Financial Health Analysis and Bankruptcy Prediction of BUMN Karya Listed on IDX in The Midst of Increasing Government Infrastructure Projects Based on The National Medium-Term Development Planning (RPJMN 2020 - 2024)

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Abstract

Concerning the increase in the national infrastructure budget by 6% from the previous year, as well as the emphasis on infrastructure reflected in the RPJMN 2020 – 2024 document, the government has once again appointed construction State-Owned Enterprises (BUMN Karya) as the drivers of national development. Unfortunately, over the past five years, the financial condition of BUMN Karya has deteriorated. Additionally, several directors within these companies have been implicated in corruption cases, damaging the public image and trust in BUMN Karya. This led the IDX to suspend trading in one of its stocks in May 2023. This study aims to evaluate the financial performance and health condition of BUMN Karya listed on the IDX, namely WSKT, WIKA, PTPP, and ADHI. The research methodology is based on the Ministry of SOEs No decree. KEP-100/MBU/2002. Furthermore, this study predicts the financial distress faced by these BUMN Karya from 2019 to 2023 using four methods: Altman Z-Score, Ohlson O-Score, Zmijewski, and Springate The findings indicate the health conditions of each company from 2019 to 2023 as follows: WSKT (BB, CCC, B, BB, B), WIKA (AA, BB, BB, B, CCC), PTPP (BBB, BB, BBB, B), and ADHI (BBB, B, BB, BB, BBB). Among the four predictive methods, the Altman Z-Score model most closely approximates the actual condition in 2024 with an accuracy rate of 65%. The results show that all four SOEs experienced a decline in their Altman Z-Score in 2023. This study complements previous research with a different approach and provides additional insights into the government's push for infrastructure development and efforts to improve and strengthen the financial condition of BUMN Karya.

Keywords*: BUMN Karya, financial performance, financial ratio analysis, financial distress, bankruptcy potential, Altman Z-Score, Ohlson O-Score, Zmijewski, Springate.*

INTRODUCTION

In order to achieve the long-term development goals of Indonesia Maju, the government continues to accelerate the completion of infrastructure development, especially strategic and priority projects that support economic transformation (Indonesia, 2020) ; (Suryaningrum et al., 2023). The acceleration and equitable distribution of infrastructure development in all regions of Indonesia has been the government's focus for the last few years. The government continues to fulfil basic infrastructure in the form of providing decent, safe, and affordable housing and settlements, as well as the availability of clean and quality drinking water and sanitation to ensure a healthy and productive community life. Based on data from the State Budget (APBN), in 2024 the infrastructure budget rose to IDR 423,4 trillion, an increase of 6,0% from the previous year (Nasional, 2020); (Adzam et al., 2024); (Rachman et al., 2024).

The increase in the government infrastructure budget in 2024 is intended to continue the development objectives since 2023, namely encouraging the acceleration of infrastructure development that supports economic transformation and new growth centers with policy directions, namely: (1) accelerating infrastructure development to fulfill basic services; (2) supporting equitable access to information and communication technology (ICT) infrastructure in supporting economic activities; (3) infrastructure development that supports economic transformation (energy, food, connectivity, and transportation); (4) support the completion of national strategic projects (PSN) and the development of the National Capital City (IKN) gradually and sustainably by optimizing the role of the Nusantara Capital City Authority (OIKN) to be able to operate independently in early 2023; (5) increase funding synergy between ministries/institutions, central and regional, and through the application of PPP financing schemes (Copeland et al., 2005).

This is very reasonable because, without adequate infrastructure development, equitable development and national economic growth will also be hampered. In addition to seeing the purpose of the government's infrastructure budget for equitable development, government infrastructure projects are also a factor that encourages construction SOEs to get involved in these infrastructure projects. According to Law No. 19/2003 on State-Owned Enterprises, a State-Owned Enterprise (SOE) is a business entity in which all or most of the capital is owned by the state through direct investment from separated state assets. To improve performance and added value, the Ministry of SOEs continues to streamline and improve the portfolio of SOEs through corporate restructuring (holding, mergers, acquisitions, etc.).

