Working Capital Management and Financial Performance of Property and Real Estate Companies: Risk Moderation

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ABSTRACT

This study aims to examine the effect of working capital management (WCM) on the financial performance of property and real estate companies listed on the Indonesia Stock Exchange (IDX), while considering the moderating role of risk. The economic crisis triggered by the Covid-19 pandemic has exerted significant pressure on the liquidity and profitability of the property and real estate sector, thereby highlighting the critical importance of efficient working capital strategies. A quantitative approach was employed, utilizing secondary data from the audited financial statements of 36 companies over the period 2018–2023. The WCM variables analyzed include inventory conversion days (ICD), accounts receivable period (ARP), accounts payable period (APP), and cash conversion cycle (CCC). Risk was measured through systematic risk (Covid-19 impact) and firm-specific (annual stock price volatility). Financial performance was proxied by return on assets (ROA). Panel data regression and Wilcoxon Signed-Rank Test were used to compare pre-, during-, and post-pandemic conditions. The findings reveal that components of working capital management significantly influence ROA, with the CCC showing the most consistent negative effect. Furthermore, risk was found to moderate the relationship between working capital variables and firm performance under both stable and crisis conditions.

Keywords: return on assets, unsystematic risk, systematic risk, property and real estate industry, working capital management

INTRODUCTION

The crisis caused by the COVID-19 pandemic has significantly impacted the Property and Real Estate industry, as evidenced by various affected sub-sectors. These include a decline in home sales compared to pre-pandemic levels, a drop in hotel occupancy rates, and decreased demand for office space, warehousing, and construction services. In the capital market, the performance of Property and Real Estate industry stocks also experienced a sharp decline.

Working capital management is one of the three main areas in corporate finance (the other two being capital structure and capital budgeting). Effective working capital management is crucial for companies to reduce the risk of bankruptcy, particularly during crisis situations, as working capital plays a vital role in maintaining financial liquidity, profitability, and cost control (Akbar et al., 2021; Akgün & Karataş, 2021). Enqvist et al. (2014) emphasized the importance of working capital management policies during economic downturns, warning that poor management can result in

a loss of liquidity. Zimon and Tarighi (2021) argue that the systematic risks brought about by the COVID-19 crisis have pushed managers to reconsider their working capital strategies and adopt greater flexibility in critical conditions to ensure business continuity. In today's complex and challenging business environment, where companies face unforeseen risks, managers bear a critical responsibility in making decisions regarding the firm's working capital policies (Salehi et al., 2019).

Figure 1 illustrates the companies' response in managing working capital (cash conversion cycle) in the face of risk. The graph in Figure 1 represents the average cash conversion cycle of 36 property and real estate companies listed on the Indonesia Stock Exchange (IDX).

Figure 1. Cash conversion cycle trends of 36 property and real estate companies listed on the Indonesia Stock Exchange.
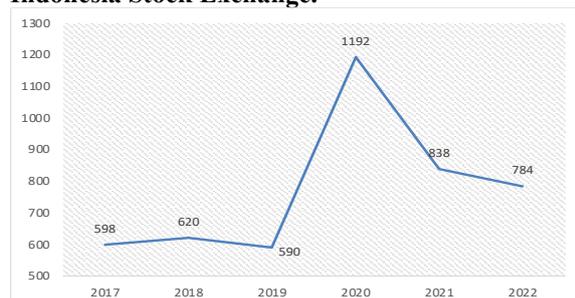
Source: Data processed by the author.

The graph in Figure 1 illustrates the average trend of the Cash Conversion Cycle (CCC) from 2017 to 2022. At the beginning of the period, the average CCC stood at 598 days in 2017, increased slightly to 620 days in 2018, and then declined to 590 days in 2019. In 2020, there was a significant spike in the CCC, reaching 1,192 days, reflecting the impact of external conditions on the firms' cash conversion timelines. Subsequently, the average CCC declined to 838 days in 2021 and further decreased to 784 days in 2022. This trend indicates the companies' efforts to adjust their CCC management.

Empirical studies on the effect of working capital management on financial performance during economic crises have been conducted by Lin et al. (2023),

Novrianti and Patrisia (2021), and Achim et al. (2021), analyzing how working capital management affects firm performance. However, these studies examine the direct impact of working capital without elaborating on the extent to which the crisis conditions themselves influence working capital, which ultimately affects financial performance. Tarkom (2022) empirically demonstrated that the COVID-19 crisis had a direct impact on companies' cash conversion cycles—one of the key indicators of working capital management.

