

FINANCIAL PERFORMANCE ANALYSIS OF CONSTRUCTION STATE-OWNED ENTERPRISES LISTED IN INDONESIA STOCK EXCHANGE DURING COVID-19

Nugroho Setyo Utomo^{1*}, Sylvia Sandyzmara Devi², Hermanto Siregar³

¹²³IPB University, Jl Raya Pajajaran, West Java 16151, Indonesia
¹nugrohosetyo_utomo@apps.ipb.ac.id

Abstract

Construction State-Owned Enterprises (SOEs) have a very critical role in achieving the Government's goal in infrastructure development, in order to increase the efficiency of production line, transportation and support economic growth and equitable development in Indonesia. The priority of development has driven around 3,26 times in total asset growth of four construction SOEs listed in Indonesia Stock Exchange (IDX), from IDR 85,88 trillion (2015) to IDR 280,38 trillion (2019), but facing challenges since pandemic Covid-19 in 2020. This study aims to analyze the financial performance of these construction SOEs during Covid-19. The descriptive analysis of financial performances of construction SOEs for year 2016 to 2021, pre and during pandemic Covid-19 was used in this study with three approaches: Ministerial Decree of SOEs No. KEP-100/MBU/2002 about financial soundness assessment of SOEs, Altman Z-Score (1968 and 2006 model) and Debt Service Cover Ratio (DSCR). The managerial implication of this study is to predict the financial resilience of these construction SOEs in facing challenges in upcoming years.

Keywords: Altman Z-Score; construction state-owned enterprise (construction SOEs); debt service coverage ratio

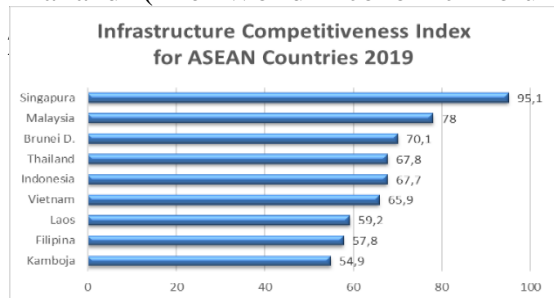
*Corresponding author

I. Introduction

Infrastructure development has a major influence on Indonesia's development process. Infrastructure development such as electricity, roads, water availability, and water distribution in Indonesia can increase foreign direct investment (FDI) in Indonesia (Fitriandi et al., 2014). The acceleration of infrastructure development carried out by the Government of Indonesia to all regions

has made significant changes to economic growth. Increasing the wheels of the economy through the development of road infrastructure, irrigation, railroads, and other vital infrastructure such as health infrastructure, educational infrastructure, and economic infrastructure make the accessibility of people's lives smoother, and the wheels of the economy increase (Nugraha et al., 2020). However, Indonesia's infrastructure index for ASEAN countries is

below Singapore, Malaysia, Brunei, and Thailand (The World Economic Forum,



Picture 1.

Infrastructure Index for ASEAN Countries
The Indonesian government has identified improving connectivity as a key issue in promoting economic growth, particularly in the manufacturing sector ([Sandee, 2016](#)). The Indonesian government is aware that it can no longer rely on commodities as a driver of economic growth. Infrastructure development is needed to encourage Indonesia's economic growth, encourage GDP growth, and minimize factors that hinder economic and industrial growth such as high transportation costs due to poor infrastructure that hampers the flow of goods and services transportation. The economic driving infrastructure and education infrastructure had a significant impact on GDP per capita. Thus, it is necessary to strengthen budget planning for the development of public infrastructure to improve economic welfare ([Ramadhan, 2019](#)). Good infrastructure brings better social and economic mobility, leading to better living conditions. For Indonesia, a

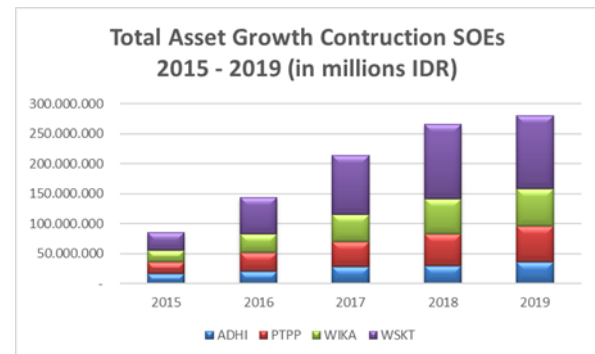
country with a large population and an archipelagic territory, developing efficient infrastructure is important for ensuring sustainable and inclusive growth ([Salim & Negara, 2018](#)). Infrastructure promotes economic efficiency by reducing transaction cost ([Gramlich, 2016](#)). Infrastructure both raises growth and lowers income inequality implies that infra-structure development may be a key win-win ingredient for poverty reduction. In addition to raising society's overall level of income, it would help raise the income of the poor more than proportionately. This suggests that infrastructure development should rank at the top of the poverty reduction agenda ([Servén & Calderón M., 2004](#)).

As an effort to realize competitive infrastructure, the government through the Ministry of Public Works and Public Housing (PUPR) has launched an infrastructure development policy through the 2020-2024 National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional or RPJMN). President of the Re-public of Indonesia, Jokowi supported state-owned enterprises (SOEs) with a range of policy measures and directed them to invest and implement major infrastructure projects ([Kim, 2019](#)). Under the government of President Joko Widodo, Indonesia's state-owned enterprises (SOEs) have become the driver of the national

development strategy. The current administration is actively using SOEs to conduct development projects based on the belief that SOEs are able to fix market failures and support the fiscally constrained government (Kim, 2018). The basic main problem for infrastructure financing is the annual National Revenue Expenditure Budget (NREB), in the Indonesian language is called as APBN (Anggaran Pendapatan dan Belanja Negara), is not enough to finance the Investment Cost. In Indonesia, the NREB capacity is also not enough to finance the whole infrastructure needed. Meanwhile, the Gross Domestic Product (GDP) is far much higher than the annual NREB. Therefore, instead of thinking about how the NREB must be arranged, it is logical to think to involve the Private Fund to participate in the Public Infrastructure development and operation (Soemitro & Suprayitno, 2020).

Construction SOEs are part of the backbones in accelerating infrastructure development in Indonesia. The SOEs have strategic role in realizing the RPJMN. There are 4 (four) construction SOEs currently listed on the Indonesia Stock Exchange (IDX) and their ticker symbol, namely: 1) PT. Waskita Karya (Persero), Tbk (WSKT), 2) PT. Wijaya Karya (Persero), Tbk (WIKA), 3) PT. PP (Persero), Tbk (PTPP), 4) PT. Adhi Karya (Persero), Tbk (ADHI)

and their total asset growth for the financial year 2015 to 2019 as shown on Picture 2.



Picture 2.

Total Asset Growth Listed Construction
 These massive infrastructure development decisions taken by the Government of Indonesia (GoI), means opportunities for companies engaged within the construction sector, especially for construction companies with State-owned Enterprises (SOE) status. The GoI decisions appointing SOE construction companies as the main contractors and developers of the GoI key infrastructure projects means automatic revenue growth for the companies. In contrary, based on the January 2015 and January 2020 stock price data of SOE Construction Company listed in Indonesian Stock Exchange (IDX), all four (4) SOE construction companies stock price declined by 45.37% on average, despite within the same period, the Jakarta Composite Index (IHSG) increased by 20.35% (Helmi & Daryanto, 2020). Most infrastructure projects are given to SOEs in the construction industry. However, a sudden

increase in projects today does not guarantee future workloads and performance ([Nurfitriana & Rahadi, 2021](#)).

The research questions that will be answered as a novelty offer from this research is a descriptive analysis of the financial performances of 4 (four) construction SOEs listed in Indonesia Stock Exchange (IDX) for year 2016 to 2021, pre and during pandemic Covid-19. Three approaches have been compared during the time period using Ministerial Decree of SOEs No. KEP-100/MBU/2002 about financial soundness assessment of SOEs, Altman Z-Score ([1968](#) and [2006](#) model) and Debt Service Cover Ratio (DSCR) approaches.

1.1. Construction State-Owned Enterpris-es (SOEs) in Indonesia

Construction SOEs has been listed in Indonesia Stock Exchange comprise of 4 (four) companies: 1) PT. Waskita Karya (Persero), Tbk (WSKT); 2) PT. Wijaya Karya (Persero), Tbk (WIKA); 3) PT. PP (Persero), Tbk (PTPP); and 4) PT. Adhi Karya (Persero), Tbk (ADHI).

1. PT. Waskita Karya (Persero), Tbk

Established on January 1st, 1961 PT Waskita Karya (Persero) Tbk (ticker symbol: WSKT), with total Asset IDR 105,56 trillion (as per 31 December 2020) is one of the leading state companies in Indonesia that plays a major role in

infrastructure development. Derived from a Dutch company called "Volker Aannemings Maatschappij N.V.", which was taken over based on Government Decree No. 62/1961, Waskita Karya initially participated in water-related project work including reclamation, dredging, ports and irrigation. Since 1973, Waskita Karya's legal status changed to "Persero" PT Waskita Karya with a more familiar nickname "Waskita". Since then, the company has started to develop its business as a general contractor involved in a wider range of construction activities including roads, bridges, airports, waste processing plants, cement plants and other industrial facilities, which engaged in 5 business lines; construction services, toll road investment, precast concrete, realty and energy. Listed in Indonesia Stock Exchange in December 2012 by issuing new shares amounting IDR 1,2 trillion. Issued new shares in June 2015 through Rights Issue with the total IDR 5,29 trillion: Government Capital Injection IDR 3,499 trillion and Public IDR 1,798 trillion. Issued new shares of PT Waskita Beton Precast Tbk (one of the subsidiaries) through Initial Public Offering (IPO) in Indonesia Stock Exchange on 20 September 2016.

2. PT. Wijaya Karya (Persero), Tbk

Established on March 11, 1960, under the name of "Perusahaan Negara Bangunan

Widjaja Karja, PT Wijaya Karya (Persero) Tbk (ticker symbol: WIKA), with total Asset IDR 68,11 trillion (as per 31 December 2020), was a nationalization of Dutch com-pany, Naamloze Vennotschap Technische Handel Maatschappij enBouwbedrijf Vis en Co or NV Vis en Co., pursuant to Govern-ment Regulation No.2/1960 and Minister's Decree of Public Works and Electric Power (PUTL) Decree No. 5 dated March 11, 1960. WIKA began as a company engaging in electrical and plumbing installation work, and in the 70s, shifted into becoming a civil and building contractor company. It gave contribution to the infrastructure develop-ment which becomes the national icon up to now. One of them was the development of Bung Karno sport stadium. Later, WIKA transformed into a contractor of low, medi-um, and high voltage electrical installation. In the early 1970s, it expanded its business into a contractor company of civil and resi-dential building. The growth went on even more positive when WIKA turned into a lim-ited liability company (persero) on Decem-ber 20, 1972. Since then, it became a construction contractor that handled many im-portant projects, e.g., electrical installation in Water Powerplant in Asahan and Jatiluhur irrigation project. WIKA kept innovating and it turned into an integrated infrastructure company. A number of

subsidiary companies were established to make its business movement get stronger. Some of them were: WIKA Beton, WIKA Intrade, dan WIKA Realty. Through initial public offering (IPO) on October 27, 2007 in Indonesia Stock Exchange, WIKA issued 28.46% of its shares to the public while the rest belong to the Government of the republic of Indonesia. Since December 31, 2012, the percentage of such share issuance increased by 35%.