The development focuses on restructuring starting in 2020, which in the next five years will make the number of SOEs more efficient. Currently, there are only 45 SOEs left, including BUMN Karya. BUMN Karya is a term for state-owned enterprises engaged in construction. There are four SOE holding companies that have listed status, namely PT Waskita Karya (Persero) Tbk (WSKT), PT Wijaya Karya (Persero) Tbk (WIKA), PT Pembangunan Perumahan (Persero) Tbk (PTPP), PT Adhi Karya (Persero) Tbk.

The increase in the infrastructure budget for 2024 signals that BUMN Karya will still contribute to it. To participate in infrastructure projects, SOEs need a lot of capital. Based on RPJMN 2020 - 2024; to achieve the Gross Domestic Product (GDP) growth target in the RPJMN 2020-2024, infrastructure spending needs to reach IDR 6.445 trillion. Of the total funds required, the central and local governments are only able to provide funds amounting to IDR 2.835 trillion (only 37 percent of the total requirement).

This identifies that there is a financing gap of IDR 3.610 trillion, the fulfillment of which can be achieved through alternative funding such as public-private partnerships, and with other alternative funding sources in the form of funds from the capital market. The government assignment and financing gap in project financing put pressure on the company. Unfortunately, in actual practice, BUMN Karya, which is expected to be able to implement state infrastructure and have the trust of the public, is now in a concerning condition. Indonesia Stock Exchange (IDX) announced the decision to suspend the trading of PT Waskita Karya (Persero) Tbk (WSKT) shares starting Monday, May 8, 2023.

This decision is based on PT Kustodian Sentral Efek Indonesia (KSEI) letter No. KSEI-1184/DIR/ 0523 dated May 5, 2023, related to the postponement of the 11th interest

payment on Waskita Karya Phase 1 Sustainable Bonds IV/2020. This was done by IDX to maintain regular, fair, and efficient securities trading. The polemic over the default on debt obligations has caused WSKT shares to plummet 43,89% throughout 2023 (Lisnawati & Ali, 2023).

The net income chart above reveals substantial fluctuations, especially for WSKT and WIKA, with significant losses in 2023. Regarding total revenues, all companies experienced a downturn in 2020. WSKT's revenue fell sharply from IDR 31,39 trillion in 2019 to IDR 16,19 trillion in 2020, continuing to decrease to IDR 10,95 trillion by 2023. WIKA's revenue also dropped from IDR 27,21 trillion in 2019 to IDR 16,54 trillion in 2020 but then increased steadily, reaching IDR 22,53 trillion in 2023. PTPP's revenue declined from IDR 23,57 trillion in 2019 to IDR 15,83 trillion in 2020, with a gradual rise to IDR 18,46 trillion by 2023. ADHI saw its revenue decrease from IDR 15,31 trillion in 2019 to IDR 10,83 trillion in 2020, followed by a consistent rise to IDR 20,07 trillion in 2023.

Based on the financial statements as of the first quarter of 2024, the total debt of BUMN Karya listed on the IDX reached IDR 210,1 trillion. Of this amount, WSKT's debt amounted to IDR 81,57 trillion (38,82%), followed by WIKA reaching IDR 56,24 trillion (26,76%), PTPP worth IDR 41,32 trillion (19,66%), and ADHI IDR 30,97 trillion (14,76%). Almost all SOEs have significant financial obligations. Various methods can be used to look at a company's financial condition. Financial ratios are a simple way.

Five criteria will be measured to see the condition of the company (Titman et al., 2018), namely liquidity, profitability, market value, capital structure, and asset management efficiency. Copeland et al (2005) define financial failure (insolvency) as bankruptcy, meaning that the company is unable to fulfill its obligations when due. Insolvency in the sense of bankruptcy occurs when the negative net worth in a conventional balance sheet or the expected value of cash flows is less than the liabilities.

There are also several methods to predict bankruptcy. Prihanthini & Sari (2013) researched bankruptcy prediction analysis with Grover, Altman Z score, Springate, and Zmijewski models in food and beverage companies. The results showed that there were differences between the Grover model with Altman z-score, the Grover model with Springate, and the Grover model with Zmijewski (Zmijewski, 1984); (Altman, 2013). The Grover model is the prediction model that best fits the research. Another study comparing bankruptcy prediction models is Yuliastary & Wirakusuma (2014). From this research, it was concluded that the company's performance was generally in good health with all methods of approval. Then, Aminian et al (2016) stated that the four models are very precise in predicting bankruptcy in companies on the Iranian stock exchange.

