus, the predictability of corporate failure remains an urgent need, especially to ensure the relationship between financial institutions and Corporate failures have also increased dramatically, emerging as a major disciplinecorporate finance research stream (Goedhuys, M., Mohnen, P. & Taha, T, 2016).

In order to achieve its goals effectively and efficiently, a company needs to measure and evaluate its results or, rather, its financial performance (Edward I. Altman, Małgorzata Iwanicz-Drozdowska, Erkki K. Laitinen, Arto Suvas, 2020). Thus, most analysts use global statistical models to forecast financial failure or their long-term financial situation. In this study, we will examine the power of these models to review the strong results that indicate whether they will continue in the future. This is by referring to one of the companies listed on the Algerian Stock Exchange, which according to one of its partners did not use these tools to determine their financial status (Fotios Pasiouras, Chrysovalantis Gaganis, 2007).

Through the study, we find that aspects of board composition, ownership structure, management compensation and personal characteristics can have an impact on company financial distress risks and can therefore be used to predict them (J. C. Neves, A. Vieira, 2006). But we're building it up using companies that governance measures alone don't lead to sufficiently accurate predictions (Andreas Charitou Professor, Evi Neophytou, Chris Charalambous, 2004). However, if they are backed by instruments of financial failure, models can generate already satisfactory predictions (Francesco Ciampi, Valentina Cillo, Fabio Fiano, 2020).

The study problem centers on the seriousness of financial failure and its negative effects on the economies of the emerging countries, due to their neglect of the most important aspects of accounting, and as a result of the inability of many emerging companies to remain in the market, and the continuation of the attempt to not increase these companies in order not to harm the Algerian economy, the study problem resorts to the Kida& Sherrod Model to reveal the possibility of companies failing,The importance of the study lies in drawing the attention of both current and future investors, departments, and stakeholders to reduce the financial losses that may take place as much as possible(Christian Lohman, Thorsten Ohliger, 2020).

In addition, it tests the effectiveness of Kida& Sherrod Model by predicting financial failure in one of the bankrupt companies that was listed on the Algerian Stock Exchange, and knowing the adequacy of the two models for the environment of the Algerian economy in general; The rest of the study is as follows. In section 2, we propose to define the relevant variables Section 3, Half of the statements and methodology and present the results and discussions in section 4 and 5 respectively.

2. Literature review

Predicting corporate bankruptcy has a long history, ever since (Edward I. Altman, 1968) introduced multiple discriminant analysis to this subject area and various subsequent methods to prevent potential losses for banks and detect financial crisis caused by financial risks (Anita Nandi, Partha Pratim Sengupta, Abhijit Dutta, 2019). Although financial ratios have played a major role in modelling, scholars such as Shumway (2001) and Bonfim (2009) Have continued looking for new methods and information to improve model performance.

In recent years, the market price has been (Anastasia N. Mogilat, 2019). Regarded as a forward-looking indicator and is frequently used to calculate financial risk (V. Agarwal, R, 2008). the New Basel Accord also established and addressed macroeconomic level factors on performing bank loan portfolios (Alistair Milne, 2014). Soft information related to corporate governance can also assess financial risk at the individual level (E.I. Altman, 1984). In 1988, P.Hutchinson, Meric used Principal Components Analysis (PCA) to recognize the monetary attributes of little firms like to accomplish citation on the UK unlisted securities market. In 1992, Laitinen endeavored to foster a model to failure of newly founded firms. He portrayed failure of newly founded firms in accompanying way: (1) high indebtedness and small size; (2) too slow velocity of capital, too fast growth and poor profitability; (3) unexpected lack of revenue financing, and (4) poor static liquidity and debt service ability. His examination showed that it was conceivable, somewhat, to expect disappointment of new organizations in the principal year after establishment (E.I. Altman, E. Hotchkiss, 2010).

He tracked down that the best-inferred indicators were the accompanying: stockholders' capital/total capital, cash flow/net sales and cash flow/total debt (Kokou Adalessossi, 2015). The classifications include liquidity proportions, influence proportions, movement proportions, and benefit proportions. (Courtis. J.K, 1978) reviewed a few investigations to recognize the factors helpful at anticipating disappointment I gathered The monetary proportions distinguished in three principal classes: profitability ratios, managerial performance ratios and solvency ratios; The above study recommends that monetary proportion examination is a helpful technique for foreseeing business execution. How the meaning of proportions has changed from one investigation to another has advanced the utilization of an assortment of techniques for risk of financial distress using in business disappointments. The various strategies have considered both inferred and multivariate investigation methods(E.I. Altman, M. Iwanicz-Drozdowska, E.K. Laitinen, A, 2017).