3. PT. Pembangunan Perumahan (Persero), Tbk

Established under the name of NV Pem-bangunan Perumahan based on the Notarial Deed No. 48 on August 26, 1953, PT PP (Persero) Tbk (ticker symbol: PTPP), with total Asset IDR 53,47 trillion (as per 31 December 2020), as one of the main players in national construction business through the accomplishment of various big projects across Indonesia. In accordance with Government Regulation No. 63 of 1960, NV Pembangunan Perumahan was changed to PN Pembangunan Perumahan. Referring to the Government Regulation No. 39 year 1971, PN Pembangunan Perumahan transformed its status into PT PP (Persero), enforced by Deeds No. 78 dated March 15, 1971. In 1962, PN (Perusahaan Negara) Pembangunan Perumahan has completed Hotel Indonesia construction which consists

of 14 floors and 427 rooms that set a record as the highest building in Indonesia at that time. It was entrusted to build houses for the officers of PT Semen Gresik Tbk, a subsidiary of BAPINDO in Gresik. Along with increased trust, PT PP (Persero) received the duty to construct large projects that were related to war compensations the Government of Japan paid to the Republic of Indonesia, namely Hotel Indonesia, Bali Beach Hotel, Ambarukmo Palace Hotel and Samudera Beach Hotel. Listed since February 9, 2010 in Indonesia Stock Exchange, PTPP majority shares belong to the Government of the Republic of Indonesia 51% and public 48,73%.

4. PT. Adhi Karya (Persero), Tbk

Established on March 11, 1960, under the name PN Adhi Karya. PT Adhi Karya (Persero) Tbk (ticker symbol: ADHI), with total Asset IDR 38,09 billion (as per 31 December 2020), was a nationalization of Architecten-Ingencureen Annemersbedrijf Associatie Selle en de Bruyn, Reyerse en de Vries NV (Assosiate NV) a Dutch-owned company. This nationalization became a driver of infrastructure development in Indonesia. Based on the approval of the Minister of Justice of the Republic of Indonesia, on June 1, 1974, ADHI changed its status to a Limited Liability Company. The scope of its businesses includes civil

and building construction, EPC (Engineering Procurement Construction), property business involves an investment business for infrastructure development, which includes offices, apartments, and hotels, real estate business, precast manufacturing. Listed on March 18, 2004 in Indonesia Stock Exchange, ADHI had become the first construction company listed on the Indonesia Stock Exchange with majority shares belong to the Government of the Republic of Indonesia 51% and public 49%.

1.2. The Decree of Ministry of State-Owned Enterprises

The Ministry of State-Owned Enterprises issued a ministerial decree No. KEP-100/MBU/2002 about the financial soundness assessment of SOEs. This ministerial decree applies to all SOEs in the financial and non-financial industries, while for the non-financial industry, the companies are divided into two categories: infrastructure and non-infrastructure. The assessment of financial performance is becoming increasingly important. The Decree No. KEP-100/MBU/2002 issued by Ministry of Stated Owned Enterprises of Indonesia on June 2002 provide the mandatory measuring and rating the financial health condition for all subsidiaries of SOEs. The circumstance is of relevance in the Indonesian context, characterized by a

strong corporate governance but the lack of transparency. This study aims to measure the level of financial performance by investigating return on equity, return on investment, cash ratio, current ratio, collection period, inventory turnover, total asset turnover and total equity to total asset ratio (Daryanto & Samidi, 2018).

The evaluation method covered 3 (three) aspects consist of financial, operational, and administration. Financial aspect has total weight score 50 for infrastructure and 70 for non-infrastructure. There are eight indicators to measure the financial soundness: return on investment, return on equity, cash ratio, current ratio, collections period, inventory turnover, total asset turnover, and total equity to the total asset. Based on that decree, construction companies categorized as non-infrastructure industries and assessed with the Weight Score guidelines shown on Table 1.

Table 1.
Indicators and Weight Score
of the SOEs

Group	Ratio	No.	Indicators	Weight Score	Formula
I	Profitability	1	Return on Equity (ROE)	20	$ROE = \frac{\text{Earing after Tax}}{\text{Capital}}$
		2	Return of Investment (ROI)	15	$ROI = \frac{\text{Earing before Interest \& Tax} + \text{Depreciation}}{\text{Capital}} \times 100\%$
II	Liquidity	3	Cash Ratio	5	$\text{Cash Ratio} = \frac{\text{Cash} + \text{Bank} + \text{Maketable Securities}}{\text{Current Liabilities}} \times 100\%$
		4	Current Ratio	5	$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liabilities}} \times 100\%$
III	Activity	5	Collection Period (CP)	5	$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liabilities}} \times 100\%$
		6	Inventory Turnover (ITO)	5	$CP = \frac{\text{Account Receivables}}{\text{Cost of Good}}$
		7	Total Asset Turnover (TATO)	5	$ITO = \frac{\text{Inventory}}{\text{Cost of Good}}$
IV	Solvency	8	Total Equity to Total Asset (TETA)	10	$TATO = \frac{\text{Total Sales}}{\text{Capital}} \times 100\%$
Total Weight Score			70	$TETA = \frac{\text{Total Equity}}{\text{Total Asset}} \times 100\%$	

This decree is used to guide performance evaluation of those SOEs. Financial aspects

cover 70% of weight evaluation, which rated as shown on Table 2.

Table 2.
Total Score of SOEs
Financial Rating

Category	Rating	Total Score (TS)
Healthy	AAA	$TS > 95$
	AA	$80 < TS \leq 95$
	A	$65 < TS \leq 80$
Less Healthy	BBB	$50 < TS \leq 65$
	BB	$40 < TS \leq 50$
	B	$30 < TS \leq 40$
Un-healthy	CCC	$20 < TS \leq 30$
	CC	$10 < TS \leq 20$
	C	$TS \leq 10$

1.3. The Variables and Weight Score

Based on Ministerial Decree No. KEP-100/MBU/2002 about the financial soundness assessment of SOEs, financial scores are weighted from 4 (four) key financial ratios, which consist of 8 (eight) financial indicators described in Table 3, Table 4, Table 5, Table 6 as follows:

Table 3.
Profitability Ratio Scoring

ROE (%)	Score	ROI (%)	Score
$15 < ROE$	20	$18 < ROI$	15
$13 < ROE \leq 15$	18	$15 < ROI \leq 18$	13,5
$11 < ROE \leq 13$	16	$13 < ROI \leq 15$	12
$9 < ROE \leq 11$	14	$12 < ROI \leq 13$	10,5
$7,9 < ROE \leq 9$	12	$10,5 < ROI \leq 12$	9
$6,6 < ROE \leq 7,9$	10	$9 < ROI \leq 10,5$	7,5
$5,3 < ROE \leq 6,6$	8,5	$7 < ROI \leq 9$	6
$4 < ROE \leq 5,3$	7	$5 < ROI \leq 7$	5
$2,5 < ROE \leq 4$	5,5	$3 < ROI \leq 5$	4
$1 < ROE \leq 2,5$	4	$1 < ROI \leq 3$	3
$0 < ROE \leq 1$	2	$0 < ROI \leq 1$	2
$ROE < 0$	0	$ROI < 0$	1

Table 4.
Liquidity Ratio Scoring

Cash Ratio = x	Score	Current Ratio =	Score
$x \geq 35$	5	$125 \leq x$	5
$25 \leq x < 35$	4	$110 \leq x < 125$	4
$15 \leq x < 25$	3	$100 \leq x < 110$	3
$10 \leq x < 15$	2	$95 \leq x < 100$	2
$5 \leq x < 10$	1	$90 \leq x < 95$	1
$0 \leq x < 5$	0	$x < 90$	0

Table 5.

Activity Ratio

CP = x (days)	Adjustment = x	Score	PP = x (days)	Adjustment = x	Score	TATO = x (%)	Adjustment = x	Score
$x \leq 60$	$x > 35$	5	$x \leq 60$	$x < 35$	5	$120 < x$	$20 < x$	5
$60 < x \leq 90$	$30 < x \leq 35$	4,5	$60 < x \leq 90$	$30 < x \leq 35$	4,5	$105 < x \leq 120$	$15 < x \leq 20$	4,5
$90 < x \leq 120$	$25 < x \leq 30$	4	$90 < x \leq 120$	$25 < x \leq 30$	4	$90 < x \leq 105$	$10 < x \leq 15$	4
$120 < x \leq 150$	$20 < x \leq 25$	3,5	$120 < x \leq 150$	$20 < x \leq 25$	3,5	$75 < x \leq 90$	$5 < x \leq 10$	3,5
$150 < x \leq 180$	$15 < x \leq 20$	3	$150 < x \leq 180$	$15 < x \leq 20$	3	$60 < x \leq 75$	$0 < x \leq 5$	3
$180 < x \leq 210$	$10 < x \leq 15$	2,4	$180 < x \leq 210$	$10 < x \leq 15$	2,4	$40 < x \leq 60$	$x \leq 0$	2,5
$210 < x \leq 240$	$6 < x \leq 10$	1,8	$210 < x \leq 240$	$6 < x \leq 10$	1,8	$20 < x \leq 40$	$x < 0$	2
$240 < x \leq 270$	$3 < x \leq 6$	1,2	$240 < x \leq 270$	$3 < x \leq 6$	1,2	$x \leq 20$	$x < 0$	1,5
$270 < x \leq 300$	$1 < x \leq 3$	0,6	$270 < x \leq 300$	$1 < x \leq 3$	0,6			
$300 < x$	$0 < x \leq 1$	0	$300 < x$	$0 < x \leq 1$	0			

Table 6.

Solvency Ratio Scoring

TETA (%) = x	Score
$x < 0$	0
$0 \leq x < 10$	4
$10 \leq x < 20$	6
$20 \leq x < 30$	7,25
$30 \leq x < 40$	10
$40 \leq x < 50$	9
$50 \leq x < 60$	8,5
$60 \leq x < 70$	8
$70 \leq x < 80$	7,5
$80 \leq x < 90$	7
$90 \leq x < 100$	6,5

1.4. Altman Z-Score Formulation

In 1966, William H. Beaver, an Assistant Professor of Accounting at the University of Chicago, conducted the first study on financial distress and bankruptcy. Beaver employed a univariate model, categorizing financial ratios into 6 (six) groups. Beaver comes to the conclusion that the ratio of a company's cash flow to its debt is the best predictor of bankruptcy (Beaver, 1966). In 1968, Edward I. Altman, an Assistant Professor of Finance at New York University, conducted research on the following questions: 1) which ratio is most

important in detecting potential bankruptcy? 2) How should the weight be included in the chosen ratio? Altman then separated the bankrupt and non-bankrupt data samples using multiple discriminant analysis (MDA). Altman discovered in his research that of the 22 financial ratios available, 5 can be combined to distinguish between bankrupt and non-bankrupt companies. In the first study of 66 publicly traded manufacturing companies, Altman discovered that companies with a Z score greater than 2.67 could be classified as "non-bankrupt," while companies with a Z score less than 1.71 were "non-bankrupt." Companies with a Z score of 1.81 to 2.67, on the other hand, are classified as "gray area". Furthermore, the equation model below is known as the Altman Z-Score bankruptcy prediction model's initial version (Altman, 1968).

$$Z\text{-Score} = 1,2 X1 + 1,4 X2 + 3,3 X3 + 0,6 X4 + 1,0 X5$$

Table 7.