Seeing the above problems, this research tries to analyze and discuss the financial condition of BUMN companies in the construction sector to see whether these BUMN companies are in an unhealthy state by looking at the possibility of the company experiencing bankruptcy (financial distress). Based on the problems above, the questions of this research are:

1. How are the financial performance of PT Waskita Karya (Persero) Tbk (WSKT), PT Wijaya Karya (Persero) Tbk (WIKA), PT Pembangunan Perumahan (Persero) Tbk

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(PTPP), PT Adhi Karya (Persero) Tbk as SOEs in the construction sector during 2020-2023 using the financial ratio analysis method according to the Decree of the Minister of State-Owned Enterprises Number: KEP-100/MBU/2002?

2. What are the health level status of PT Waskita Karya (Persero) Tbk (WSKT), PT Wijaya Karya (Persero) Tbk (WIKA), PT Pembangunan Perumahan (Persero) Tbk (PTPP), PT Adhi Karya (Persero) Tbk as SOEs in the construction sector during 2020-2023 according to the Decree of the Minister of State-Owned Enterprises Number: KEP-100/MBU/2002?

3. What is the bankruptcy potential of PT Waskita Karya (Persero) Tbk (WSKT), PT Wijaya Karya (Persero) Tbk (WIKA), PT Pembangunan Perumahan (Persero) Tbk (PTPP), PT Adhi Karya (Persero) Tbk as construction sector SOEs?

4. What is the solution for PT Waskita Karya (Persero) Tbk (WSKT), PT Wijaya Karya (Persero) Tbk (WIKA), PT Pembangunan Perumahan (Persero) Tbk (PTPP), PT Adhi Karya (Persero) Tbk as BUMN Karya to improve their financial performance and health level?

RESEARCH METHODS

This study will utilize secondary financial data from annual reports to measure the financial performance and predict the bankruptcy potential of each company (WSKT, WIKA, PTPP, and ADHI). The annual reports used in this study span from 2019 to 2023, providing a comprehensive source of financial information. The data collection process begins with downloading the annual reports of each company from the official IDX website.

Once downloaded, the necessary financial data are gathered, processed, and calculated into various financial ratios, including profitability, liquidity, activity, and leverage ratios. These ratios will be used to assess financial performance and determine financial health rankings according to the guidelines outlined in the Minister of SOEs' Decree KEP-100/MBU/2002. Financial distress prediction will be conducted using the Altman Z-score, Ohlson O-score, Zmijewski, and Springate. The formula by Altman is:

$$Z = 6{,}56X_1 + 3{,}26X_2 + 6{,}72X_3 + 1{,}05X_4$$

Definition:
Z is the Bankruptcy Index
X_1 is Net Working Capital / Total Assets
X_2 is Retained Accumulated Earnings / Total Assets
X_3 is Earnings Before Interest and Taxes (EBIT) / Total Assets
X_4 is Market Value of Equity / Total Liabilities

The cut-off points according to Tahapary et al (2022) are:
1. $Z > 2{,}60$ = Safe zone, the company is not facing bankruptcy.
2. $1{,}10 <= Z <= 2{,}60$ = Grey zone, the company is in financial difficulties but can be saved.

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3. $Z < 1,10$ = Distress zone, the company is in financial distress
4. with a high risk of bankruptcy.