The classifications include liquidity proportions, influence proportions, movement proportions, and benefit proportions (E.L. Altman, 1968). Curtis reviewed a few investigations to recognize the factors helpful at anticipating risk of financial I gathered the monetary proportions distinguished in three principal classes: profitability ratios, managerial performance ratios and solvency ratios (Courtis. J.K, 1978) The above study recommends that monetary proportion examination is a helpful technique for foreseeing business execution (E.L. Altman, I. Edward, R. Haldeman, P, 1977).

How the meaning of proportions has changed from one investigation to another has advanced the utilization of an assortment of techniques for risk of financial distress using in business disappointments. The various strategies have considered both inferred and multivariate investigation methods (Lee, T.S., Yeh, Y.H, 2004). Another intriguing viewpoint that rises out of the utilization of proportion examination is the manner by which the proportions will be deciphered (Cielen, L. Peeters, K, 2004). As showed by study of Edmister there are a few manners by which proportions can be dissected to foresee independent venture risk of financial, which include: the ratio's level, the relative level of the borrower's ratio to the average ratio of other small business in the same industry (Edmister. R.O, 1972) before we can even consider overseeing financial risks we need to comprehend what chance really is so what do we mean by the word hazard we regularly we think about likelihood and chance well as disappointment and misfortune these terms standard can be describe as the impact of vulnerability on targets that is hazard is any deviation that may happen based on what was generally anticipated with regards to monetary danger (A.I. Dimitras, S.H. Zanakis, C, 1996).

We are thinking about whether changes in monetary related things sway the capacity of the association to accomplish its destinations it is imperative to note from this definition that the deviation based on what is generally anticipated can either have positive or contrary results in business and in life we normally consider hazard as just zeroing in on the antagonistic monetary effect and we attempt to limit the harm that can be caused that is we ordinarily consider monetary danger the executives an esteemed insurance practice anyway it is essential to think about every monetary danger and learn whether and how monetary effects can emerge any choices we make or exercises we embrace to make worth will draw in a specific measure of hazard there are consistently factors and vulnerability in our business tasks we hence need to consider monetary danger the board similar to an inborn piece of significant worth creation exercises from here we realize that hazard isn't something awful to run fruitful organizations we rarely have to kill chances anyway we do have to distinguish chances see what they may mean for our business and afterward deal with those risks so much that we can have the best possibility of accomplishing our business goals and the inquiry is the reason is hazard significant while a few of us know the connection among hazard and get back with a high danger individuals expect an exceptional yield since they need to get made up for the risks they have taken and for an okay we can comprehend that they will just request a low return so the inquiry ends up being what is hazard and how could it be estimated so we can more readily comprehend the connection among hazard and return now what is hazard in money hazard is unpredictability if we take the case of a securities exchange with share costs there are a few offers whose costs go here and there and sometimes arrive at limits well the higher the greatness of the contrast among up and downs the higher the instability the higher the danger yet then it's not just an issue of size it's likewise an issue of likelihood the inquiry is the likelihood to arrive at those limits accordingly hazard in account is an issue of size yet in addition of likelihood to represent those thoughts of size and probabilities; there are two issues in the danger's estimation the principal issue is attempting to recognize the right factual law surely for quite a long time specialists accepted that the offer costs followed a ringer formed bend that is this Gaussian model we have seen and we have based numerous models in monetary dynamic on that chime molded bend yet ongoing proof shows that offer costs don't adhere to precisely that measurable law and that it requires a more perplexing law to portrays all the more completely the conduct of those offer costs which implies that putting together our model with respect to this ringer molded bend could prompt wrong choices particularly at the limits in light of the fact that the probabilities are not all around estimated now the subsequent issue is that no factual defect even the fittest to the model can foresee definitely 100% of things to come occasions thusly we will consistently have a few focuses some offer costs outside the bend and in the new years that has been the issue of Finance one point that isn't by and large on the law may put down an entire model in view of the truth of our genuine principle which isn't a status stimulate law however mentioned of various observable facts and all in all danger is unpredictability and we attempt to quantify that instability by tracking down the best functional law that fits to the perceptions yet there's consistently a danger that a portion of the perceptions won't fit precisely the model consequently there is a danger an extra danger in that risk