Altman Z-Score Formulation 1968

Ratio	Coefficient
X1 = Working Capital/ Total Asset	1,2
X2 = Retained Earning/ Total Asset	1,4
X3 = EBIT/ Total Asset	3,3
X4 = Market Value of Equity/ Book value of total debt	0,6
X5 = Total sales/ Total Asset	1,0
Distress Zone: $Z < 1,81$	

Grey Zone: $1,81 \leq Z \leq 2,67$ Non-Distress Zone: $Z > 2,67$	
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Altman revised the bankruptcy prediction model to keep up with the times, making changes to the development of industry categories so that this model could be widely applied. The most recent model modification, in 2006, is thought to be representative of current conditions (Altman et al., 2006).

$$\text{Z-Score} = 6,56 X1 + 3,26 X2 + 6,72 X3 + 1,05 X4$$

Table 8.

Altman Z-Score Formulation 2006

Ratio	Coefficient
X1 = Working Capital/ Total Asset	6,56
X2 = Retained Earning/ Total Asset	3,26
X3 = EBIT/ Total Asset	6,72
X5 = Total sales/ Total Asset	1,05
Distress Zone: $Z < 1,1$ Grey Zone: $1,1 \leq Z \leq 2,6$ Non-Distress Zone: $Z > 2,6$	

In addition to the Altman Z-Score, several models, such as the Springate, Zmijewski, and Grover models, can be used to forecast financial sustainability conditions. For the period 2014-2019, a study of four telecommunications sub-sector companies listed on the Indonesian stock exchange was conducted, Comparative testing of the four bankruptcy analysis models resulted in the Altman, Springate and Grover models recording accurate results but Altman

modelling is the best because it is an accurate, consistent, and tested model both descriptively and statistically (Fauzi et al., 2021).

2.5. Debt Service Coverage Ratio

The company's financial distress can be measured using the debt service coverage ratio (DSCR). DSCR describes how much the company is able to generate funds to meet its obligations. This means internally generated fund consist of Earning after Tax (EAT) plus depreciation of fixed assets plus amortization of intangible assets should be higher than its obligation to the third parties and shareholders at the short-term period of time (Pranowo et al., 2010). DSCR can be can calculated using the following formula:

$$\text{DSCR} = \frac{\text{EAT} + ((\text{Depreciation Amortization}) + \text{Interest or Coupon}) - \text{TAX}}{\text{Principle} + \text{Interest or Coupon}}$$

Where:

- EAT : Earning after tax
- Depreciation : Cost allocation for utilization of tangible assets
- Amortization : Cost allocation for utilization of intangible assets
- Interest : Bank loan interest expenses per year
- Coupon : Corporate bond interest expense per year
- Tax : Corporate tax per year
- Principal : Loan payment installments periodically or payment corporate bonds

Companies with a Debt Service Coverage

Ratio (DSCR) of less than 1.20 are in financial distress ([Ruster, 1996](#)).

II. Discussion

2.1. Data and Method

Data were collected from Annual Report (audited) between 2016 to 2020 and June 2021 (un-audited) published on their websites of 4 (four) construction SOEs listed in Indonesia Stock Exchange. Those companies are named: 1) PT. Waskita Karya (Persero), Tbk (WSKT); 2) PT. Wijaya Karya (Persero), Tbk (WIKA); 3) PT. PP (Persero), Tbk (PTPP); and 4) PT. Adhi Karya (Persero), Tbk (ADHI). The descriptive analysis with 3 (three) approaches has been used in this study as follows:

1. Financial Ratio Analysis Approach

This study uses financial variables gathered from financial reports. The financial ratio data was used to measure, describe, and analyze the financial performance of those companies selected. Ratio's measurement scales were taken from the ministerial decree of the Ministry of SOEs No. KEP-100/MBU/2002 about the financial soundness assessment of SOEs. This financial ratio analysis provided detailed information about company profitability, liquidity, activity, and solvency based on the published financial report without backward

looking at the validation of the presented data.

2. Altman Z-Score Approach

This study uses Altman Z-Score formulation as early warning tools to evaluate potential bankruptcy in next 2 (two) years caused by financial distress of the company. It was important for shareholders and managements to plan the fit strategic breakthrough for company's sustainability. Original [Altman Z-Score 1968](#) formula and [2006](#) formula would be used.

3. Debt Service Coverage Ratio Approach

A debt service coverage ratio analysis is carried out to see the availability of funds owned by the company to pay off its debts in the fiscal year. Calculations were carried out to see whether the DSCR value was greater or less than the value suggested by Ruster (1996), namely DSCR 1.2.

1.2. Result

1. PT. Waskita Karya (Persero), Tbk

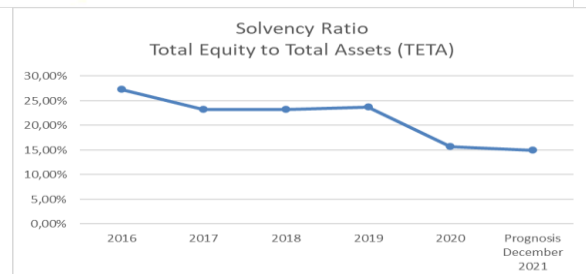
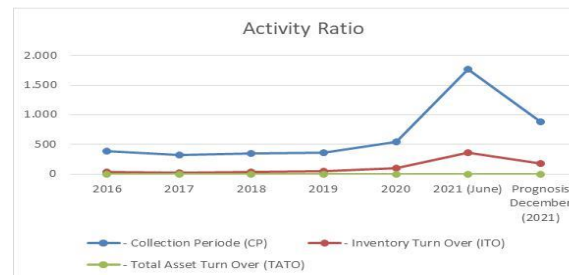
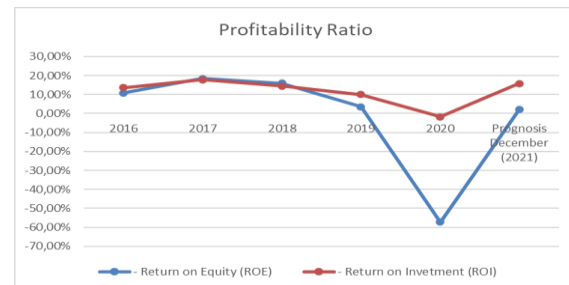
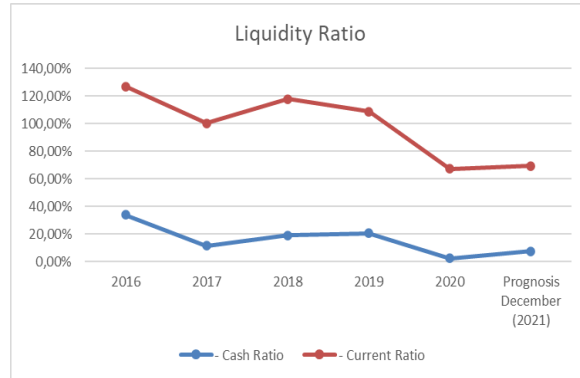
Financial performance data of WSKT was the company's published financial performance data for the last 5 (five) years that have been audited, for the 2016-2020 period. The Q2 2021 financial report is an inhouse financial report issued by the company. This Q2 financial report is used to

forecast the company's financial performance in 2021. Financial Ratios as shown on Table 9, Table 10, and Picture 3.

Table 9.

Financial Ratio of WSKT

Variables	2016	2017	2018	2019	2020	2021 (June)	Prognosis December (2021)
A. Profitability Ratio							
- Return on Equity (ROE)	10,81%	18,46%	15,99%	3,53%	57,28%	0,98%	1,97%
- Return on Investment (ROI)	13,64%	17,75%	14,38%	9,94%	1,85%	11,08%	15,81%
B. Liquidity Ratio							
- Cash Ratio	34,06%	11,64%	19,09%	20,56%	2,52%	7,49%	7,49%
- Current Ratio	126,94%	100,23%	117,94%	108,92%	67,45%	69,35%	69,35%
C. Activity ratio							
- Collection Period (CP)	387	316	351	364	548	1,776	888
- Inventory Turn Over (ITO)	39	26	38	52	95	363	182
- Total Asset Turn Over (TATO)	78,90%	99,18%	72,18%	40,47%	28,23%	8,28%	16,56%
D. Solvency Ratio							
- Total Equity to Total Assets (TETA)	27,30%	23,24%	23,22%	23,75%	15,70%	14,94%	14,94%



Picture 3.
Financial Ratio of WSKT

1. Financial Ratio Analysis using Ministerial Decree SOEs No. KEP-100/MBU/2002 approach

a. Profitability Analysis

Percentage of ROE and ROI of WSKT, increased from 2016, to 2017 but then decreased from 2017 to 2020, with values from 2018 to 2020 for ROE were 15.99%, 3.53%, and -57.28% and ROI 14.38%, 9.94%, -1.85%. During the evaluation period, only in 2017 the company's ROE 18.46% and ROI 17.75% exceed the minimum standard set by the Minister Decree 18% for ROE and 15% for ROI. ROE's sharp declining in 2020 was caused by the company's high negative net income that year, indicates that the company is unable to generate profits with the equity capital it owns, particularly in Covid-19 pandemic. The Indonesian government's persistent efforts in dealing with the COVID-19 pandemic support opportunities for improving WSKT's ROE and ROI in 2021.

b. Liquidity Analysis

Liquidity ratio of WSKT was decreased during the Covid-19 pandemic in 2020. The cash ratio fell in 2017 compared to 2016, then rose again in 2018, and the trend fell from 2019 to 2020. This was partly due to a decrease in cash equivalents. In 2017, the company's cash was up 54%, while current

liabilities increased significantly. The liquidity ratio decreased in 2020 as a result of a significant decrease in cash and cash equivalents that year. The company's current ratio fell from 2016 to 2017, then improved from 2017 to 2018, then fell again from 2018 to 2020. From 2016 to 2020, the current ratio values were 126.95%, 100.23%, 117.94%, 108.92%, and 67.45%, respectively. In terms of liquidity ratios, only the current ratio exceeded the Ministerial Decree standard of 125% in 2016, because the company's current assets include a large proportion of gross receivables from customers was increased.

c. Activity Analysis

The optimum value of activity ratio, inventory turnover, and total asset turnover was achieved by WSKT in 2017. WSKT quite efficient in managing the company's assets in 2017. The company's collection period was at an average of 355 days from 2016 to 2019, but then increased to 548 days during the Covid-19 pandemic. From 2016 to 2019, the average inventory turnover ratio was at the Minister Decree standard of less than 60 days, and it was increased to 95 days in 2020 during the Covid-19 pandemic. Then, for the total asset turnover value, which measures WSKT's ability to generate sales from its assets from 2016 to 2020 have not yet met the Minister Decree standard of more than 120%. From 99.18% in 2017 to

28.23% in 2020, the trend shows a significant decrease. In general, the company's activity ratio indicates that conditions are becoming increasingly ineffective during the Covid-19 pandemic.

d. Solvency Analysis

The solvency level of WSKT, as measured by total equity to total assets, did not meet the expected ideal value of 30-40%. Total equity to total asset of the company has decrease from 2016 to 2020. The total equity to total asset show that the company relatively high level of liability, which tend to rise during the Covid-19 pandemic. There has been no significant performance improvement found in the calculation of the 2021 prognosis.