The following is the Ohlson bankruptcy prediction model (1980):

$$O - Score = [1 + exp(-Y_{it})]^{-1}$$

$$Y_{it} = -1,32 - 0,407SIZE_{jt} + 6,03TLTA_{jt} - 1,43WCTA_{jt} + 0,0757CLCA_{jt} - 2,37NITA_{jt} - 1,83FUTL_{jt} + 0,285INTWO_{jt} - 1,72OENEG_{jt} - 0,521CHIN_{jt}$$

Definition:
SIZE= log (total assets)
TLTA= Total Liabilities/Total Assets
WCTA= Working Capital/Total Assets
CLCA= Current Liabilities/Current Assets
NITA= Net Income/Total Assets
FUTL= Operational Fund/Total Liability
INTWO= 1 if net income was negative for the last two years,0 otherwise.
OENEG= 1 if total liabilities more than total assets,0 otherwise.

$$CHIN = \frac{(NI - NI_{t-1})}{(|NI_t| - |NI_{t-1}|)}$$ where NI is the net income of the firm in recent year

Ohlson (1980) established that this method possesses an optimal cut-off point value, known as the O-Score, of 0,038. Ohlson selected this specific cut-off value to minimize the occurrence of errors. An O-Score greater than 0,038 signifies that a company is currently facing or is likely to face financial distress. Conversely, if a company's O-Score is less than 0,038, it is predicted that the company will not experience financial distress.

Zmijewski developed the following model:

$$Z = -4,3 - 4,5X_1 + 5,7X_2 - 0,004X_3$$

Definition:
X_1 = ROA ($\frac{Net\ Income}{Total\ Assets}$)
X_2 = Leverage ($\frac{Total\ Liabilities}{Total\ Assets}$)
X_3 = Liquidity ($\frac{Current\ Assets}{Current\ Liabilities}$)

Zmijewski proposed the following cut-off value calculations in his method:
a. $X > 0$ (positive): Based on the calculated results, companies with this score are categorized as having financial difficulties and are heading toward bankruptcy.
   b. $X < 0$ (negative): Based on the calculated results, companies with this score are categorized as healthy and not experiencing financial distress.

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The Springate formula is as follows:

$$Z = 1,03X_1 + 3,07X_2 + 0,66X_3 + 0,4X_4$$

Definition:

$X_1 = (\frac{Working\ Capital}{Total\ Assets})$

$X_2 = (\frac{Earning\ Before\ Tax}{Total\ Assets})$

$X_3 = (\frac{Earning\ Before\ Tax}{Current\ Liabilities})$

$X_4 = (\frac{Sales}{Total\ Assets})$

Springate model categorizes companies' bankruptcy risk into two distinct levels based on the Z-score:

a. A score of Z < 0,862 signals severe financial distress and an imminent risk of bankruptcy.
b. A score above 0,862 indicates that the company is in a robust financial state with no immediate risk of bankruptcy.

After calculating all the ratios, the accuracy of the bankruptcy predictions using these four methods will be calculated to determine which model most closely approximates the current condition of the company. The formula for accuracy rate:

$$Accuracy\ Rate = \frac{Number\ of\ correct\ predictions}{Total\ sample} \times 100\%$$

Subsequently, the author will provide recommendations for improving the company's financial condition.

RESULTS AND DISCUSSION

The following table displays the financial ratios calculated for WSKT, WIKA, PTPP, and ADHI:

Table 1. Financial Ratios of WSKT 2019 – 2023

Financial Ratios	2019	2020	2021	2022	2023
Profitability Ratio					
ROE Ratio (%)	3,3	-81,04	-11,11	-12,00	-35,04
ROI Ratio (%)	2,11	-16,41	-1,61	-1,52	-4,64
Liquidity Ratio					
Cash Ratio (%)	20,58	2,99	48,40	42,98	35,23
Current Ratio (%)	108,92	59,21	156,00	158,20	99,49
Activity Ratio					
Collection Period (days)	185,07	265,69	341,60	256,31	150,72
Days in Inventory (days)	51,61	85,79	122,11	103,02	141,20
Total Asset Turnover (%)	40,47	31,01	16,02	19,85	15,06
Leverage Ratio					
Total Equity to Total Asset Ratio (%)	23,75	11,34	14,92	14,50	12,14

WSKT's financial performance from 2019 to 2023 shows a sharp decline in profitability. Liquidity ratios fluctuated, with noticeable changes in both cash and current ratios. Activity ratios indicated improvements in the collection period but challenges with inventory management and declining asset turnover. Additionally, the leverage ratio fell significantly, indicating an increased reliance on debt.