LITERATURE REVIEW

Working capital management involves the administration of current assets and current liabilities. Its effectiveness depends on the financial manager's ability to manage accounts receivable, inventory, and accounts payable efficiently, aiming to balance profitability and risk to enhance firm value (Gitman & Zutter, 2015). Current assets reflect circulating investments throughout the business cycle, while current liabilities represent short-term financing, such as trade payables and accrued expenses.

Financing current assets typically relies on sources like bank loans, trade credit, long-term debt, and equity, each with distinct advantages and risks. Business cycles and seasonality significantly influence the level of current assets, where firms hold permanent working capital at minimum operational levels and temporary working capital during peak sales periods. This leads to different financing strategies: conservative, aggressive, and maturity matching (Brigham & Houston, 2019). The maturity matching or "self-liquidating" approach aligns asset maturities with liability due dates.

Working capital management (WCM) is commonly proxied by current asset components such as accounts receivable, accounts payable, inventory, and the cash conversion cycle (CCC) (Tandoh, 2020). WCM can follow aggressive or conservative approaches. Aggressive WCM involves tight credit policies and minimal inventory,

leading to higher risk and return, while conservative WCM focuses on greater liquidity and lower risk (Weinraub & Visscher, 1998; Filbeck & Krueger, 2005). Inefficient WCM may lead to liquidity shortages and financial underperformance (Adhikari et al., 2019).

WCM plays a critical role in firm profitability, value, and risk (Smith, 1980; Ahkam & Alom, 2019; Shin & Soenen, 1998). Excess inventory may reduce profitability due to higher storage costs (Akbar et al., 2021; Anton & Nucu, 2021; Bashir & Regupathi, 2022). Conversely, effective receivables management can increase sales and ROA if collection is efficient (Kayani et al., 2019; Wang et al., 2020), while excessive receivable periods may reduce asset efficiency. Trade payables help maintain short-term liquidity but must be managed prudently to avoid financial distress (Irhamna & Masdupi, 2020; Panigrahi et al., 2022; Essel & Brobbey, 2021).

Empirical studies in the property and real estate sector in Indonesia confirm a negative relationship between CCC and profitability (Novrianti & Patrisia, 2021; López et al., 2020; Firmansyah et al., 2018; Panigrahi et al., 2022). Financing strategies also affect risk exposure: aggressive policies relying on short-term debt raise liquidity risk, while conservative strategies offer greater stability but at higher costs (Nazir & Afza, 2009; Alrahamneh et al., 2020; Kayani et al., 2023; Prša, 2020).

Uncertainty increases the importance of risk-aware WCM strategies. Firms must balance risk and profitability (Razi et al., 2021; Akbar et al., 2021), with total firm risk shaping their optimal WCM level (Kieschnick et al., 2013; Le, 2019). WCM serves as a buffer against external shocks and helps maintain competitiveness (Habib, 2023; Zimon et al., 2024).

Recent studies highlight the pandemic's effects on WCM. Lin et al. (2023) found COVID-19 prolonged operating cycles by 15%, reducing profitability due to delayed receivables and slower inventory turnover.

Larger firms with strong operating cash flow could mitigate the impact. Chowdhury et al. (2020) also noted short-term disruptions (e.g., expired goods, cash shortages) and long-term uncertainty in the food and beverage sector.

MATERIALS & METHODS
The objectives of this study are as follows:
1. To analyze the differences in working capital management levels in the Property and Real Estate industry listed on the Indonesia Stock Exchange before and during the COVID-19 period.
2. To analyze the impact of companies' working capital management and COVID-19 on the financial performance of the Property and Real Estate industry listed on the Indonesia Stock Exchange.
3. To analyze the interaction between risk and working capital management in influencing the financial performance of the Property and Real Estate industry listed on the Indonesia Stock Exchange.

This study utilizes secondary data in the form of annual audited financial statements obtained from the Indonesia Stock Exchange (IDX) and the official websites of the respective companies. In 2024, there were 93 issuers in the Property and Real Estate sector listed on the IDX, which served as the population for this study. The research sample consists of companies that meet the following criteria: (1) Property and Real Estate companies listed on the IDX from 2018 to 2023; and (2) companies with complete financial data related to the research variables. Based on these criteria, 36 companies were selected as the research sample, resulting in 216 observation points.