3. Research methodology

3.1. Significance of the study:

Anticipating Financial failure is useful to various parties. The results of the current study can help management, shareholders and investors. Additionally, applying these models can be an effective early warning tool for predicting company's failure even before it occurs; Due to the nature of this study 3.2.Sample: ‘Special Treatment’ is imposed by Algerian Stock Exchange to give investors notice of potential risks. This therefore represents an official indicator of financial distress of listed companies. A listed company can be filed in Special Treatment for any of these reasons: - negative net profit in the most recent two consecutive years; - failure to disclose its annual report; - likelihood of being dissolved; -reorganisation, settlement or bankruptcy liquidation. In over 80% of our cases, the companies in Special Treatment suffered net losses in two consecutive years.

So, it is a popular indicator of financial distress (Zhiyong Li, et al, 2020) We chose this sample because it went through the previous stages, and here's a brief about it: NCA-Rouiba is a private company under Algerian law located on the National Road N ° 5, Industrial Zone of Rouiba, Algiers 16300. Its share capital is 849 195 000 DA, it was created in 1966 under the legal form of Society à Liability Limitée (SARL) under the name of "Nouvelles Conserveries Algériennes". It was transformed into a Joint Stock Company (SPA) in March 2003. The life of the company, initially limited to 50 years, was extended to 99 years by the Extraordinary General Meeting which met on 5 February 2006. (Hichem Sofiane Salaouatchi et al, 2019) Since its incorporation in 1966, the company has only carried out the following activities: • The production and distribution of drinks and fruit juices; • The production and distribution of canned vegetables and fruits and UHT milk (discontinued in 2005).

4.Data Analysis Method

We have relied entirely on publicly available data in the financial statements of the NCA ROUIBA issued by Algerian Stock Exchange from the ISE website namely : http://www.sgbv.dz/ar/ ; The company under consideration has stopped its activities in the Algerian Stock Exchange starting on March 22, 2020, and this is at the request of the board of directors of the company .This study carried out during the period from 2017 to 2019, because the explicit financial statements that helped us conduct this study at the stock exchange did not include other years In this study, we adopted two models to achieve its objectives, as shown below:

4.1. Kida Model:

This model is based on the five most independent variables of financial ratios, using a differentiated analysis of the sighting into compatible items to distinguish between failing and failing economics; focuses on five ratios that form the aspects of operational performance, which (Islam S et al, 2016):

X1= net income / total assets.
X2= total shareholders' equity / total debt.
X3= quick assets / current liabilities.
X4= sales (revenue) / total assets.
X5= cash / total assets.
Thus, the original formula is as following:

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

According to the ratio of this model, the probability of a financial failure for a company increases the negative value of Z, as this model has a forecast capacity of 90 percent a year before the financial failure.

4.2. Sherrod Model:

The Sherwood model is a modern model for forecasting financial failure, and relies on six independent financial indicators, in addition to the relative weight of the differential function given to these variables, and the model is therefore formulated:

Z = 17X1 + 9X2 + 3.5X3 + 20X4 + 1.2X5 + 0.10X6

Where:
X1 = Working capital / total assets.
X2 = cash assets / total assets.
X3 = total shareholders' equity / total assets.
X4 = earnings before interest and taxes / total assets.
X5 = total assets / total liabilities.
X6 = total shareholders' equity / tangible fixed assets
Sherrod Z-Score determines how likely a company is to fail. In general, the lower the score, the higher the chance of bankruptcy; Based on the number of points (Z) (Abu Orabi, M.M, 2014), companies are classified into five categories by their viability:

Table 1: Categories according to the degree of risk and to measure the ability to continue

Category	Risk dégrée	Z score
1st	Company is not exposed to the risk of bankruptcy	Z > 25
2nd	Little likelihood of exposure to the risk of bankruptcy	25 ≥ Z > 20
3rd	Difficult to predict the risk of bankruptcy	20 ≥ Z > 5
4th	The Company is exposed significantly to the risk of bankruptcy	5 ≥ Z > –5
5th	The Company is exposed to the risk of bankruptcy	Z≤ – 5

