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Bankruptcy Analysis of Companies Affected by the Boycott, Divestment, Sanctions (BDS) Movement

Jestica Arifani Dilla Hardanti[a,*], Heni Safitri[b], Dedi Hariyanto[c]

[a] *Faculty of Economics and Business, University of Muhammadiyah Pontianak, Indonesia*
[b] *Faculty of Economics and Business, University of Muhammadiyah Pontianak, Indonesia*
[c] *Faculty of Economics and Business, University of Muhammadiyah Pontianak, Indonesia*

[*] *Corresponding author. E-mail address: jestica2703@gmail.com*

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ABSTRACT

This study sought to determine the outcomes of corporate bankruptcy predictions using the Springate, Zmijewski, and Grover models on companies impacted by the Israeli Boycott, Divestment, Sanctions (BDS) Movement. The study's population consisted of 22 companies affected by the Israeli BDS Movement operating within Indonesia. A total sampling technique was employed, including all 22 companies. The analysis utilized three distinct models Springate, Zmijewski, and Grover to predict corporate bankruptcy. The analysis of bankruptcy predictions yielded the following results: the Springate model predicted 12 companies would experience bankruptcy, with 10 not at risk. The Zmijewski model identified 6 companies as potentially bankrupt and 16 as not at risk. The Grover model predicted 5 companies would experience bankruptcy and 17 would not. Overall, the combined analysis of the three models identified 3 companies that were predicted to experience bankruptcy and 8 companies that were not.

1. Introduction

This study examines the bankruptcy risk of companies impacted by the Boycott, Divestment, Sanctions (BDS) movement against Israel. The BDS movement, which began in Indonesia in 2014 and intensified after 2023, has created financial pressure on companies with ties to Israel. Using the Springate, Zmijewski, and Grover models, this research assesses the financial health of these companies and determines their risk of bankruptcy, providing a snapshot of their financial stability under the pressure of the BDS movement.

1.1 Background

Originating in 2005, the Boycott, Divestment, Sanctions (BDS) movement is a global initiative responding to perceived human rights violations against Palestinians. In Indonesia, the movement gained significant momentum in 2014, coinciding with renewed conflict in Gaza and public support for the Palestinian cause. This led to civil society organizations and activist groups launching campaigns to boycott Israeli products. By early 2021, a growing awareness of humanitarian issues in Indonesia spurred more active participation in the BDS movement. Consequently, companies with connections to Israel faced increased pressure, and local investor interest declined. Companies in sectors like military technology and security struggled to secure project tenders in other countries as boycott campaigns successfully influenced local government decisions. The situation worsened in 2023, prompting the

Indonesian government to consider stricter policies against companies doing business with Israel. The Hamas attack on October 7, 2023, further escalated tensions, leading to international calls for a ceasefire. In response, the Indonesian Ulema Council (MUI) issued Fatwa No. 83 in November 2023, advising Muslims to avoid products from manufacturers supporting Israel's aggression against Palestine. This series of events has created a challenging economic environment for companies with ties to Israel, potentially leading to revenue loss and reputational damage. The need to assess the financial health and bankruptcy risk of these companies is now critical, which led to the formulation of this research question.

1.2 Problem Statement

Based on the background described, the research question is: "How is the bankruptcy prediction of companies affected by the Boycott, Divestment, Sanctions (BDS) movement targeting Israel using the Springate, Zmijewski, and Grover models?".

1.3 Objectives and Scope

This study aims to predict the risk of bankruptcy in companies affected by the Israeli BDS movement by applying and comparing the Springate, Zmijewski, and Grover models. The goal is to identify vulnerable companies and provide information to stakeholders, focusing on companies in Indonesia using financial data from 2023.

2. Literature Review

According to Altman (1968), bankruptcy is a condition where a company cannot meet its financial obligations to creditors. This can be triggered by internal factors, such as poor management and inefficient capital structures, as well as external factors like macroeconomic conditions and market pressures. To mitigate this, bankruptcy prediction has become a crucial tool for stakeholders like investors and management, enabling them to take preventive measures before financial failure occurs. Models developed by Springate, Zmijewski, and Grover, among others, use financial ratios to assess a company's financial health and predict the likelihood of bankruptcy within a specific timeframe.