Table 2. Financial Ratios of WIKA 2019 – 2023

Financial Ratios	2019	2020	2021	2022	2023
Profitability Ratio					
ROE Ratio (%)	13,16	1,81	1,36	0,10	-82,52
ROI Ratio (%)	10,42	1,47	1,77	0,64	-28,02
Liquidity Ratio					
Cash Ratio (%)	139,49	108,63	100,59	110,24	80,13
Current Ratio (%)	34,09	33,85	18,89	15,64	8,41
Activity Ratio					
Collection Period (days)	83,49	84,77	72,37	191,27	136,07
Days in Inventory (days)	86,06	183,95	212,60	194,95	189,74
Total Asset Turnover (%)	85,68	69,07	54,94	55,17	81,80
Leverage Ratio					
Total Equity to Total Asset Ratio (%)	30,94	24,46	25,13	23,30	14,51

From 2019 to 2023, WIKA's financial performance deteriorated significantly. Profitability ratios, including ROE and ROI, declined sharply. Liquidity ratios also worsened, with both cash and current ratios decreasing. Activity ratios reflected longer collection and inventory periods, while total asset turnover saw a slight decline. Additionally, the leverage ratio worsened, indicating a decrease in the proportion of assets financed by equity.

Table 3. Financial Ratios of PTPP 2019 – 2023

Financial Ratios	2019	2020	2021	2022	2023
Profitability Ratio					
ROE Ratio (%)	7,28	1,69	2,43	2,69	1,40
ROI Ratio (%)	6,04	3,02	5,42	2,89	2,16
Liquidity Ratio					
Cash Ratio (%)	30,53	26,89	35,55	20,31	15,50
Current Ratio (%)	131	121,22	100,18	120,69	115,93
Activity Ratio					
Collection Period (days)	255,17	294,89	329,92	268,44	279,09
Days in Inventory (days)	122,80	184,02	277,64	203,40	203,14
Total Asset Turnover (%)	89,42	62,12	80,89	61,49	62,52
Leverage Ratio					
Total Equity to Total Asset Ratio (%)	26,51	26,01	42,21	25,73	26,79

PTPP's financial performance experienced a significant decline from 2019 to 2023. Key profitability metrics such as ROE and ROI saw substantial drops, and the company's liquidity position weakened, as indicated by a reduced cash ratio. Operational efficiency deteriorated, evidenced by longer collection periods, and increased days in inventory.

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Additionally, the total asset turnover rate fell, indicating less effective use of assets to generate revenue. Despite these challenges, the leverage ratio remained relatively stable throughout the period.

Table 4. Financial Ratios of ADHI 2019 – 2023

Financial Ratio	2019	2020	2021	2022	2023
Profitability Ratio					
ROE Ratio (%)	9,73	0,43	1,53	1,99	3,14
ROI Ratio (%)	7,18	1,84	3,05	2,14	2,91
Liquidity Ratio					
Cash Ratio (%)	13,29	8,73	10,13	17,51	18,03
Current Ratio (%)	123,77	111,11	101,52	120,72	114,41
Activity Ratio					
Collection Period (days)	238,61	236,51	501,06	375,03	295,85
Days in Inventory (days)	108,96	187,08	217,98	194,49	115,22
Total Asset Turnover (%)	127,33	98,33	131,43	89,03	129,41
Leverage Ratio					
Total Equity to Total Asset Ratio (%)	18,72	14,63	14,18	22,07	22,77

From 2019 to 2023, ADHI experienced significant fluctuations in its financial ratios. Profitability ratios (ROE and ROI) dropped sharply in 2020 but showed a steady recovery through 2023. Liquidity ratios indicated initial declines, particularly in the cash ratio, but both cash ratio and current ratio improved by 2023. Activity ratios revealed challenged in receivables collection and inventory management, peaking in 2021 before improving in 2023. The leverage ratio showed increased reliance on debt in 2020 but saw a positive shift towards equity financing by 2023, reflecting ADHI's overall financial recovery and resilience.