Tabel 10.

Financial Ratio Scoring of WSKT
(No. KEP-100/MBU/2002)

INDICATOR	2016	2017	2018	2019	2020	2021 (Istme)	2021 (Prognosis)							
	RATIO SCORE	RATIO SCORE	RATIO SCORE	RATIO SCORE	RATIO SCORE	RATIO SCORE	RATIO SCORE							
- Return on Equity (ROE)	10,01%	14	18,48%	20	15,99%	5,5	-17,20%	0	0,98%	2	1,97%	4		
- Return on Investment (ROI)	13,64%	12	17,73%	13,5	14,30%	9	9,94%	5	-1,67%	0	11,00%	4	15,01%	7,5
- Cash Ratio	34,06%	4	11,64%	2	19,09%	3	20,59%	3	2,72%	0	7,49%	1	7,49%	1
- Current Ratio	126,94%	5	100,23%	3	117,94%	4	100,92%	3	67,45%	0	69,33%	0	69,33%	0
- Collection Period (CP)	307	0	316	0	351	0	364	0	348	0	1,776	0	883	0
- Inventory Turn Over (ITO)	39	5	26	5	30	5	52	5	95	4	369	0	102	2,4
- Total Asset Turn Over (TATO)	78,30%	3,5	99,18%	4	72,18%	3	40,47%	2,5	20,22%	2	0,20%	1,5	16,50%	1,5
- Total Equity to Total Assets (TETA)	27,30%	7,25	23,34%	7,25	29,22%	7,25	29,73%	7,25	15,70%	6	14,94%	6	14,94%	6
TOTAL SCORE		50,75	54,75	51,25	51,25	12	14,5	22,4						
WEIGHT	70	70	70	70	70	70	70	70						
TOTAL WEIGHT	72,50	78,20	73,21	44,64	17,14	20,71	32,00							
LEVEL	A	A	A	BB	CC	CCC	B							
CATEGORY	HEALTHY	HEALTHY	HEALTHY	LESS HEALTHY	UNHEALTHY	UNHEALTHY	LESS HEALTHY							

1. Altman Z-Score Approach

Based on the Altman Z-Score in the 1968 formula as shown in Table 11, with a threshold number of Z-Score < 1.81

indicating distress and Z-Score > 2.67 indicating non-distress, the company has an indication of potential financial distress with a Z-Score value that continues to decline from 2016 to 2020. This is made possible by the company's non-optimal total assets in generating sufficient profits and sales for the company to meet its obligations.

Table 11.

Altman Z-Score (1968) of WSKT

ZScore (1968)	2016	2017	2018	2019	2020	2021 (Istme)	Prognosis December 2021
X¹							
- Working Capital	8.429.921.390.492	117.810.501.557	10.189.404.722.848	4.014.247.746.537	-15.699.073.320.051	-44.890.944.207.427	-14.890.944.207.427
- Total Assets	61.433.012.174.447	97.895.700.838.424	124.391.581.623.636	122.589.259.350.571	105.588.960.060.095	105.495.829.017.915	105.495.829.017.915
- Coefficient	1,2	1,2	1,2	1,2	1,2	1,2	1,2
- X ¹ Score	0,16	0,00	0,10	0,04	-0,18	-0,17	-0,17
X²							
- Retained Earnings	3.334.161.614.252	6.681.081.107.614	10.347.404.290.395	12.323.409.821.327	-440.120.243.584	-284.956.162.557	-284.956.162.557
- Total Assets	61.433.012.174.447	97.895.700.838.424	124.391.581.623.636	122.589.259.350.571	105.588.960.060.095	105.495.829.017.915	105.495.829.017.915
- Coefficient	1,4	1,4	1,4	1,4	1,4	1,4	1,4
- X ² Score	0,08	0,10	0,12	0,12	-0,01	0,00	0,00
X³							
- EBIT	3.145.701.501.668	6.526.601.124.814	7.966.901.773.182	5.239.471.615.685	-4.339.359.932.366	2.492.389.932.228	5.384.779.964.456
- Total Assets	61.433.012.174.447	97.895.700.838.424	124.391.581.623.636	122.589.259.350.571	105.588.960.060.095	105.495.829.017.915	105.495.829.017.915
- Coefficient	3,3	3,3	3,3	3,3	3,3	3,3	3,3
- X ³ Score	0,17	0,22	0,21	0,14	-0,14	0,08	0,17
X⁴							
- Market value of Equity	34.612.443.487.500	29.998.324.746.000	22.804.257.680.000	20.157.317.235.000	19.546.489.440.000	11.945.076.880.000	11.945.076.880.000
- Book value of total debt	44.659.793.617.499	75.140.956.029.129	95.584.462.872.769	93.470.790.161.572	89.011.485.244.715	89.738.822.687.951	89.738.822.687.951
- Coefficient	0,6	0,6	0,6	0,6	0,6	0,6	0,6
- X ⁴ Score	0,47	0,24	0,14	0,13	0,13	0,08	0,08
X⁵							
- Total Sales	23.788.222.626.347	45.212.897.672.404	48.788.950.838.822	31.207.389.629.869	16.190.456.515.103	4.710.510.392.762	9.421.020.787.534
- Total Asset	61.433.012.174.447	97.895.700.838.424	124.391.581.623.636	122.589.259.350.571	105.588.960.060.095	105.495.829.017.915	105.495.829.017.915
- Coefficient	1,0	1,0	1,0	1,0	1,0	1,0	1,0
- X ⁵ Score	0,39	0,46	0,39	0,26	0,15	0,04	0,09
Total Z-Score	1,26	1,82	0,96	0,68	-0,03	0,04	0,16
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

Using the modified Altman Z-Score in Table 11, with a threshold value of 1.1 indicating distress and > 2.6 indicating non-distress, it can be seen that WSKT was in the gray area with a Z-Score above 1.1 in 2016, 2018, and 2019. The year 2017 is associated with the calculation of the current and cash ratios and describes the company's financial distress. Z-Score -1.07 in 2020 where the Covid-19 pandemic condition occurred due to the value of the company's current assets being far below the value of the company's

current liabilities, indicating that WSKT will struggle to meet its current liabilities in 2020.

Table 12.
Altman Z-Score (2006) of WSKT

Z-Score (2006)	2016	2017	2018	2019	2020	2021 (Jawa)	Prognosis December 2021
Working Capital	8.428.921.390.492	117.819.501.557	10.189.404.722.848	4.014.347.746.517	-15.699.079.320.031	-14.890.946.287.427	-14.890.946.287.427
Total Asset	61.433.012.716.447	97.895.790.838.624	124.391.581.623.636	121.199.239.330.571	105.198.940.060.005	105.495.829.017.913	105.495.829.017.913
Coefficient	6,56	6,56	6,56	6,56	6,56	6,56	6,56
X-Score	0,90	0,91	0,94	0,91	-0,98	-0,99	-0,99
Return Earnings	3.334.140.614.212	6.681.081.107.624	10.347.404.240.305	10.238.409.823.217	-440.130.243.584	-294.956.142.217	-294.956.142.217
Total Asset	61.433.012.716.447	97.895.790.838.624	124.391.581.623.636	121.199.239.330.571	105.198.940.060.005	105.495.829.017.913	105.495.829.017.913
Coefficient	3,26	3,26	3,26	3,26	3,26	3,26	3,26
X-Score	0,18	0,21	0,21	0,21	-0,01	-0,01	-0,01
EBIT	3.145.781.501.668	6.526.601.124.834	7.966.901.773.182	5.239.471.615.683	-4.339.338.932.366	-2.692.389.882.238	-5.384.739.964.406
Total Asset	61.433.012.716.447	97.895.790.838.624	124.391.581.623.636	121.199.239.330.571	105.198.940.060.005	105.495.829.017.913	105.495.829.017.913
Coefficient	6,72	6,72	6,72	6,72	6,72	6,72	6,72
X-Score	0,34	0,41	0,41	0,39	-0,28	-0,17	-0,34
Use Works	16.779.218.516.948	22.754.824.809.495	28.887.118.710.847	29.118.449.188.999	16.577.554.742.290	15.727.006.329.944	15.727.006.329.944
Total Liabilities	44.639.789.617.499	72.140.936.039.239	89.504.462.912.789	93.470.790.162.572	89.011.405.394.313	89.738.822.687.913	89.738.822.687.913
Coefficient	1,03	1,03	1,03	1,03	1,03	1,03	1,03
X-Score	0,39	0,32	0,32	0,33	0,30	0,18	-0,18
Total E-Score	1,82	1,89	1,86	1,89	1,87	1,87	1,81
Condition	Good	Distress	Good	Distress	Distress	Distress	Distress

2. DSCR Approach

Based on calculations using the Debt Service Coverage Ratio (DSCR), it can be seen that the company has low flexibility in managing its finances, and the ability to generate funds from company activities is quite low to fulfill its obligations, with a score below 1 since 2016 until the Covid-19 pandemic in 2020. It is highly anticipated that performance will improve in the 2021 forecast.

Table 13.
Altman Z-Score (2006) of WSKT

Debt Service Coverage Ratio (DSCR)	2016	2017	2018	2019	2020	2021 (Jawa)	Prognosis December 2021
EBIT - Finance after tax	1.113.098.614.781	4.011.272.490.724	4.410.467.702.010	1.024.896.527.801	-8.692.296.146.266	-10.020.389.944	-10.020.389.944
Debt Service	1.017.347.705.099	1.113.810.690.193	1.524.956.729.103	2.024.958.841.801	3.093.512.761.300	3.399.269.151.064	3.399.269.151.064
Availability	0,78	3,58	2,88	0,51	-3,58	-3,11	-3,11
Debt and Capital	590.104.626.309	1.005.914.970.109	2.403.429.249.174	3.910.812.612.644	2.500.000.907.487	2.201.640.977.111	4.403.009.904.014
FAK	430.114.716.194	227.389.709.924	2.026.628.612.641	1.381.844.657.028	1.127.698.388.389	2.201.640.977.111	2.201.640.977.111
Prognosis	15.189.012.311.408	37.208.612.146.011	34.402.027.481.671	27.499.649.269.181	30.189.703.029.212	30.210.361.211.211	30.210.361.211.211
DSCR	0,39	0,36	0,38	0,26	-0,86	-0,66	-0,66
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

4.2. PT. Wijaya Karya (Persero), Tbk

Financial performance data of WIKA the company's published financial performance data for the last 5 (five) years that have been audited, for the 2016-2020 period. The Q2 2021 financial report is an

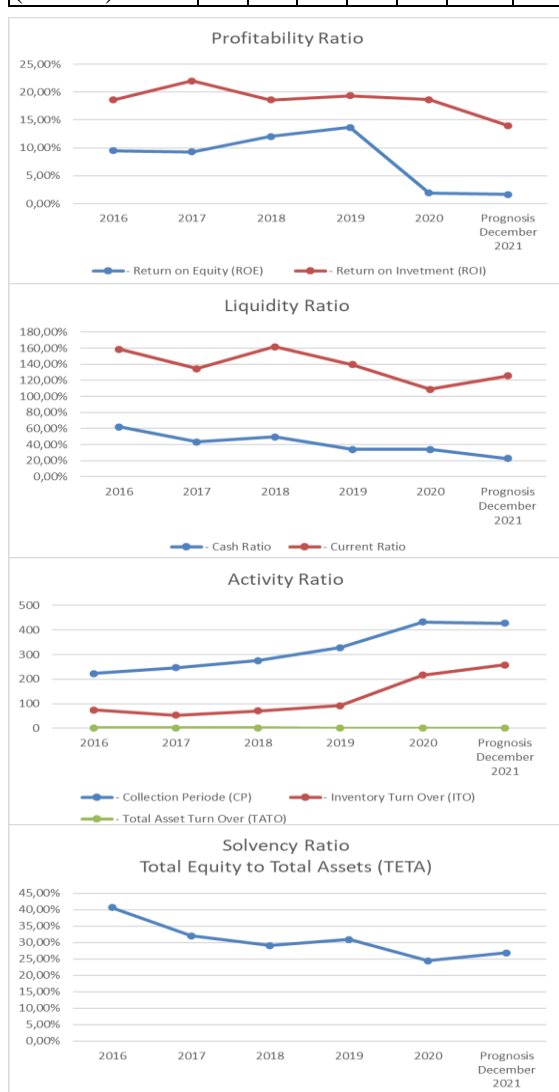
in-house financial report issued by the company. This Q2 financial report is used to forecast the company's financial performance in 2021. Financial Ratios as shown on Table 14, Table 15, and Picture 4.