According to Diana and Hidayat (2023: 259), Gordon L. V. Springate's research yielded a bankruptcy prediction model that was developed from the Altman model. Springate's model uses four financial ratios, selected from a group of 19, to predict bankruptcy. Peter and Yoseph (2011:7) state that Zmijewski (1983) conducted a comprehensive bankruptcy prediction study by implementing financial failure detection tools and adding financial ratio validity. This method uses three ratios for predictive analysis. Prihanthini and Sari (2013:420) noted that in 1968, Jeffrey S. Grover adapted the Altman Z-score model and introduced 13 additional financial ratios. Grover analyzed 70 companies, 35 of which faced bankruptcy and 35 that remained solvent, from 1982 to 1996. This method also uses three ratios for predictive analysis.

2.1 Related Work

Based on research conducted by Maulida, Hariyanto & Safitri (2019) entitled “Analysis of Financial Distress Using the Springate, Zmijewski and Grover Methods in Companies Conducting Initial Public Offerings in 2018,” the results of the study show significant differences between the three methods of predicting financial distress. The Springate method indicates that out of the 45 companies analyzed, 14 companies are predicted to be at risk of bankruptcy. Conversely, the Zmijewski method only identified 2 companies (DFAM and SURE) as potentially bankrupt. Meanwhile, the Grover method did not identify any companies predicted to be in a bankrupt state, with all companies estimated to be healthy.

These differences reflect that the approaches and parameters used by each method can significantly influence the results of financial distress analysis.

2.2 Research Gap

The research gap between that study and my research lies in the urgency of the research I am investigating, namely, the phenomenon of companies affected by the Boycott, Divestment, Sanction (BDS) movement, which can be one of the triggers of corporate financial instability, potentially leading to the bankruptcy of a company.

3. Methodology

This study will use descriptive quantitative research. This approach uses numbers and statistical data to describe the characteristics or circumstances of a company's bankruptcy. Examples include financial ratios, asset values, and liabilities. However, it does not attempt to draw general conclusions or generalizations.

3.1 Data Collection

This research uses a documentation study technique to collect data. A documentation study is a method of collecting data from written sources, namely financial reports. Samples are determined based on companies detected on the Boycat app that operate in Indonesia. Using this technique, the research can gather in-depth insights into companies in Indonesia affected by the BDS movement that are predicted to go bankrupt. The population used was 22 companies affected by the BDS movement in Indonesia. The sample used was a total sample of the entire population, so the sample used in this study was 22 companies.

3.2 Analysis Techniques

a. Springate Model

Data analysis of Springate model using multi discriminant analysis. The model's predictions have an accuracy rate of 92.5%. The model successfully developed by Springate is:

$$S = 1.03A + 3.07B + 0.66C + 0.4D$$

Explanation:
A = working capital / total assets
B = net profit before interest and taxes / total assets
C = net profit before taxes / current liabilities
D = sales / total assets

The model determines that companies with an S score > 0.862 are considered healthy, while companies with an S score < 0.862 are considered to have a potential risk of bankruptcy.

b. Zmijewski Model

In the Zmijewski model, the analysis was conducted by reviewing research on bankruptcy from the previous twenty years. The equation in the Zmijewski model is as follows:

$$X = -4.3 - 4.5\ X1 + 5.7\ X2 - 0.004X3$$

Explanation:
X1 = ROA (net income after taxes / total assets)
X2 = Leverage (total liabilities / total assets)
X3 = Liquidity (current assets / current liabilities)

The Zmijewski model states that if the X score is greater than 0, the company is predicted to experience bankruptcy, but if the X score is less than 0 (zero), the company is predicted not to be at risk of bankruptcy.

c. Grover Model

The Grover model is a model created by redesigning and reevaluating the Altman Z-Score model. The Grover model uses the following formula:

G-Score = 1.650X1 + 3.404X2 + 0.016ROA + 0.057

Notes:
X1 = Working Capital / Total Assets
X2 = Earnings Before Interest and Taxes / Total Assets
ROA = Net Income / Total Assets

The Grover model considers companies with a G score ≤ -0.02 to be bankrupt. Companies with a G score ≥ 0.01 are considered to be in a non-bankrupt condition.

4. Results and Discussion

This study will analyze data for each model. First, the data obtained will be analyzed using the Springate model. Second, it will be analyzed using the Zmijewski model. Third, it will be analyzed using the Grover model. After analyzing each model, conclusions will be drawn regarding which companies are predicted to go bankrupt and which are predicted not to go bankrupt in the three models that have been analyzed.