Return On Asset (ROA)
The use of Return on Assets (ROA) as a proxy for a company's financial performance, which is also one of the key indicators of profitability, has been applied in previous empirical studies, including those conducted by Akgün and Karata (2021), Boțoc and Anton (2017), and Gonçalves et

al. (2018). This variable is calculated using the following formula:

$$Return\ on\ Asset\ (ROA) = \frac{Net\ profit}{Total\ asset}$$

The dependent variable in this study is the company's financial performance, which is proxied by Return on Assets (ROA) to analyze the company's financial performance.

The independent variables used as proxies for working capital management (hereinafter referred to as WCM) are inventory conversion days (ICD), accounts payable period (APP), accounts receivable period (ARP), and cash conversion cycle (CCC).

Hypothesis 1: The inventory period has a negative effect on ROA.
Inventory Conversion Days (ICD)
In the study conducted by Akbar et al. (2021), the inventory period was found to have a negative relationship with the firm's financial performance. Inventory Conversion Days (ICD) refers to the number of days required by a company to convert its inventory from procurement to sales. ICD has been used as a measure of WCM in studies conducted by Pham et al. (2020) and Akbar et al. (2021). ICD is calculated using the following formula:

$$ICD = \frac{Inventory}{Net\ Sale} x365$$

Hypothesis 2: The accounts receivable period has a negative effect on ROA.
Account Receivable Period (ARP)
A study by Kayani et al. (2019) found that extending credit to customers can boost sales and profits, provided receivables are well collected. Irhamna and Masdupi (2020) showed that the accounts payable period has a negative relationship with firm financial performance. The Account Receivable Period (ARP) is a financial indicator that measures the average number of days a company takes to collect payments from

customers after a credit sale. ARP helps assess how quickly a firm receives cash from its receivables, making it a key component of WCM. Studies that have used ARP as a WCM indicator include Zimon and Tarighi (2021) and Hashmi and Iqbal (2022). ARP is calculated using the following formula:

$$ARP = \frac{account\ receivable}{Net\ Sale} x365$$

Hypothesis 3: The accounts payable period has a negative effect on ROA.
Account Payable Period (APP)
Panigrahi et al. (2022) found that efficient accounts payable management enhances financial flexibility, indicating a negative relationship with firm performance. The Account Payable Period (APP) represents the average number of days a company takes to pay its suppliers after receiving goods or services. It reflects the firm's efficiency in managing short-term obligations. APP has been used as a proxy for WCM in studies by López et al. (2020) and Bashir and Regupathi (2022). It is calculated using the following formula:

$$APP = \frac{Account\ Payable}{Net\ Sale} x365$$

Hypothesis 4: The cash conversion cycle has a negative effect on ROA.
Cash Conversion Cycle (CCC)
The Cash Conversion Cycle (CCC) is an indicator used to assess a company's efficiency in managing the conversion of its resources into cash. It reflects the number of days required to convert investments in operations (such as inventory and receivables) into cash through sales. Prior studies using CCC as a proxy for WCM include Gonçalves et al. (2018) and Panigrahi et al. (2022). CCC is calculated using the following formula:

$$CCC = ICD + ARP - APP$$

Risk consists of unsystematic risk, proxied by Firm Risk (FR), and systematic risk,

represented by the Impact of the COVID-19 Pandemic (DPC).

Hypothesis 5: Firm risk moderates the relationship between WCM and ROA.
Firm Risk (FR)

The measure of unsystematic risk, referred to as Firm Risk (FR), is assessed using the company's annual stock price volatility. Previous studies that have used annual stock price volatility as a proxy for unsystematic risk include research by Tarighi et al. (2024) and Le (2019). FR is calculated using the following formula:

$$FR = \sigma_{annual}$$
$$= \sqrt{\frac{1}{N-1}\sum_{t=1}^{N}(r_t - \bar{r})^2 \, x\sqrt{260}}$$

Where r_t is the daily return on day t, $\bar{r}$ is the average daily return, N is the number of trading days in the observed period, and $\sqrt{260}$ is the factor used to annualize daily volatility, assuming 260 trading days in a year.

Hypothesis 6: The impact of the COVID-19 pandemic moderates the relationship between WCM and ROA.
The Impact of the COVID-19 Pandemic (DPC)

The impact of the COVID-19 pandemic as a systematic risk is assessed based on its effect on Indonesia's economic growth. According to Statistics Indonesia (2024), growth was 5.17% and 5.02% in 2018–2019 (pre-COVID), dropped to -2.07% and 3.70% in 2020–2021 (during COVID), and recovered to above 5% in 2022–2023 (post-COVID). Thus, 2018–2019 is defined as the pre-COVID period, 2020–2021 as the COVID period, and 2022–2023 as the post-COVID period.