Table 14.

Financial Ratio of WIKA

Variables	2016	2017	2018	2019	2020	2021 (June)	Prognosis December (2021)
A. Profitability Ratio							
- Return on Equity (ROE)	9,51%	9,27%	12,04%	13,64%	1,94%	0,81%	1,62%
- Return on Investment (ROI)	18,60%	22,02%	18,60%	19,32%	18,64%	12,26%	13,99%
B. Liquidity Ratio							
- Cash Ratio	62,18%	43,32%	49,46%	34,09%	33,85%	22,85%	22,85%
- Current Ratio	15,86%	13,43%	16,18%	13,94%	10,86%	125,53%	125,53%
C. Activity ratio							
- Collection Period (CP)	223	246	275	328	432	854	427
- Inventory Turn Over (ITO)	74	54	70	92	217	515	257
- Total Asset Turn Over (TATO)	95,27%	13,28%	10,05%	85,68%	69,07%	22,96%	45,91%
D. Solvency Ratio							

Variables	2016	2017	2018	2019	2020	2021 (June)	Prognosis December (2021)
- Total Equity to Total Assets (TETA)	40,62 %	32,03 %	29,07 %	30,94 %	24,46 %	26,82 %	26,82 %



Picture 4.

Financial Ratio of WSKT

1. Financial Ratio Analysis using Ministerial Decree SOEs No. KEP-100/MBU/2002 approach

a. Profitability Analysis

Picture 4 demonstrates that WIKA's ROE from 2016 to 2017 fell from 9.51% to 9.27%. The ROE value increased in 2018 and 2019, each 12.05% and 13.64%, then decreased to 1.94% in 2020 during the Covid-19 pandemic. This ratio has not improved in the 2020 prognosis calculation. In general, WIKA's ROI has not met the standards expected in the Minister Decree for the last 5 years and during the Covid 19 pandemic. The ROI ratio increased from 18.60% in 2016 to 22.02% in 2017, then decreased in 2018 to 18.60% and increased slightly in 2019 to 19.32%. WIKA's ROI 2021 generally met expectation, including during the Covid-19 pandemic.

b. Liquidity Analysis

WIKA's liquidity ratio from 2016 to 2019 largely met the Minister Decree standards. The average cash ratio score is greater than 35%, as required by the Minister Decree, and the company's cash ratio was slightly lower in 2019 at 34.09%, has been decreased to 22.85% in 2020 during the Covid-19 pandemic. The company's current ratio was also higher than 125% from 2016 to 2019, and it fell to 108.63% in 2020 during the Covid-19 pandemic. The liquidity ratio

showed WIKAS's ability to manage its short-term debt in general.

c. Activity Analysis

Collection period and inventory turnover have tended to increase since 2016, and increased significantly during the Covid-19 pandemic in 2020. This demonstrates that, in general, they were unable to meet the standards established by the Minister Decree for the collection period and inventory turnover.

d. Solvency Analysis

WIKA has a fairly good solvency ratio, with the total equity to total assets ratio in the required range of 30-40% in 2017 to 2019. The ratio in 2020 was 24.46% during the Covid-19 pandemic, and expected to increase from 2021's prognosis.

Altman Z-Score (1968) of WIKA

Z-Score (1968)	2016	2017	2018	2019	2020	2021 (Estim)	Prognosis (December 2021)
X							
Working Capital	8.742.818.296.000	8.914.390.808.000	17.470.088.254.000	11.966.014.913.000	3.812.477.989.000	8.454.297.841.000	8.454.297.841.000
Total Assets	31.205.204.090.000	45.683.774.302.000	79.230.001.239.000	62.110.647.154.000	68.109.181.213.000	62.993.850.800.000	62.993.850.800.000
Coefficient	1,2	1,2	1,2	1,2	1,2	1,2	1,2
X ² Score	0,19	0,23	0,25	0,23	0,07	0,16	0,16
Y							
Retained Earnings	3.104.477.062.000	4.003.197.809.000	5.470.925.961.000	7.261.129.614.000	4.390.961.186.000	4.473.460.729.000	4.473.460.729.000
Total Assets	31.205.204.090.000	45.683.774.302.000	79.230.001.239.000	62.110.647.154.000	68.109.181.213.000	62.993.850.800.000	62.993.850.800.000
Coefficient	1,4	1,4	1,4	1,4	1,4	1,4	1,4
Y ² Score	0,18	0,17	0,17	0,17	0,10	0,09	0,09
Z							
EBIT	1.699.808.429.000	2.221.707.697.000	3.854.697.484.000	3.496.394.752.000	1.467.041.728.000	2.019.842.842.000	1.621.991.684.000
Total Assets	31.205.204.090.000	45.683.774.302.000	79.230.001.239.000	62.110.647.154.000	68.109.181.213.000	62.993.850.800.000	62.993.850.800.000
Coefficient	0,6	0,6	0,6	0,6	0,6	0,6	0,6
Z ² Score	0,18	0,17	0,17	0,17	0,07	0,07	0,07
M							
Market Value of Equity	14.512.282.800.000	13.901.422.500.000	14.845.267.290.000	17.850.300.500.000	17.805.390.750.000	8.880.250.500.000	8.880.250.500.000
Book Value of Total Debt	18.417.215.399.000	31.051.949.689.000	42.554.686.674.000	42.895.114.154.000	68.109.181.213.000	45.807.003.599.000	45.807.003.599.000
Coefficient	0,6	0,6	0,6	0,6	0,6	0,6	0,6
M ² Score	0,47	0,37	0,37	0,37	0,21	0,12	0,12
N							
Total Sales	15.668.832.513.000	20.176.403.020.000	31.158.193.498.000	27.212.514.210.000	16.536.361.679.000	6.766.972.606.000	13.535.545.312.000
Total Assets	31.205.204.090.000	45.683.774.302.000	79.230.001.239.000	62.110.647.154.000	68.109.181.213.000	62.993.850.800.000	62.993.850.800.000
Coefficient	1,0	1,0	1,0	1,0	1,0	1,0	1,0
N ² Score	0,50	0,57	0,51	0,46	0,24	0,11	0,11
Total Z-Score	1,62	1,37	1,44	1,29	0,68	0,53	0,43
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

WIKA only experienced financial distress during the Covid-19 pandemic in 2020, according to the modified Altman Z-Score in Table 16 with a threshold value of 1.1 indicating distress and > 2.6 indicating non-distress. The company's condition was non-distressed in 2016 and 2018, but it was in the grey area in 2017 and 2019, with the Z-Score approaching the threshold. WIKA were predicted to exit distress zone in 2021.

Tabel 17.

Altman Z-Score (2006) of WIKA

Z-Score (2006)	2016	2017	2018	2019	2020	2021 (Estim)	Prognosis (December 2021)
X							
Working Capital	8.420.023.996.000	17.103.903.937	31.889.494.722.848	4.014.367.708.537	15.099.073.233.031	14.889.966.287.423	14.889.966.287.423
Total Assets	61.431.012.174.417	97.895.760.838.624	124.391.541.621.638	122.589.291.350.571	105.566.960.003.005	105.495.829.917.919	105.495.829.917.919
Coefficient	0,60	0,60	0,60	0,60	0,60	0,60	0,60
X ² Score	0,36	0,36	0,36	0,36	0,36	0,36	0,36
Y							
Retained Earnings	3.334.161.014.212	6.083.081.307.654	10.347.404.260.309	10.233.493.821.327	4.401.120.243.584	284.956.162.977	284.956.162.977
Total Assets	61.431.012.174.417	97.895.760.838.624	124.391.541.621.638	122.589.291.350.571	105.566.960.003.005	105.495.829.917.919	105.495.829.917.919
Coefficient	0,20	0,20	0,20	0,20	0,20	0,20	0,20
Y ² Score	0,19	0,22	0,27	0,27	0,01	0,01	0,01
Z							
EBIT	3.145.781.501.688	6.524.001.124.814	7.966.901.771.182	5.239.471.615.085	4.139.538.032.366	2.802.389.162.228	2.802.389.162.228
Total Assets	61.431.012.174.417	97.895.760.838.624	124.391.541.621.638	122.589.291.350.571	105.566.960.003.005	105.495.829.917.919	105.495.829.917.919
Coefficient	0,10	0,10	0,10	0,10	0,10	0,10	0,10
Z ² Score	0,10	0,10	0,10	0,10	0,10	0,10	0,10
Total Z-Score	1,62	1,60	1,60	1,60	1,10	0,47	0,48
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

3. DSCR Approach

Since 2016 until the Covid-19 pandemic in 2020, the Debt Service Coverage Ratio (DSCR) was less than one as shown in Table 17. This ratio is an alert for the company of limited financial flexibility, as well as a potential inability to generate funds from the company's activities will be sufficient to meet its obligations.

Table 15. Financial Ratio Scoring (No. KEP-100/MBU/2002)

INDICATOR	2016		2017		2018		2019		2020		2021 (Estim)		2021 (Prognosis)	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
Return on Equity (ROE)	9,51%	14	9,27%	14	12,04%	16	13,64%	18	1,94%	4	0,81%	2	1,62%	4
Return on Investment (ROI)	18,06%	15	22,02%	15	18,60%	15	19,32%	15	18,64%	15	12,26%	10,5	11,99%	12
Cash Ratio	62,18%	5	43,32%	5	49,46%	5	34,09%	4	33,85%	4	22,85%	3	22,85%	3
Current Ratio	158,64%	5	134,32%	5	161,87%	5	139,49%	5	108,63%	3	125,53%	5	125,53%	5
Collection Period (CP)	223	1,8	246	1,2	235	0,8	328	0	422	0	384	0	427	0
Inventory Turn Over (ITO)	74	4,5	84	5	70	4,5	92	4	217	1,8	515	0	257	1,2
Total Asset Turn Over (TATO)	95,27%	4	132,82%	5	100,58%	4	85,68%	3,5	69,07%	3	22,96%	2	45,91%	2,5
Total Equity to Total Assets (TETA)	40,62%	9	32,07%	10	29,07%	7,25	30,94%	10	24,46%	7,25	26,82%	7,25	26,82%	7,25
TOTAL SCORE		99		102		93,57		96,5		80,6		79,75		84,05
WEIGHT		70		70		70		70		70		70		70
TOTAL WEIGHT		6929		8000		6583		6760		5642		5582		4903
LEVEL		AA		AA		AA		BBB		BB		BB		BB
CATEGORY		HEALTHY		HEALTHY		HEALTHY		HEALTHY		LESS-HEALTHY		LESS-HEALTHY		LESS-HEALTHY

2. Altman Z-Score Approach

Based on the Altman Z-Score 1968 formula as shown in Table 16, with a threshold number of 1.81 indicating distress and > 2.67 indicating non-distress, the Z-Score value continues to decline from 2016 to 2020 during the Covid-19 pandemic.