To its beginings in the 1960's, many different techniques have been applied to predict undertaking failure. The business failure prediction has been arguably started earlier but the foremost modern statistical model for business failure prediction was published before that (Adrian Gepp and Kuldeep Kumar, 2010) Nonetheless, a few studies have uncovered that these models had the option to anticipate event of monetary disappointment in a huge percent by and large. In this paper the Multivariate Discriminant Approach (MDA) is been surveyed and referred to utilizing Kida's Z-score model and Sherrod's Z-score model. Just as the accompanying models are ones of the most present-day models in predicting financial failure (Thomas Arkan, 2015)

5. EMPIRICAL FINDINGS

In this regard, we will be applying a model Sherrod and model kida that were addressed on the previous side during the course of the study, building on information from corporate documents

5.1. Discriminant Analysis (Z- Scores of Sherrod)

The result shows in table 2 the different ratios of financial performance in RCA Company, were then extracted from the annual reports of RCA, for the period2017 - 2019.

Table 2: Financial Statements and Z Scores Results of Sherrod

Xi / **Y**	**2017**	**2018**	**2019**	**SMA**
X_1	0.18	0.23	0.69	0.36
X_2	0.014	0.024	0.20	0.07
X_3	0.15	0.25	0.06	0.11
X_4	0.09	0.03	0.40	0.25
X_5	1	1	1	1
X_6	0.25	0.38	0.08	0.18
Z score bankruptcy model = 17X1 + 9X2 + 3,5X3 + 20X4 + 1,2X5 +0,10X6				
Z'Score of Sherrod	-2.984	-2.181	-16.94	-6.47

Source: Authors

This model is used to assess credit risk when granting bank loans in addition to its role in predicting financial failure of institutions. Note that the average Z value is -6.47 during the school years. Based on this model, the NCA RUIBA is in the fifth tier and is highly vulnerable to failure. This means that the organization relies on external funding through high-risk loans, which is due to a rise in non-current liabilities, especially long

and medium term ones, so it should take the necessary measures to improve its position to avoid any future situation.

5.2. Discriminant Analysis (Z- Scores of KIDA)

Stated that the KIDA model shows that NCA Company had potential serious financial problems. So, in this way we should to use this kind of predictive models in order todetect the real financial situation in the future, and take a best possible of decisions.

Table 3: Financial Statements and Z Scores Results of kida

X i y	2017	2018	2019	SMA
X_1	0.09	0.03	0.40	0.25
X_2	0.15	0.25	0.06	0.11
X_3	0.02	0.04	0.22	0.09
X_4	0.65	0.58	0.45	0.56
X_5	0.014	0.024	0.20	0.07
Z score bankruptcy model =1,042X1 + 0,42X2 + 0,461X3 + 0,463X4 + 0,271X5				
Z'Score of kida	0.283	0.367	-0.07	0.19

Source: Authors

According to the results of the Kida model for predicting financial failure, it is clear that NCA ROUIBA enjoys a good financial position, given that the average value of Z for the institution during the years of study was positive, as the value of Z in 2017 was estimated at 0.283, to rise in 2018 and become 0.367, after which it starts decreasing in 2019 and becomes -0.07. The results of the average evaluation are positive, and therefore the institution is not prone to failure according to the kida model.

Through the foregoing, it is possible to confirm the validity of the hypothesis that ,financial ratios and forecasting models are able to assess the financial position of the institution and that the institution uses a set of ratios to analyze its lists, but these ratios are not sufficient, so it is necessary to use a set of models to ensure and give a clear picture.

5.2. Financial Ratio Analysis

NCA RUIBA, a juice production company, left the stock exchange due to the many financial problems the company has recently suffered. This step is considered a new blow to Algerian Stock Exchange, which remains in suspension due to the lack of real activity.

An electronic newspaper revealed that many financial problems it faces have imposed on it a new type of financing, through pleading for foreign partnership and working on giving up a large part of its shares to French company specializing in beverages "CASTAL". The threat of bankruptcy prompted the company in under study. to give up more than half of its shares in favor of the BIH Brasseries Internationals Holding, the group that owns the French company CASTAL. On this basis, the board of directors of the company that was established in 1966 referred to the signing of an agreement with the French company in this regard, thus starting a new phase in the direction that Algerian company has been following since its inception. In the past years, the company chose to head to Algerian Stock Exchange and offer its shares to citizens who believe in the directions that company is pursuing in its economic activity.