Table 1 Results of Springate Model Calculations for Companies Affected by the BDS Movement

No	Code	Springate	Category
1	CARR	1,7214	Potentially bankruptcy
2	CVX	4,8203	Not potentially bankrupt
3	DANO	1,6722	Potentially bankruptcy
4	INTC	0,8832	Potentially bankruptcy
5	MDLZ	8,3753	Not potentially bankrupt
6	MCD	6,7690	Not potentially bankrupt
7	NESN	2,5332	Potentially bankruptcy
8	PG	3,8452	Not potentially bankrupt
9	BMRI	3,2506	Potentially bankruptcy
10	RMBA	0,5442	Potentially bankruptcy
11	IGAR	1,4390	Not potentially bankrupt
12	FAST	0,3374	Potentially bankruptcy
13	GRPM	2,9521	Not potentially bankrupt
14	HERO	(0,0167)	Potentially bankruptcy
15	MAPB	0,5505	Potentially bankruptcy
16	MTDL	1,7716	Not potentially bankrupt
17	MAPI	0,3865	Potentially bankruptcy
18	PZZA	0,1304	Potentially bankruptcy
19	SEMA	0,9619	Not potentially bankrupt
20	TSPC	1,4268	Not potentially bankrupt
21	UNVR	2,1939	Not potentially bankrupt
22	WICO	0,3581	Potentially bankruptcy

Source: Data Processing (2025)

Table 1 shows that there are 12 companies classified as potentially bankrupt, with the following codes: CARR, DANO, INTC, NESN, BMRI, RMBA, FAST, HERO, MAPB, MAPI,

PZZA, and WICO. Meanwhile, the remaining 10 companies are classified as healthy, with the following codes: CVX, MDLZ, MCD, PG, IGAR, GRPM, MTDL, SEMA, TSPC, and UNVR.

Table 2 Results of Zmijewski Model Calculations for Companies Affected by the BDS Movement

No	Code	Zmijewski	Category
1	CARR	1,3833	Potentially bankruptcy
2	CVX	(1,7911)	Not potentially bankrupt
3	DANO	(2,5486)	Not potentially bankrupt
4	INTC	(1,9174)	Not potentially bankrupt
5	MDLZ	(1,9165)	Not potentially bankrupt
6	MCD	0,7166	Potentially bankruptcy
7	NESN	(0,2427)	Not potentially bankrupt
8	PG	(1,3717)	Not potentially bankrupt
9	BMRI	0,7384	Potentially bankruptcy
10	RMBA	(2,7617)	Not potentially bankrupt
11	IGAR	(4,1521)	Not potentially bankrupt
12	FAST	0,8242	Potentially bankruptcy
13	GRPM	(4,5419)	Not potentially bankrupt
14	HERO	0,0974	Potentially bankruptcy
15	MAPB	(1,7112)	Not potentially bankrupt
16	MTDL	(1,8549)	Not potentially bankrupt
17	MAPI	(1,4072)	Not potentially bankrupt
18	PZZA	(1,1694)	Not potentially bankrupt
19	SEMA	(1,9770)	Not potentially bankrupt
20	TSPC	(3,1708)	Not potentially bankrupt
21	UNVR	(1,0552)	Not potentially bankrupt
22	WICO	2,8688	Potentially bankruptcy

Source: Data Processing (2025)

Table 2 shows that six companies with the codes: CARR, MCD, BMRI, FAST, HERO, and WICO are classified as having the potential for bankruptcy. Meanwhile, there are 16 companies that have not experienced bankruptcy, namely those with the following codes: CVX, DANO, INTC, MDLZ, PG, RMBA, IGAR, GRPM, MTDL, MAPB, MTDL, MAPI, PZZA, SEMA, TSPC, and UNVR.

Table 3 Results of Grover Model Calculations for Companies Affected by the BDS Movement

No	Code	Grover	Category
1	CARR	0,0659	Not potentially bankrupt
2	CVX	0,4965	Not potentially bankrupt
3	DANO	(0,0575)	Potentially bankruptcy
4	INTC	0,1902	Not potentially bankrupt
5	MDLZ	0,6741	Not potentially bankrupt
6	MCD	0,7987	Not potentially bankrupt
7	NESN	0,3175	Not potentially bankrupt
8	PG	0,3908	Not potentially bankrupt
9	BMRI	0,2156	Not potentially bankrupt
10	RMBA	0,5941	Not potentially bankrupt
11	IGAR	1,5560	Not potentially bankrupt
12	FAST	(0,3766)	Potentially bankruptcy
13	GRPM	1,9121	Not potentially bankrupt
14	HERO	(0,4484)	Potentially bankruptcy