Tabel 16.

Table 18.
DSCR Ratio of WIKA

Debt Service Coverage Ratio (DSCR)	2016	2017	2018	2019	2020	2021 (June)	Prognosis December 2021
BAT - Earning after tax	1.211.029.210.000	1.336.115.499.000	2.073.299.064.000	2.620.063.140.000	332.342.513.000	136.094.461.000	272.196.922.000
Depreciation	1.210.771.921.000	1.257.365.610.000	1.365.392.752.000	2.059.139.315.000	2.556.802.516.000	2.771.916.677.000	2.771.916.677.000
Amortization	149.104.616.660	261.308.948.200	361.431.700.000	302.479.024.900	441.604.677.200	331.166.685.940	331.166.685.940
Interest or Coupon	404.599.193.000	658.296.310.000	1.476.068.472.000	985.139.064.000	1.153.666.140.000	451.653.140.000	863.296.200.000
TAX	108.857.241.000	441.631.879.000	467.408.400.000	404.028.391.000	239.076.176.000	192.964.397.000	192.964.397.000
Principle	6.033.712.058.000	7.191.723.877.000	4.494.220.763.000	6.136.687.059.000	21.445.553.704.000	16.537.728.695.000	16.537.728.695.000
DSCR	0,433	0,475	0,440	0,783	0,133	0,245	0,323
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

4.3. PT. Pembangunan Perumahan (Persero), Tbk (PTPP)

Financial performance data of PTPP is the company's published financial performance data for the last 5 (five) years that have been audited, for the 2016-2020 period. The Q2 2021 financial report is an in-house financial report issued by the company. This Q2 financial report is used to forecast the company's financial performance in 2021. Financial Ratios as shown on Table 19, Table 20, and Picture 5.

Tabel 19.
Financial Ratio of PTPP

Variables	2016	2017	2018	2019	2020	2021 (June)	Prognosis December (2021)
A. Profitability Ratio							

- Return on Equity (ROE)	10,66%	12,10%	13,81%	6,98%	1,90%	0,78%	1,57%
- Return on Investment (ROI)	15,19%	18,90%	19,87%	14,22%	13,22%	13,55%	19,17%

B. Liquidity Ratio

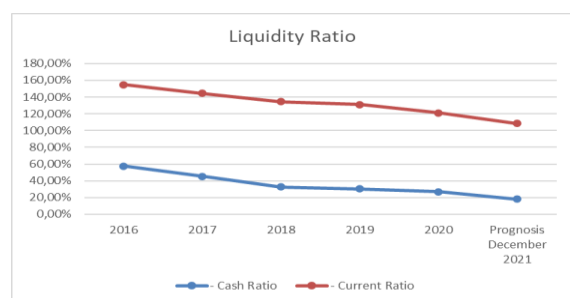
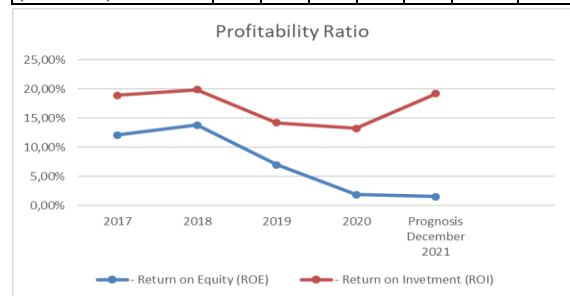
- Cash Ratio	57,52%	45,34%	32,79%	30,53%	26,84%	18,00%	18,00%
- Current Ratio	154,59%	144,50%	134,47%	130,84%	121,26%	108,61%	108,61%

C. Activity ratio

- Collection Period (CP)	25,5	28,7	35,3	40,5	52,2	1,34	671
- Inventory Turn Over (ITO)	67	41	11,4	14,3	22,0	435	218
- Total Asset Turn Over (TATO)	10,72%	10,19%	10,54%	89,42%	62,12%	25,85%	51,70%

D. Solvency Ratio

- Total Equity to Total Assets (TETA)	34,53%	34,09%	28,25%	26,74%	26,19%	25,49%	25,28%
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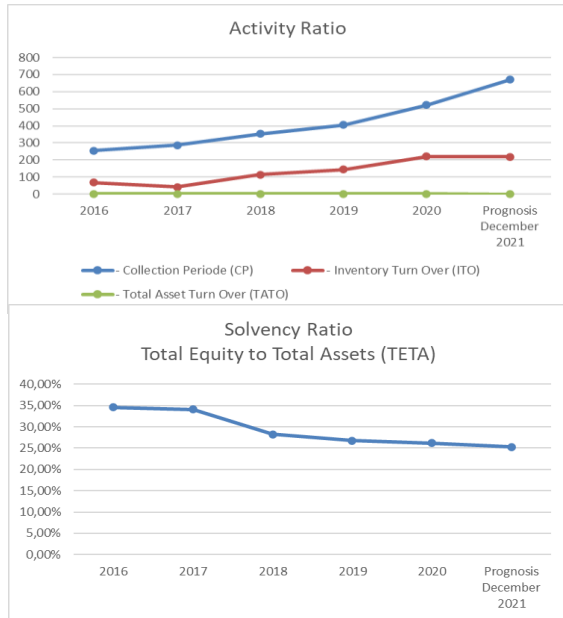


FIGURE 3.
Financial Ratio of PTPP

1. Financial Ratio Analysis using Ministerial Decree SOEs No. KEP-100/MBU/2002 approach

a. Profitability Analysis

PTPP’s ROE and ROI consistently increased from 2016 to 2018, but ROE was dropped to 6.98% in 2019 and 1,9% in 2020 during the Covid-19 pandemic. The prognosis showed no signs of improvement for ROE in 2021 otherwise ROI expected to improve.

b. Liquidity Analysis

PTPP’s liquidity ratio was in fairly good shape during the 2016-2019 period because it was at the expected standard of a cash ratio > 35% and a current ratio > 125 %, except for 2019 the cash ratio was 30.53%. The liquidity ratio then fell during the Covid-19 pandemic, but at a level that was close to the

standard, with the exception of the 2021 prognosis, which continued to show a downward trend after Covid-19.

c. Activity Analysis

Table 19 shows that the collection period has not been at the expected level, with the best achievement in 2016 being 255 days. Based on the prognosis 2021, the collection period and inventory turnover were lengthened during pandemic Covid-19. The shorter inventory turnover in 2017 at 41 days.

d. Solvency Analysis

The solvency ratio, as measured by total equity to total assets, met the expectations in 2016 and 2017 in the range of 30-40%. The ratio of total equity to total assets then fell in 2019 and 2020, but within a reasonable range.

Table 20.
Financial Ratio Scoring of PTPP
(No. KEP-100/MBU/2002)

INDICATOR	2016		2017		2018		2019		2020		2021 (prognosis)			
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE		
- Return on Equity (ROE)	10,66%	14	12,10%	16	13,81%	18	6,98%	10	1,90%	4	0,78%	2	1,57%	4
- Return on Investment (ROI)	15,19%	13,5	18,90%	15	19,87%	15	14,22%	12	13,52%	12	13,55%	12	19,17%	13
- Cash Ratio	57,32%	5	43,34%	5	32,79%	4	30,53%	4	26,61%	4	18,08%	3	18,08%	3
- Current Ratio	154,59%	5	144,50%	5	134,47%	5	130,84%	5	121,22%	4	108,61%	3	108,61%	3
- Collection Periods (CP)	255	1,2	287	0,6	353	0	405	0	522	0	1.341	0	671	0
- Inventory Turn Over (ITO)	47	4,5	41	5	114	4	143	3,5	220	1,8	435	0	218	1,8
- Total Asset Turn Over (TATO)	107,22%	4,5	101,09%	4	105,41%	4,5	89,42%	3,5	62,12%	3	25,88%	2	51,70%	2,5
- Total Equity to Total Assets (TETA)	34,53%	10	34,09%	10	28,25%	7,25	26,74%	7,25	26,19%	7,25	25,49%	7,25	25,28%	7,25
TOTAL SCORE		58		60,6		57,5		45,25		36,0		29,25		36,5
WEIGHT		70		70		70		70		70		70		70
TOTAL WEIGHT		4093		4207		4015		3157		2520		2047		2557
LEVEL		AA		AA		AA		BBB		BBB		BB		BBB
CATEGORY		HEALTHY		HEALTHY		HEALTHY		LESS-HEALTHY		LESS-HEALTHY		LESS-HEALTHY		LESS-HEALTHY

2. Altman Z-Score Approach

Table 25 showed Altman Z-Score 1968 of PTPP was out of distress zone in 2016 and entered a distress zone in the beginning 7017 until the Covid-19 pandemic.

Table 21.
Altman Z-Score of PTPP (1968)

Z-Score (1968)	2016	2017	2018	2019	2020	2021 (June)	Prognosis December 2021
Working Capital	8.661.230.208,956	9.210.611.917,006	9.090.708.624,263	9.179.802.472,792	5.938.111.621,432	2.618.988.020,111	2.618.988.020,111
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Z' Score	0,33	0,29	0,22	0,29	0,11	0,06	0,06
Retained Earnings	2.916.844.742,939	4.062.974.630,774	3.689.049.091,005	4.208.114.491,591	3.149.240.465,909	3.235.300.845,388	3.235.300.845,388
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	0,13	0,14	0,10	0,10	0,10	0,10	0,10
Z' Score	0,17	0,19	0,18	0,11	0,07	0,04	0,12
EBIT	1.574.699.165,908	2.451.010.921,487	2.762.928.574,406	1.861.800.710,966	1.184.150.085,857	995.836.206,327	2.001.442.632,594
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Z' Score	0,17	0,19	0,18	0,11	0,07	0,04	0,12
Market value of Equity	23.621.468.918,740	16.367.729.034,560	11.190.814.723,970	9.826.837.306,000	11.535.461.811,710	5.659.587.430,410	5.659.587.430,410
Book value of total debt	20.437.542.443,428	27.539.670.430,314	36.019.411.428,106	41.118.587.863,818	39.465.460.560,026	41.278.927.936,474	41.278.927.936,474
Coefficient	0,69	0,58	0,31	0,24	0,44	0,18	0,18
Z' Score	0,69	0,58	0,31	0,24	0,44	0,18	0,18
Total Sales	16.458.884.219,698	21.502.259.604,154	25.119.560.112,231	23.573.191.977,192	15.831.388.462,166	6.457.376.738,769	12.914.757.477,538
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Z' Score	0,83	0,81	0,80	0,82	0,80	0,82	0,83
Total Z-Score	1,85	1,47	1,19	0,87	0,26	0,27	0,25
Condition	Grey	Distress	Distress	Distress	Distress	Distress	Distress

Altman Z-Score modification 2006 Showed PTPP out of distress zone in 2016 and 2017, and was entered the grey zone from 2018 until the Covid-19 pandemic period in 2020. According to the prognosis company will exit the distress zone by 2021.