Firm characteristics as control variables in this study include firm size (SIZE), leverage (LEV), sales growth (GRW), and liquidity (LIQ).

Firm Size (FR)

Firm size, hereafter referred to as SIZE, is measured in this study based on the total asset value. Previous studies that used total assets as an indicator of SIZE include Singh and Kumar (2017) and Zimon et al. (2024).

SIZE = natural logarithm (Ln) of total assets.

Leverage (LEV)

Leverage (LEV) refers to the use of debt to finance a company's operations or investments. It is commonly measured using the Debt-to-Asset Ratio, which reflects the extent to which a firm's assets are financed by debt and indicates its financial risk. LEV has been used in prior studies on WCM by Singh and Kumar (2017) and Seth et al. (2020). The formula for calculating LEV is:

$$LEV = \frac{Total\ liabilities}{Total\ assets}$$

Sales Growth (GRW)

In this study, growth refers to sales growth, hereafter abbreviated as GRW. GRW has also been used as a variable related to working capital management (WCM) in previous studies, including those by Akgün and Karata (2021) and Lin et al. (2023). GRW is calculated using the following formula:

$$GRW = \frac{sale_t - sale_{t-1}}{sale_{t-1}}$$

Liquidity (LIQ)

Liquidity (LIQ) refers to the firm's ability to convert current assets into cash to meet short-term liabilities. It is crucial for avoiding default risk and ensuring cash flow. LIQ as a WCM-related variable was used by Pham et al. (2020) and is calculated as:

$$LIQ = \frac{Current\ asset}{Current\ Liability}$$

To address the first objective analyzing differences in working capital management (WCM) of the Property and Real Estate

industry on the Indonesia Stock Exchange before, during, and after the Covid-19 pandemic the Wilcoxon Signed-Rank Test is used to assess the significance of WCM differences across the periods.

To address the second and third objectives examining the effect of WCM on financial performance and the moderating role of firm risk and the Covid-19 pandemic a panel data regression analysis is employed.

Regression Model

The disaggregated and aggregated models of working capital management (WCM) without moderation are adapted from Bashir and Regupathi (2022), Erdian (2022), Tarighi et al. (2024), and Le (2019).

1. **Disaggregated WCM Model without Moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 ICD_{i,t} + \beta_2 APP_{i,t} + \beta_3 ARP_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 GRW_{i,t} + \beta_7 LIQ_{i,t} + \varepsilon$$

2. **Aggregated WCM Model without Moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 CCC_{i,t} + \beta_2 LEV_{i,t} + \beta_3 GRW_{i,t} + \beta_4 LIQ_{i,t} + \varepsilon$$

3. **Disaggregated WCM Model with Unsystematic Risk Moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 ICD_{i,t} + \beta_2 APP_{i,t} + \beta_3 ARP_{i,t} + \beta_4 ICD_{i,t} * FR_{i,t} + \beta_5 APP_{i,t} * FR_{i,t} + \beta_6 ARP_{i,t} * FR_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 LEV_{i,t} + \beta_9 GRW_{i,t} + \beta_{10} LIQ_{i,t} + \varepsilon$$

4. **Aggregated WCM model with unsystematic risk moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 CCC_{i,t} + \beta_2 CCC_{i,t} * FR_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 GRW_{i,t} + \beta_6 LIQ_{i,t} + \varepsilon$$

5. **Aggregated WCM Model with Systematic Risk Moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 ICD_{i,t} + \beta_2 APP_{i,t} + \beta_3 ARP_{i,t} + \beta_4 ICD_{i,t} * DPC_{i,t} + \beta_5 APP_{i,t} * DPC_{i,t} + \beta_6 ARP_{i,t} * DPC_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 LEV_{i,t} + \beta_9 GRW_{i,t} + \beta_{10} LIQ_{i,t} + \varepsilon$$

6. **Disaggregated WCM Model with Systematic Risk Moderation**

$$ROA_{i,t} = \alpha_0 + \beta_1 CCC_{i,t} + \beta_2 CCC_{i,t} * DPC_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 GRW_{i,t} + \beta_6 LIQ_{i,t} + \varepsilon$$

RESULT

Comparative Analysis of Financial Performance (ROA) and Working Capital Management (WCM)

To achieve the first research objective, which is to analyze the differences in working capital management within the Property and Real Estate industry listed on the Indonesia Stock Exchange during the pre-COVID-19, COVID-19, and post-COVID-19 periods, this study employs both the paired sample t-test and the Wilcoxon Signed-Rank Test (Table 1 and Table 2).