15	MAPB	0,0384	Not potentially bankrupt
16	MTDL	1,1931	Not potentially bankrupt
17	MAPI	0,3968	Not potentially bankrupt
18	PZZA	(0,1763)	Potentially bankruptcy
19	SEMA	0,9554	Not potentially bankrupt
20	TSPC	1,2372	Not potentially bankrupt
21	UNVR	1,0408	Not potentially bankrupt
22	WICO	(1,4054)	Potentially bankruptcy

Source: Data Processing (2025)

Table 3 shows that five companies are classified as potentially bankrupt, with the following codes: DANO, FAST, HERO, PZZA, and WICO. Meanwhile, there are 17 companies classified as healthy with the following codes: CARR, CVX, INTC, MDLZ, MCD, NESN, PG, BMRI, RMBA, IGAR, GRPM, MAPB, MTDL, MAPI, SEMA, TSPC, and UNVR.

From the analysis of data conducted on the three models, it appears that three companies are expected to go bankrupt based on the three models, namely companies with the codes: FAST, HERO, and WICO. Conversely, there are eight companies that are expected to avoid bankruptcy in the three models, namely those with the codes: CVX, MDLZ, PG, GRPM, MTDL, SEMA, TSPC, and UNVR.

5. Discussion

5.1 Comparison with Prior Research

The results of this study show both similarities and differences with previous research. Consistent with Maulida, Hariyanto, and Safitri (2019), this study also found significant differences in bankruptcy predictions among the Springate, Zmijewski, and Grover models. This research also found that the Springate model provides more accurate bankruptcy predictions than the other two.

Additionally, the findings that companies FAST, HERO, and WICO are at risk of bankruptcy are consistent with Primasari's (2018) results, which suggest that external pressures like the BDS movement can increase bankruptcy risk. This study emphasizes the need for a comprehensive approach to analyzing a company's financial health by considering both internal and external factors. Therefore, this study contributes to the existing literature by highlighting the importance of evaluating the impact of social movements on corporate financial stability, particularly in the Indonesian context.

5.2 Limitations

This study has several limitations that need to be considered. First, the data used in the analysis is limited, so it does not reflect the long-term dynamics of companies affected by the BDS movement. This may affect the accuracy of the bankruptcy predictions generated.

Second, the use of three models (Springate, Zmijewski, and Grover), although providing diverse perspectives, also has limitations in terms of the validity and reliability of each model. Each model has different assumptions and parameters, which can influence the results of the analysis.

Third, this study only involved 22 affected companies, so the generalization of the results may not apply to all companies affected by the BDS movement in Indonesia. Finally, external factors such as changes in government policy and dynamic macroeconomic conditions cannot be fully modeled in this analysis, which may affect the results.

5.3 Future Research

For future research, several areas can be explored to improve the understanding of corporate bankruptcy risk, especially for companies affected by the BDS movement. First, a longitudinal analysis over a longer period is recommended to gain insights into trends and patterns that may not be visible in short-term studies. Second, future research could incorporate additional variables related to external factors, such as changes in government policy, global market conditions, and public sentiment, all of which can influence a company's financial performance. Third, comparing companies across different industrial sectors could provide a clearer picture of the specific impact of the BDS movement on various types of companies. Finally, developing a more comprehensive predictive model that combines several analytical models could improve prediction accuracy and provide stronger recommendations for stakeholders.

6. Conclusion

Based on the analysis of all bankruptcy prediction models, several important conclusions can be drawn. The Springate model predicts that 12 companies are potentially bankrupt, while 10 are not at risk. The Zmijewski model shows that six companies are potentially bankrupt, with 16 not at risk. Furthermore, an analysis using the same models identified five companies as potentially bankrupt and confirmed that the remaining 17 companies are risk-free. Overall, these models identified three companies as potentially facing financial failure and confirmed that eight companies are safe from bankruptcy.

7. Recommendation

Based on the findings and analysis conducted in this study, several recommendations can be proposed for stakeholders. First, companies affected by the BDS movement should conduct a comprehensive evaluation of their financial condition and consider risk mitigation strategies, including market diversification and strengthening relationships with local consumers. Second, investors are advised to pay closer attention to external factors that may affect company performance, such as social and political dynamics, before making investment decisions. Third, policymakers need to consider the impact of BDS-related policies on the local economy and companies, and seek ways to support companies operating in affected sectors. Finally, further research is recommended to explore the interaction between various factors that can influence bankruptcy risk, thereby providing more comprehensive and data-driven recommendations.