This study validated the financial health rankings and status of WSKT, WIKA, PTPP, and ADHI from 2019 to 2023 by employing Ministry of SOE No. KEP-100/MBU/2002 as the norm. Validation test results for WSKT, WIKA, PTPP, and ADHI from 2019 to 2023:

Table 5. Financial Health Rank Assessment of WSKT 2019 – 2023

	2019	2020	2021	2022	2023
Total Weight (%)	45,21	21,00	31,43	41,43	33,57
Health Rank	BB	CCC	B	BB	B
Health Status	Less Healthy	Unhealthy	Less Healthy	Less Healthy	Less Healthy

WSKT's financial health from 2019 to 2023 significantly showed variability. The company's overall financial status fluctuated, with rankings indicating a shift between "less healthy" and "unhealthy" statuses. Specifically, WSKT's financial health was rated BB in 2019, dropped to CCC in 2020, improved to B in 2021, rose back to BB in 2022, and settled at B in 2023. This pattern reflects a turbulent period with varying degrees of financial stability over the five years.

Table 6. Financial Health Rank Assessment of WIKA 2019 – 2023

	2019	2020	2021	2022	2023
Total Weight (%)	83,57	44,50	41,50	35,93	25,57

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Health Rank	AA	BB	BB	B	CCC
Health Status	Healthy	Less Healthy	Less Healthy	Less Healthy	Unhealthy

Over the span of 2019 to 2023, WIKA's financial health witnessed a notable fluctuation. Beginning on a strong note with an AA ranking in 2019, the company's position gradually weakened, slipping to BB in 2020 and 2021, signaling a less robust state. By 2022, WIKA's financial standing had further declined to B ranking, indicating a concerning trend. The most recent assessment for 2023 paints a grim picture, with WIKA falling to the CCC, highlighting a notably deteriorated financial condition.

Table 7. Financial Health Rank Assessment of PTPP 2019 – 2023

	2019	2020	2021	2022	2023
Total Weight (%)	61,79	43,93	43,00	51,07	38,93
Health Rank	BBB	BB	BB	BBB	B
Health Status	Less Healthy	Less Healthy	Less Healthy	Less Healthy	Less Healthy

PTPP's finances fluctuated from 2019 to 2023. The company's scoring system showed a gradual deterioration over these years. BBB was PTPP's financial rating 2019. In 2020, this status dropped to BB. A similar BB grade was seen in 2021, suggesting a continuation of the trend. PTPP's financial condition dropped further to B in 2022. According to the B grade, the company's financial health was at its lowest in 2023. From 2019 to 2023, PTPP's financial health declined, indicated a difficult phase for the corporation.

Table 8. Financial Health Rank Assessment of ADHI 2019 – 2023

	2019	2020	2021	2022	2023
Total Weight (%)	58,57	32,00	43,29	47,50	53,93
Health Rank	BBB	B	BB	BB	BBB
Health Status	Less Healthy	Less Healthy	Less Healthy	Less Healthy	Less Healthy

ADHI's financial health over the span from 2019 to 2023 exhibited noticeable fluctuations, as indicated by the changing weights assigned to it. These wights, representing the company's relative financial stability and resilience, underwent shifts across the years. Consequently, ADHI's health ratings oscillated from BBB to B, BB, and back to BBB. The variability in these classifications underscores the inconsistent nature of ADHI's financial situation during this period.

Table 9. Bankruptcy Prediction of WSKT 2019 – 2023

Method		2019	2020	2021	2022	2023
Altman Z-Score	Score	0,769	-1,694	0,860	0,564	-0,626
	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
	Score	0,053	0,542	0,255	0,270	0,095

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Ohlson O-Score	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Zmijewski	Score	0,006	1,165	0,618	0,645	0,896
	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Springate	Score	0,177	-0,547	0,100	0,087	-0,201
	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone

Table 10. Bankruptcy Prediction of WIKA 2019 – 2023

Method			2019	2020	2021	2022	2023
Altman Z-Score		Score	2,266	0,778	0,259	0,484	-1,849
		Interpretation	Grey Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Ohlson O-Score		Score	0,026	0,056	0,056	0,059	0,478
		Interpretation	Safe Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Zmijewski		Score	-0,552	-0,018	-0,052	0,066	1,109
		Interpretation	Safe Zone	Safe Zone	Safe Zone	Distress Zone	Distress Zone
Springate		Score	0,573	0,173	0,188	0,176	-0,477
		Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone

Table 11. Bankruptcy Prediction of PTPP 2019 – 2023

Method			2019	2020	2021	2022	2023
Altman Z-Score		Score	1,730	1,206	0,670	0,987	0,823
		Interpretation	Grey Zone	Grey Zone	Distress Zone	Distress Zone	Distress Zone
Ohlson O-Score		Score	0,039	0,111	0,053	0,048	0,047
		Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Zmijewski		Score	-0,217	0,742	-0,208	-0,102	-0,149
		Interpretation	Safe Zone	Distress Zone	Safe Zone	Safe Zone	Safe Zone
Springate		Score	0,417	0,254	0,190	0,260	0,221
		Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone

Table 12. Bankruptcy Prediction of ADHI 2019 – 2023

Method			2019	2020	2021	2022	2023
Altman Z-Score		Score	1,624	0,857	0,351	1,116	0,912
		Interpretation	Grey Zone	Distress Zone	Distress Zone	Grey Zone	Distress Zone
Ohlson O-Score		Score	0,068	0,102	0,112	0,061	0,062
		Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone

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Zmijewski	Score	0,246	0,559	0,578	0,118	0,065
	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone
Springate	Score	0,408	0,199	0,138	0,287	0,322
	Interpretation	Distress Zone	Distress Zone	Distress Zone	Distress Zone	Distress Zone

The Altman Z-Score, Ohlson O-Score, Zmijewski, and Springate financial bankruptcy prediction models are displayed in the Table 8 to Table 12 along with the bankruptcy forecast for WSKT, WIKA, PTPP, and ADHI for the years 2019 to 2023. The financial health and insolvency risk of these companies are depicted differently by each five-year technique. In every method for 2019 – 2023, WSKT is in the "Distress Zone", threatening bankruptcy. The methods show a continual distress trend and diverse financial instability.

WIKA detected most models in "Distress Zone". WIKA's Altman Z-Score placed it in the "Distress Zone" and "Grey Zone" in 2019 and 2020. After early safety, the Ohlson O-Score and Zmijewski models suggest financial difficulties. After 2019 and 2020, PTPP moved from the "Grey Zone" to the "Distress Zone" on the Altman Z-Score. The Ohlson O-Score and Springate models place PTPP in the "Distress Zone", however the Zmijewski model is volatile, suggesting a safer position. ADHI forecasts finances differently. On the Altman Z-Score, the "Grey Zone" and "Distress Zone", representing financial stress and safety, rotate. According to the Ohlson O-Score and other models, ADHI is in the "Distress Zone", signaling financial issues.

Based on accuracy rates, the best approach for predicting bankruptcy among WSKT, WIKA, PTPP, and ADHI from 2019 to 2023 can be determined as follows:

Table 13. Accuracy Rate of Bankruptcy Prediction Methods

Method	Accuracy Rate	Rank
Altman Z – Score	65%	1
Ohlson O – Score	45%	4
Zmijewski	55%	2
Springate	50%	3

Table 13 shows the Altman Z-Score method with the highest accuracy rate at 65% securing the top rank (1). This indicates that the Altman Z-Score method is the most reliable for predicting bankruptcy among the four methods analyzed. Followed by Zmijewski in second rank (2), suggests a moderate level of reliability in bankruptcy prediction. Springate methods are in third place (3) with an accuracy rate of 50%. And lastly, the Ohlson O-Score method exhibits the lowest accuracy rate at 45%, earning the fourth rank (4).

The accuracy of the model is juxtaposed with the actual conditions of BUMN Karya this year. WSKT has been under suspension by the IDX for one year as of May 8, 2023. This suspension was initially imposed due to the company's failure to fulfill its financial obligations, specifically the non-payment of the 11th interest installment on its bonds. The continued suspension poses a significant risk to WSKT, as there is a looming threat of delisting if the company does not resolve its financial issues and meet the

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regulatory requirements for resuming regular trading. Delisting would mean the removal of WSKT shares from the IDX, effectively underscoring the critical need for WSKT to finalize its restructuring plans and demonstrate financial stability to both its creditors and the stock exchange authorities, ensuring compliance with all necessary regulations to avoid delisting and restore investor confidence.