According to the same sources, the French group will contribute, in a first stage, to 945 million dinars, within the framework of an emergency financing program, according to the agreement and the program established on December 30, 2019, in order to raise the capital of ‚NCA‛ company by rupees, a situation that enables the French group to acquire control over the majority of shares, and control oversight and management of the board of directors accordingly, and accordingly, the legal framework and organization of the company under study will change, through the appointment of two administrators representing the French assembly, in addition to the appointment of one of its former directors, who is currently holding the position of director in the BIH complex as general manager for the company.

Shareholders, who represent 44.04% of the shares, are entitled to vote and take a position on the company's reorganization. The agreement will also be concluded by pouring a financial envelope from the French company into the NCA ruiba account in order to raise its capital. The BIH seeks to purchase the contribution of Africa Invest, which represents 14.81% of the capital of ruiba, whose total capital is estimated at 849 195 000 dinars, which has been present in the stock market since 2003.

6.Conclusion

The issue of financial failure has aroused the interest of many researchers because of its serious consequences for the life of the institution, and we have highlighted it through our study of the topic ,The Contributions of Financial Analysis Tools to Predicting Financial Failure' and it was clear to us that financial analysis is the cornerstone In the process of evaluating institutions, because it determines the efficiency of the institution in obtaining funds and operating them in the appropriate ways, and providing the most useful financial information in rationalizing decisions by relying on a set of tools, perhaps the most prominent of which were financial ratios and indicators of financial balance, which had the greatest role in the process of evaluating institutions.

Predicting financial failure. Because of the importance of financial failure, we studied it and focused on models that allow for early detection of its probability, because they provide accurate results on the financial situation of the institution. As we mentioned previously, these models use a set of percentages with weight that differs from one model to the other and give a picture of the future state of the institution. In dropping the NCA Ruiba study from 2017, 2019 we came up with a set of findings and observations:

- Financial analysis is a structured study of financial lists based on a set of indicators for
- decision-making and diagnosis of the status of the institution ;
- The results of the analysis of the indicators give the organization the success or failure
- to achieve its objectives;
- Financial analysis aims to identify the strengths and weaknesses of the institution and
- to judge its financial and operational efficiency;
- The financial ratios helped to assess the status of the organization as the results
- obtained in calculating the various financial ratios showed that NCA Ruiba was in an
- uncertain situation;
- The results of the liquidity ratios confirmed the inability of the institution to meet its
- obligations;
- The profitability results have found how vulnerable NCA Ruiba is to profitability;
- Activity ratios indicated the inability of the enterprise to generate profits from its
- fixed assets and reliance on current assets for profit;
- Debt ratios confirmed NCA's reliance on debt to finance its activity, as its own funds
- are almost non-utilized;
- The financial balance ratios of working capital and the need for working capital and
- the Treasury found that NCA Ruiba was financially unbalanced;
- When we applied the Kida & Sherrod models, we found that they had a very high
- probability of a financial failure, which confirms the results obtained from the analysis
- of the financial ratios and the financial equilibrium indicators.
- Based on the results of the study and benefit from the experience of the institution in
- question, we propose to the Algerian institutions, especially those arising from it, to
- resort to the following suggestions to avoid failure and bankruptcy :
- Companies, whatever their financial situation, should pay greater attention to the
- process of financial analysis of their lists using both traditional and novel tools.
- Financial failure must be foreseen before it occurs so that management can take

- appropriate methods to prevent it.
- highlight the significant role of financial analysis in early detection of the potential for
- failure.
- The institution should try to improve its financial situation by devising methods to
- help it get out of the state of loss it has experienced in recent years, such as diversifying
- its products and creating new marketing plans that are suitable for the development
- taking place on social networks and others

References

Dimitras, A. I., Zanakis, S. H., & Zopounidis, C. (1996). A survey of business failure with an emphasis on prediction methods and industrial applications. *European Journal of Operational Research, 90*(3), 487-513.

Orabi, M. M. A. (2014). Empirical tests on financial failure prediction models. *Interdisciplinary Journal of Contemporary Research in Business*, 29-43.

Acosta-González, E., & Fernández-Rodríguez, F. (2014). Forecasting financial failure of firms via genetic algorithms. *Computational Economics, 43*, 133–157.

Acosta-González, E., Fernández-Rodríguez, F., & Ganga, H. (2019). Predicting corporate financial failure using macroeconomic variables and accounting data. *Computational Economics, 53*, 227–257.

Gepp, A., & Kumar, K. (2010). Business failure prediction using statistical techniques: A review. *Some Recent Developments in Statistical Theory and Applications*, 1-25.