REFERENCES

[1] Primasari N S 2018 ANALISIS ALTMAN Z-SCORE, GROVER SCORE, SPRINGATE, DAN ZMIJEWSKI SEBAGAI SIGNALING FINANCIAL DISTRESS (Studi Empiris Industri Barang-Barang Konsumsi di Indonesia) *Account. Manag. J.* **1** 23–43

[2] Wulansari S and Nelvirita 2024 Prediksi Kebangkrutan dengan Model Grover, Altaman Z-Score, Springate, Zmijewski, Olhson dan Fulmer: pada Perusahaan Pertambangan di Bursa Efek Indonesia (BEI) Tahun 2017 – 2021 **2** 307–19

[3] Prabowo S C B 2019 Analysis on the Prediction of Bankruptcy of Cigarette Companies Listed in the Indonesia Stock Exchange Using Altman (Z-Score) Model and Zmijewski (X-Score) Model *J. Apl. Manaj.* **17** 254–60

[4] Edi E and Tania M 2018 Ketepatan Model Altman, Springate, Zmijewski, Dan Grover Dalam Memprediksi Financial Distress *J. Reviu Akunt. dan Keuang.* **8** 79

[5] Wulandari E and Fauzi I 2022 Analisis Perbandingan Potensi Kebangkrutan dengan Model Grover, Altman Z-Score, Springate dan Zmijewski Pada Perusahaan Real Estate dan Property di Bursa Efek

Indonesia *Ekon. Keuangan, Investasi dan Syariah* **4** 109–17
[6] Rahayu S S, Roza S and Nirwana I 2023 Analisis Kebangkrutan Dengan Menggunakan Model Grover Pada Perusahaan Jasa Sub Sektor Perdagangan Eceran Periode 2015-2020 di Bursa Efek Indonesia *J. ...* **1** 48–54
[7] Syamni G, Majid M S A and Siregar W V 2018 Bankruptcy Prediction Models and Stock Prices of the Coal Mining Industry in Indonesia *Etikonomi* **17** 57–68
[8] Dinas O and Dan T K 2019 Jurnal Produktivitas *J. Produkt.* **6**
[9] Springate 1978 *Predicing the Possibility of Failure in a Canadian Firm: A Discriminant Analysis* (Simon Fraser University)
[10] Altman I Edward 1968 Financial Ratios, Discriminant Analysis And The Prediction Of Corpporate Bankruptcy *J. Finance* **XXIII** 589–609
[11] Zmijweski M E 1984 Methodological Issues Related to the Estimation of Financial Distress Prediction Models *J. Account. Res.* **22** 59–82
[12] Diana H and Hidayat D 2023 DETEKSI KECURANGAN LAPORAN KEUANGAN DAN PREDIKSI KEBANGKRUTAN PERUSAHAAN SEBELUM DAN SAAT PANDEMI COVID-Haugesti Diana Universitas Islam Riau , Pekanbaru , Indonesia Dina Hidayat Universitas Islam Riau , Pekanbaru , Indonesia Abstrak Al Qalam : Jurnal Il *Al Qalam J. Ilm. Keagamaan dan Kemasyarakatan* **17** 255–78
[13] Hariyani D S and Sujianto A 2018 Analisis Perbandingan Model Altman, Model Springate, Dan Model Zmijewski Dalam Memprediksi Kebangkrutan Bank Syariah Di Indonesia *Invent. J. Akunt.* **1** 13
[14] Sugiyono 2020 *Metodologi Penelitian Kuantitatif, Kualitatif dan R & D*
[15] Zmijewski D A N, Memprediksi D, Perusahaan K and Di D 2019 Analisis_Uji_Akurasi_Model_Grover_Spring **8** 1–11
[16] Madan D B and Wang K 2024 *Financial Finance*
[17] Abadi M T and Misidawati D N 2023 Prediksi Kebangkrutan Perusahaan (Teori, Metode, Implementasi) 5
[18] Artini N L P S and Astika I B P 2024 Analisis Prediksi Kebangkrutan Menggunakan Model Altman, Springate, Grover, dan Zmijewski pada Perusahaan Sektor Consumer Cyclicals *E-Jurnal Akunt.* **34** 659