On the other side, based on IDX Announcement No. Peng-SPT-00021/BEI.PP2/12-2023, WIKA has been under suspension since December 2023 due to issues related to their financial obligations. Specifically, the suspension was initiated because WIKA failed to meet the principal repayment on its Sukuk Mudharabah Berkelanjutan I Tahun 2020 Seri A bonds, which amounted to IDR 184 billion. During the week leading up to the suspension, WIKA's stock exhibited significant volatility, with drastic price movements that triggered concerns from the IDX. The company's shares experienced a sharp decline followed by a brief surge, which raised red flags about the stability of its financial health and led to the decision to halt trading (Syamni et al., 2018).

For ADHI and PTPP, as of June 2024, the status of ADHI on the IDX shows that its stock is actively traded. The latest recorded price is IDR 212 per share, reflecting a slight increase of 1,00% from the previous close. The stock has experienced significant volatility, with a notable decline of about 50,24% over the past year. PTPP is active trading as well. Similar to ADHI, PTPP has also faced fluctuations in its stock price. As a major player in Indonesia's construction and civil engineering sector, PTPP continues to be a critical component of infrastructure development projects across the country.

CONCLUSION

In the first year of the pandemic (2020), profitability, liquidity, and leverage ratios dropped, and activity ratios rose for all enterprises. Many of these metrics improved in 2021. Large-Scale Social Restrictions (PSBB) and Indonesian government budget distribution rules during the epidemic reduced project funding, causing this pattern. In 2023, financial performance ratios fell for all corporations except ADHI. Several reasons contributed to the fall, including:

a. The decreasing revenue for WSKT in 2023 compared to the previous year. This was due to less construction service segment infrastructure projects, property revenue, and other infrastructure sales. Financing and vendor productivity concerns were the main factors.

b. WSKT could be delisted from IDX due to inability to pay bond obligations and directorate corruption.

c. WIKA's delayed bond payments have led IDX to suspend trading of its shares until April 30, 2024.

d. WIKA's profitability declined in 2023 due to rising sales costs. Cost growth caused losses across all business income streams.

e. In 2023, PTPP profitability decreased due to higher impairment losses, particularly in the inventories sector.

The financial health of WSKT, WIKA, and PTPP has generally declined over the years, with WSKT consistently remaining in the "Less Healthy" or "Unhealthy" categories,

as indicated by the validation tests conducted in accordance with the Decree of the Minister of State-Owned Enterprises Number: KEP-100/MBU/2002. WIKA experienced a substantial decline from "Healthy" in 2019 to "Less Healthy" in subsequent years. The PTPP underwent a comparable decline, which was indicative of the escalating financial instability. In contrast, ADHI's financial health was the sole entity that did not experience a decline in 2023. In 2023, the financial health of these companies, with the exception of ADHI, declined.

The Altman Z-Score, Ohlson O-Score, Zmijewski, and Springate models consistently suggest a high risk of insolvency in the financial bankruptcy forecasts for WSKT, WIKA, PTPP, and ADHI from 2019 to 2023. The models primarily position these firms in the "Distress Zone," which indicates persistent financial instability, across all companies and years. WSKT and PTPP are frequently included in the distress categories across all models, while WIKA and ADHI exhibit occasional periods of relative safety but overall reflect significant financial distress. The Altman Z-Score model is recognized for its superior predictive accuracy in comparison to other methodologies (Copeland et al., 2005).

The author proposes a comprehensive set of solutions to address corruption in state budget management, company liquidity issues, operational inefficiencies, cost management, and debt restructuring for construction companies. To prevent corruption, measures include enforcing procurement protocols, verifying expenditures, and ensuring transparent tender processes. To tackle liquidity problems, the focus is on improving subsidiary finances, streamlining legal claims, and considering rights issues instead of short-term loans.

Enhancing operational efficiency involves reducing costs, optimizing asset use, and implementing real-time data analytics. Cost-cutting can be achieved through rigorous internal audits. Debt restructuring aims to renegotiate terms to improve cash flow and operational flexibility, fostering financial stability and growth. These strategies collectively aim to enhance financial health and operational effectiveness, ensuring sustainable company performance.

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