Table 22.
Altman Z-Score of PTPP (2006)

Z-Score (2006)	2016	2017	2018	2019	2020	2021 (June)	Prognosis December 2021
Working Capital	8.661.230.208,956	9.210.611.917,006	9.090.708.624,263	9.179.802.472,792	5.938.111.621,432	2.618.988.020,111	2.618.988.020,111
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	0,56	0,56	0,56	0,56	0,56	0,56	0,56
Z' Score	1,82	1,45	1,19	1,07	0,71	0,31	0,31
Retained Earnings	2.916.844.742,939	4.062.974.630,774	3.689.049.091,005	4.208.114.491,591	3.149.240.465,909	3.235.300.845,388	3.235.300.845,388
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	0,26	0,26	0,26	0,26	0,26	0,26	0,26
Z' Score	0,30	0,32	0,24	0,24	0,19	0,19	0,19
EBIT	1.574.699.165,908	2.451.010.921,487	2.762.928.574,406	1.861.800.710,966	1.184.150.085,857	995.836.206,327	2.001.442.632,594
Total Assets	31.215.671.256,566	41.782.780.915,111	50.201.851.052,388	56.130.526.187,076	53.472.450.650,976	55.397.307.627,775	55.397.307.627,775
Coefficient	0,72	0,72	0,72	0,72	0,72	0,72	0,72
Z' Score	0,54	0,59	0,57	0,52	0,45	0,07	0,52
Net Worth	10.778.128.811,138	14.243.110.486,397	14.182.479.626,262	15.011.958.321,458	14.006.990.090,950	14.118.379.691,301	14.006.990.090,950
Total Liabilities	20.437.542.443,428	27.539.670.430,314	36.019.411.428,106	41.118.587.863,818	39.465.460.560,026	41.278.927.936,474	41.278.927.936,474
Coefficient	1,05	1,05	1,05	1,05	1,05	1,05	1,05
Z' Score	0,65	0,64	0,64	0,66	0,67	0,66	0,64
Total Z-Score	3,02	2,70	2,31	1,92	1,44	0,93	1,10
Condition	Non-Distress	Non-Distress	Grey	Grey	Grey	Distress	Grey

3. DSCR Approach

Table 23.
DSCR of PTPP

Debt Service Coverage Ratio (DSCR)	2016	2017	2018	2019	2020	2021 (June)	Prognosis December 2021
EAT - Earnings after tax	1.148.478.720,716	1.233.876.894,206	1.559.970.959,500	1.048.153.079,831	266.265.797,409	110.225.184,509	229.848.250,912
Depreciation	106.266.480,131	1.211.204.445,077	1.046.502.340,135	1.818.465.320,324	3.148.915.752,427	3.418.268.999,748	3.418.268.999,748
Interest on Current	406.770.493,509	638.745.028,991	593.837.830,078	702.135.094,120	804.581.427,507	814.571.702,643	809.975.571,702
TAX	473.397.084,712	716.114.973,142	684.773.667,120	711.179.025,511	660.560.147,237	573.772.808,489	573.772.808,489
Principal	4.269.846.762,221	5.179.181.078,169	7.218.068.197,268	12.609.125.177,403	11.536.594.128,911	13.240.022.219,388	13.240.022.219,388
DSCR	0,383	0,548	0,481	0,266	0,219	0,191	0,226
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

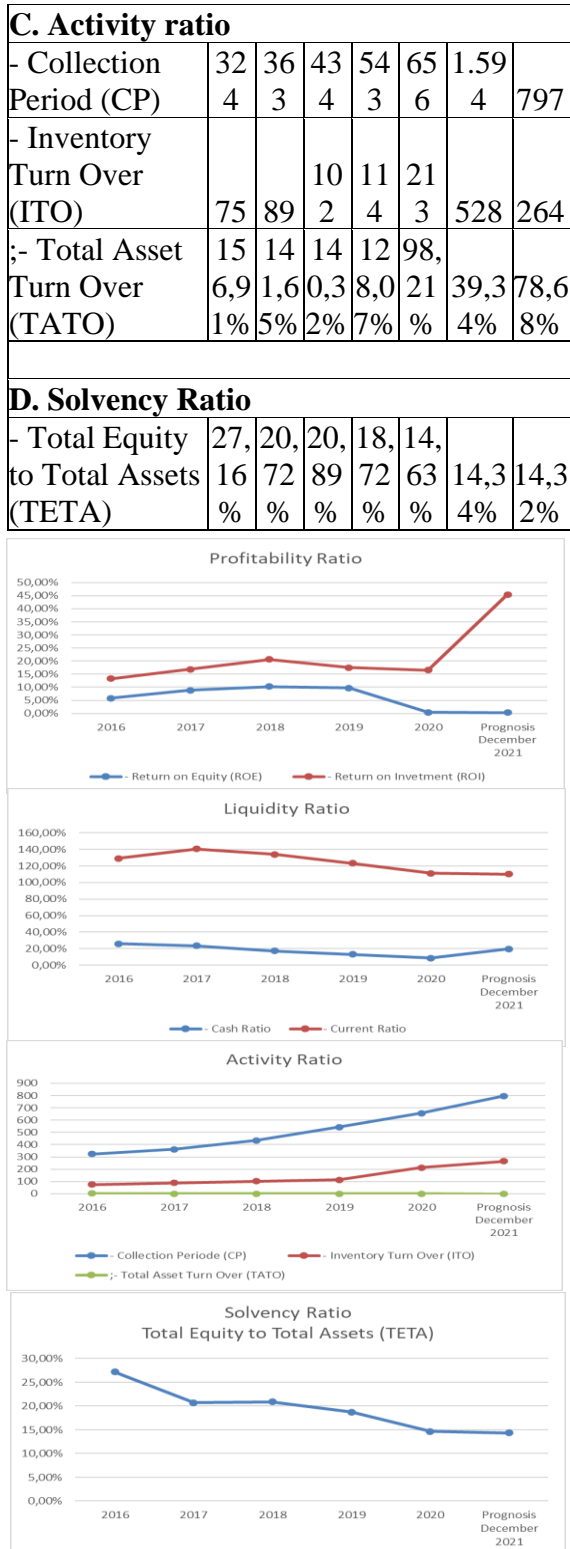
The calculation of the debt service coverage ratio, as shown in Table 23, demonstrates that the company insufficient flexibility in managing its funds because of obligations.

4.4. PT. Adhi Karya (Persero), Tbk (ADHI)

Financial performance data of ADHI is the company's published financial performance data for the last 5 (five) years that have been audited, for the 2016-2020 period. The Q2 2021 financial report is an in-house financial report issued by the company. This Q2 financial report is used to forecast the company's financial performance in 2021. Table 25 contains a summary of ADHI financial performance report. Financial Ratios as shown on Table 24, Table 25, and Picture 6.

Table 24.
Financial Ratio of ADHI

Variables	2016	2017	2018	2019	2020	2021 (June)	Prognosis December (2021)
A. Profitability Ratio							
- Return on Equity (ROE)	5,79%	8,81%	10,26%	9,73%	0,43%	0,14%	0,29%
- Return on Investment (ROI)	13,26%	16,89%	20,67%	17,56%	16,53%	30,64%	45,47%
B. Liquidity Ratio							
- Cash Ratio	25,91%	23,43%	17,23%	13,25%	8,73%	19,81%	19,81%
- Current Ratio	12,93%	14,07%	13,40%	12,34%	11,11%	110,01%	110,01%



Picture 7.

Financial Ratio of ADHI

1. Financial Ratio Analysis using Ministerial Decree SOEs No. KEP-100/MBU/2002 approach

a. Profitability Analysis

Table 25 shows that ADHI's ROE was less than the 15% standard set by the Minister Decree for the 2016-2020 period. During the Covid-19 pandemic, ROE appears to have dropped significantly from 2019 to 2020, reaching 0.14%. It was expected from the prognosis in 2021 will be improved. ROI appears to be lower than the Minister Decree standard of 18 percent from 2016 to 2020, with an expected improvement in the next pandemic period based on the 2021 forecast.

b. Liquidity Analysis

Cash and current ratios decreased during the Covid-19 pandemic in 2019 – 2020. The cash ratio in general never reached the 35% standard set by the Minister Decree, otherwise the current ratio was above the standard 125% from 2016 to 2018. Cash and current ration slightly decreased in 2020 during the Covid-19 pandemic.

c. Activity Analysis

Since 2016, the company's collection period has been more than 300 days, and it has increased dramatically during the Covid-19 pandemic in 2020. Similarly, inventory turnover has increased steadily since 2016, peaking during the Covid-19 pandemic. The prognosis for 2021 has not improved significantly.

d. Solvency Analysis

The solvency ratio, was relatively high from 2016 to 2018, but fell in 2019 and 2020 due to the Covid-19 pandemic. The prognosis for 2021 has not improved significantly.

Table 26.
Financial Ratio Scoring of ADHI
(No. KEP-100/MBU/2002)

INDICATOR	2016		2017		2018		2019		2020		2021 (June)		2021 (Prognosis)	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
Return on Equity (ROE)	5.79%	8.5	8.81%	12	10.20%	14	9.73%	14	0.47%	2	0.14%	2	0.29%	-
Return on Investment (ROI)	13.20%	12	16.89%	13.5	15.00%	13.5	13.50%	12	16.57%	13.5	30.64%	15	45.47%	15
Capital Ratio	25.01%	4	23.43%	3	22.28%	3	43.20%	2	8.27%	1	19.81%	3	19.81%	3
Current Ratio	129.50%	5	140.24%	5	134.08%	5	123.42%	4	111.30%	4	110.01%	4	110.01%	4
Collection Period (CP)	324	0	363	0	454	0	543	0	656	0	1.994	0	797	5
Inventory Turn Over (ITO)	75	4.5	89	4.5	102	4	114	4	213	6.8	528	0	264	0.64
Total Asset Turn Over (TATO)	156.91%	5	141.65%	5	140.32%	5	128.07%	5	90.21%	4	39.34%	2	78.60%	3.5
Total Equity to Total Assets (TEA)	37.10%	2.25	30.72%	2	30.89%	2	18.72%	1	14.03%	1	14.33%	1	14.32%	1
TOTAL SCORE		46.3		50		51.75		47		52.3		32		34.1
WEIGHT		70		70		70		70		70		70		70
TOTAL WEIGHT		3242		3520		3624		3242		3624		2242		2390
LEVEL		A		A		A		B		B		B		B
CATEGORY		HEALTHY		HEALTHY		HEALTHY		UNHEALTHY		UNHEALTHY		UNHEALTHY		UNHEALTHY

2. Altman Z-Score Approach

ADHI has been in the distress zone since the 2016 - 2020 period, according to calculations using the 1968 Altman Z-Score in Table 27, and there is no sign yet of improvement in 2021 prognosis.