Milne, A. (2014). Distance to default and the financial crisis. *Journal of Financial Stability*, 26-36.

Mogilat, A. N. (2019). Modelling financial distress of Russian industrial companies, or what bankruptcy analysis can tell. *Voprosy Ekonomiki, 3*, 101-118.

Charitou, A., Neophytou, E., & Charalambous, C. (2004). Predicting corporate failure: empirical evidence for the UK. *European Accounting Review, 13*(3), 465-497.

Nandi, A., Sengupta, P. P., & Dutta, A. (2019). Diagnosing the financial distress in oil drilling and exploration sector of India through discriminant analysis. *The Journal of Business Perspective, 23*(4), 364-373.

Basuki, B., Widyanti, R., & Rajiani, I. (2021). Nascent entrepreneurs of millennial generations in the emerging market of Indonesia. *Entrepreneurial Business and Economics Review, 9*(2), 151-165.

Lohmann, C., & Ohliger, T. (2020). Bankruptcy prediction and the discriminatory power of annual reports: empirical evidence from financially distressed German companies. *Journal of Business Economics, 90*(1), 137-172.

Cielen, A., Peeters, L., & Vanhoof, K. (2004). Bankrupt prediction using a data envelopment analysis. *European Journal of Operational Research, 154*(2), 526-532.

Courtis, J. K. (1978). Modeling a financial ratios categorical framework. *Journal of Business Finance and Accounting*, 371-386.

Altman, E. I. (1984). The success of business failure prediction models: An international survey. *Journal of Banking and Finance, 8*(2), 171-198.

Altman, E. I., & Hotchkiss, E. (2010). Corporate financial distress and bankruptcy: Predict and avoid bankruptcy, analyze and invest in distressed debt (Vol. 289). 189.

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., & Suvas, A. (2017). Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model. *Journal of International Financial Management and Accounting, 28*(2), 131-171.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance, 23*(3), 589-609.

Altman, E. I., Haldeman, R. G., & Narayanan, P. (1977). A new model to identify bankruptcy risk of corporations. *Journal of Banking and Finance, 1*, 29-54.

Edmister, R. O. (1972). An empirical test of financial ratio analysis for small business failure prediction. *The Journal of Financial and Quantitative Analysis*, 1477-1493.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 589-609.

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., & Suvas, A. (2020). A race for long horizon bankruptcy prediction. *Applied Economics, 52*(37), 4092-4111.

Pasiouras, F., & Gaganis, C. (2007). Financial characteristics of banks involved in acquisitions: Evidence from Asia. *Applied Financial Economics, 17*(4), 329-341.

Ciampi, F., Cillo, V., & Fiano, F. (2020). Combining Kohonen maps and prior payment behavior for small enterprise default prediction. *Small Business Economics, 54*(4), 1007-1039.

Goedhuys, M., Mohnen, P., & Taha, T. (2016). Corruption, innovation and firm growth: firm-level evidence from Egypt and Tunisia. *Eurasian Business Review, 6*, 299-322.

Salaouatchi, H. S., et al. (2019). Les specificites de la gouvernance des entreprises familiales cas: NCA Rouiba. *Journal of North African Economies*, 1-12.

Islam, S., et al. (2016). Business failure prediction using Sherrod and Kida models: Evidence from banks listed on Iraqi Stock Exchange (2011-2014). *Humanities Journal of University of Zakho*, 35-47.

Neves, J. C., & Vieira, A. (2006). Improving bankruptcy prediction with hidden layer learning vector quantization. *European Accounting Review, 15*(2), 253-271.

Adalessossi, K. (2015). Prediction of corporate bankruptcy: Evidence from West African SMEs. *Journal of Economics, Finance and Accounting*, 311-352.

Lee, T. S., & Yeh, Y. H. (2004). Corporate governance and financial distress: Evidence from Taiwan. *Corporate Governance: An International Review, 12*, 378–388.

Arkan, T. (2015). Detecting financial distress with the b-Sherrod model: A case study. *Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 855, Finanse, Rynki Finansowe, Ubezpieczenia nr 74, t. 2, Wydawnictwo Naukowe*, 233-244.

Agarwal, V., & Taffler, R. (2008). Comparing the performance of market-based and accounting-based bankruptcy prediction models. *Journal of Banking and Finance, 32*(8), 1541-1551.

Li, Z., et al. (2020). Predicting the risk of financial distress using corporate governance measures. *Pacific-Basin Finance Journal*, 1-14.