Table 27.
Financial Ratio of ADHI

Z-Score (1968)	2016	2017	2018	2019	2020	2021 (June)	Prognosis
Working Capital	3.805.654.867.055	7.184.381.961.785	6.452.159.977.710	5.752.428.309.693	3.021.305.025.509	2.764.759.584.001	2.764.759.584.001
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	1.2	1.2	1.2	1.2	1.2	1.2	1.2
X ¹ Score	0.23	0.20	0.26	0.19	0.10	0.09	0.09
Retained Earnings	2.024.446.236.511	2.445.826.246.759	2.861.896.796.778	3.397.430.406.578	1.989.824.895.076	1.998.105.784.331	1.998.105.784.331
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	1.4	1.4	1.4	1.4	1.4	1.4	1.4
X ² Score	0.14	0.12	0.13	0.13	0.07	0.07	0.07
EBIT	728.591.095.621	1.476.729.608.788	1.798.931.177.541	1.441.986.307.340	1.008.032.859.555	338.008.491.887	2.013.314.318.658
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	0.12	0.17	0.20	0.13	0.09	0.05	0.17
X ³ Score	0.12	0.17	0.20	0.13	0.09	0.05	0.17
Market value of Equity	7.406.464.000.000	7.121.698.000.000	4.949.580.100.000	4.155.511.221.702	5.465.983.792.160	2.688.441.278.888	2.688.441.278.888
Book value of total debt	14.594.910.199.271	22.463.030.586.953	23.806.529.077.039	29.681.535.534.528	32.519.078.179.194	33.348.099.570.822	33.356.191.987.355
Coefficient	0.6	0.6	0.6	0.6	0.6	0.6	0.6
X ⁴ Score	0.30	0.19	0.12	0.08	0.10	0.05	0.05
Total Sales	11.063.942.850.707	15.156.178.074.776	15.655.499.866.493	15.307.860.220.494	10.827.682.417.205	4.444.746.863.338	8.889.493.726.676
Total Asset	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	1.0	1.0	1.0	1.0	1.0	1.0	1.0
X ⁵ Score	0.55	0.53	0.52	0.42	0.26	0.11	0.25
Total Z-Score	1.35	1.32	1.23	0.95	0.64	0.35	0.60
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

Table 28, which employs the modified Altman Z-Score, depicts the condition of a company that was in the grey zone from 2016 to 2019 and entered a period of distress in 2020 as a result of the Covid-19 pandemic.

Table 28.
Altman Z-Score of ADHI (2006)

Z-Score (2006)	2016	2017	2018	2019	2020	2021 (June)	Prognosis
Working Capital	3.805.654.867.055	7.184.381.961.785	6.452.159.977.710	5.752.428.309.693	3.021.305.025.509	2.764.759.584.001	2.764.759.584.001
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	6.56	6.56	6.56	6.56	6.56	6.56	6.56
X ¹ Score	1.25	1.66	1.41	1.03	0.52	0.47	0.47
Retained Earnings	2.024.446.236.511	2.445.826.246.759	2.861.896.796.778	3.397.430.406.578	1.989.824.895.076	1.998.105.784.331	1.998.105.784.331
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	3.26	3.26	3.26	3.26	3.26	3.26	3.26
X ² Score	0.33	0.28	0.31	0.30	0.17	0.17	0.17
EBIT	728.591.095.621	1.476.729.608.788	1.798.931.177.541	1.441.986.307.340	1.008.032.859.555	338.008.491.887	2.013.314.318.658
Total Assets	20.057.690.162.169	28.332.948.012.950	30.091.600.973.297	36.515.833.214.549	38.093.888.626.552	38.931.002.434.713	38.931.002.434.713
Coefficient	6.72	6.72	6.72	6.72	6.72	6.72	6.72
X ³ Score	0.24	0.35	0.40	0.27	0.18	0.06	0.35
Net Worth	5.442.779.962.888	5.869.917.425.997	6.285.271.896.258	6.834.297.680.021	5.574.810.447.358	5.582.902.863.891	5.574.810.447.358
Total Liabilities	14.594.910.199.271	22.463.030.586.953	23.806.529.077.039	29.681.535.534.528	32.519.078.179.194	33.348.099.570.822	33.356.191.987.355
Coefficient	1.05	1.05	1.05	1.05	1.05	1.05	1.05
X ⁴ Score	0.39	0.27	0.28	0.24	0.18	0.18	0.18
Total Z-Score	2.21	2.57	2.40	1.84	1.05	0.87	1.34
Condition	Grey	Grey	Grey	Grey	Distress	Distress	Distress

3. DSCR Approach

Based on the calculation of the debt service coverage ratio in 29, it is clear that the company's position is in distress, with a DSCR value less than one.

Table 29.
DSCR of ADHI

Debt Service Coverage Ratio (DSCR)	2016	2017	2018	2019	2020	2021 (June)	Prognosis
EAT - Earning after tax	315.107.763.135	517.059.949.207	645.029.449.105	665.049.421.579	23.702.652.447	8.062.416.573	16.124.673.066
Depreciation	203.600.655.610	320.062.397.925	504.490.367.310	650.250.464.969	806.283.375.365	3.115.181.529.069	3.115.181.529.069
Amortization	2.811.160.271	2.417.054.004	2.942.453.702	6.341.770.869	7.085.477.688	6.583.520.160	6.583.520.160
Interest or Coupon	115.946.640.007	957.746.493.679	1.149.427.015.442	753.494.767.992	968.297.502.457	325.666.334.059	651.322.668.118
TAX	329.892.817.261	301.374.773.134	356.743.640.593	346.916.724.027	683.364.002.555	693.502.073.724	693.502.073.724
Principle	2.870.792.207.494	3.652.877.623.524	3.940.145.534.114	5.712.940.682.344	4.830.142.534.621	5.883.053.312.355	5.883.053.312.355
DSCR	0.883	0.296	0.378	0.267	0.094	0.445	0.414
Condition	Distress	Distress	Distress	Distress	Distress	Distress	Distress

The study showed the financial performance of construction SOEs between 2016 to 2020 (full year) and 2021 (part of income statement report prognosed from 2021), based on the ministerial decree of Ministry of SOEs No KEP-100/MBU/2002 about financial performance assessment of SOEs, with focus on four key indicator liquidity, solvency, profitability and activity ratios.

Given the mandate of the Indonesian

government's assignment to construction SOEs and the Covid-19 pandemic situation, it's worth looking into the health and financial performance of this SOE's construction company. This research on financial performance is also reviewed in order to determine whether there is a risk of financial distress and bankruptcy for these construction SOEs. The analysis was carried out by comparing the financial ratio analysis based on Minister Decree No. KEP-100/MBU/2002, the Altman Z-Score, both the 1968 model and the 2006 modified model, and the potential for financial distress using the debt service coverage ratio (DSCR). An illustration of the signs of financial distress from the results of the analysis is presented in Picture 7.

	2016	2017	2018	2019	2020	2021 (Prognosis)
PT Waskita Karya (Persero), Tbk						
- Minister Decree	HEALTHY	HEALTHY	HEALTHY	LESS HEALTHY	UNHEALTHY	UNHEALTHY
- Altman Z-Score 1968	Distress	Distress	Distress	Distress	Distress	Distress
- Altman Z-Score 2006	Grey	Distress	Grey	Grey	Distress	Distress
- DSCR	Distress	Distress	Distress	Distress	Distress	Distress
PT Wijaya Karya (Persero), Tbk						
- Minister Decree	HEALTHY	HEALTHY	HEALTHY	HEALTHY	LESS HEALTHY	LESS HEALTHY
- Altman Z-Score 1968	Distress	Distress	Distress	Distress	Distress	Distress
- Altman Z-Score 2006	Non-Distress	Grey	Non-Distress	Grey	Distress	Grey
- DSCR	Distress	Distress	Distress	Distress	Distress	Distress
PT Pembangunan Perumahan (Persero), Tbk						
- Minister Decree	HEALTHY	HEALTHY	HEALTHY	LESS HEALTHY	LESS HEALTHY	LESS HEALTHY
- Altman Z-Score 1968	Grey	Distress	Distress	Distress	Distress	Distress
- Altman Z-Score 2006	Non-Distress	Non-Distress	Grey	Grey	Distress	Grey
- DSCR	Distress	Distress	Distress	Distress	Distress	Distress
PT Adhi Karya (Persero), Tbk						
- Minister Decree	HEALTHY	HEALTHY	HEALTHY	HEALTHY	UNHEALTHY	UNHEALTHY
- Altman Z-Score 1968	Distress	Distress	Distress	Distress	Distress	Distress
- Altman Z-Score 2006	Grey	Grey	Grey	Grey	Distress	Distress
- DSCR	Distress	Distress	Distress	Distress	Distress	Distress

Picture 7.

Financial Ratios Resume

Altman Z-Score 1968 and DSCR approaches showed four of Construction SOEs already in distress zone since 2016. Altman Z-Score 2006 showed different result for those SOEs, most of the period covered were in grey zone, specifically for WIKA was in non-distress zone for 2016 and 2018 and PTPP was in non-distress zone

for 2016 and 2017. Ministerial decree financial ratios approaches showed that WSKT considered as healthy until 2018, less healthy during 2019 and unhealthy 2020 and expected an improvement to less healthy status in 2021. WIKA considered as healthy until 2019, less healthy start from 2020 to 2021. PTPP considered as healthy until 2018, less healthy start from 2019 to 2021. ADHI considered as healthy until 2018, unhealthy start from 2019 to 2021. The business model with participation in government assignments and ownership status of the four state-owned construction companies, poses different financial performance challenges. Participation in the implementation of long-term projects with the company's own resources provides more challenges in managing investments using retained earnings, debt and equity.

III. Conclusion

From the time period of 2016 to 2020 analysis using 3 approaches of Ministerial Decree Scoring & Rating, Altman Z-Score and DSCR shows the financial performance of 4 (four) construction SOEs listed in Indonesia Stock Exchange (IDX) for year 2016 to 2021, pre and during pandemic Covid-19 as follows:

Four of SOEs Ministerial Decree were healthy until 2018, WSKT and PTPP were less healthy on 2019 while WIKA and

ADHI stay healthy. Covid-19 affected these four SOEs, WSKT and ADHI became unhealthy during 2020 and June 2021 portrait, while WIKA and PTPP became less healthy. From December 2021 prognosis all four SOEs expected reach less healthy rating subject to actual financial performance in 2nd semester of 2021.

Four of SOEs in the distress zone using Altman Z-Score 1968 approach along the year 2016 to 2021, but gave slightly different result using Altman Z-Score 2006, while it shows better approach that four of SOEs in grey zone until 2019 and entered the distress zone after Covid-19. Hopefully WIKA and PTPP will back to grey zone from December 2021 prognosis.

Four of SOEs in the financial distress zone assessed using DSCR approach. It can be rationalized because of the pressure on their net income, but in the other side they have to manage outstanding debt obligation used to finance their projects

Limitation of this study are: for year 2021 analysis using un-audited report for June 2021 and part of income statement prognosed to December 2021, it may come with undervalued or overvalued income subject to the real financial portrait di 2nd semester of 2021. This study not consider macroeconomy variable and internal factors of operational and administration mentioned in ministerial decree. Recommendation for

future research e.g., longer time period would be recommended to observe comprehensive financial distress assessment, using other model or method to test the financial distress condition of construction SOEs is an option for complementing the results and to provide an overview of the impact of the Pandemic Covid-19, it can be done by conducting an analysis of other construction companies listed on IDX non-State-Owned.

The managerial implication of this study for shareholder and management that they should have to concern the strategic breakthrough on how to exit the distress zone and stakeholders may take necessary action to support the SOEs facing challenging financial situation and help them to strengthen their capability and business process for sustainability. Strategic decision (from government) are needed to remap the State-Owned construction Business Model to maintain the company sustainability.

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