The T-test results in Table 1 indicate a significant difference in financial performance (ROA) between the pre-pandemic and during-pandemic periods (p = 0.0348), suggesting that the COVID-19 pandemic had a notable impact on firms' profitability. However, no significant differences were found between the during- and post-pandemic periods (p = 0.0988), nor between the pre- and post-pandemic periods (p = 0.6774), indicating that ROA performance tended to return to pre-pandemic levels.

Table 1. ROA T-test results

Indicator	Period	Sig. Value	Interpretation
ROA	Before the pandemic and during the pandemic	0.0348	Different
	During the pandemic and after the pandemic	0.0988	Not Different
	Before the pandemic and after the pandemic	0.6774	Not Different

Based on the Wilcoxon Rank Test results in Table 2, the ICD indicator showed significant changes between the pre-pandemic and during-pandemic periods, as well as between during and post-pandemic. However, no significant difference was found between the pre- and post-pandemic periods, indicating a temporary disruption during COVID-19 with a return to normal afterward.

For the APP indicator, no significant difference was observed between pre- and during-pandemic periods, but a significant change occurred between during and post-pandemic. This suggests the pandemic's impact on APP was delayed, likely reflecting adjustments in company operations after the pandemic.

The ARP indicator exhibited a different pattern, with no significant change from pre- to during-pandemic, but significant differences were found both between during and post-pandemic, and between pre- and post-pandemic. These findings suggest lasting changes in receivables management in response to the pandemic's economic effects.

Table 2. Wilcoxon Rank test results

Indicator	Period	Sig. Value	Interpretation
ICD	Before the pandemic and during the pandemic	0.0000	Different
	During the pandemic and after the pandemic	0.0102	Different
	Before the pandemic and after the pandemic	0.0783	Not Different
APP	Before the pandemic and during the pandemic	0.3964	Not Different
	During the pandemic and after the pandemic	0.0095	Different
	Before the pandemic and after the pandemic	0.2356	Not Different
ARP	Before the pandemic and during the pandemic	0.2928	Not Different
	During the pandemic and after the pandemic	0.0015	Different
	Before the pandemic and after the pandemic	0.0015	Different
CCC	Before the pandemic and during the pandemic	0.0001	Different
	During the pandemic and after the pandemic	0.0183	Different
	Before the pandemic and after the pandemic	0.0556	Not Different

Finally, the CCC indicator shows significant changes between the pre-pandemic and pandemic periods, as well as between the pandemic and post-pandemic periods. However, no significant difference is found between the pre- and post-pandemic periods. This suggests that the COVID-19 pandemic had a strong impact on cash conversion cycles during the pandemic, but the effect did not fully persist afterward. Overall, the results indicate that COVID-19 had varying impacts on financial performance indicators, with some recovering post-pandemic while others remained affected.

The Impact of Working Capital Management (WCM) on Financial Performance (ROA)

To address the second research objective analyzing the impact of working capital management on the financial performance of property and real estate companies listed on the Indonesia Stock Exchange panel data regression analysis was employed. The process began with selecting the best estimator for Model 1 and Model 2, choosing between Pooled Least Squares (PLS), Fixed Effect Model (FEM), or Random Effect Model (REM). Subsequently, classical assumption tests were conducted, including residual normality, multicollinearity, heteroscedasticity, and autocorrelation tests, to ensure the estimator meets the BLUE criteria.

Table 3. Regression Coefficients of Model 1 and Model 2

Independent Variable	Model 1 (Disaggredated WCM)	Model 2 (Aggregated WCM)
CCC		-0.029***
ICD	-0.006**	-
ARP	-0.011**	-
APP	-0.004	-
SIZE	0.01**	0.014
LEV	0.035***	0.042**
GROWTH	0.015***	0.013
LIQ	0.002***	0.002***
C	-0.071	-0.051
R^2	-	0.5030
Wald Test	48.69***	-
F-test	-	Prop > F = 0.000
Model	REM	FEM
Explanation: *** $p<.01$, ** $p<.05$, * $p<.1$ Dependent: ROA		

Based on the regression results in Table 3, this study empirically finds that improving working capital efficiency—reflected by shorter inventory (ICD), receivables (ARP), and payables (APP) periods, as well as a reduced cash conversion cycle (CCC)—enhances firm performance in the property and real estate sector listed on the Indonesia Stock Exchange. These reductions indicate better working capital management, leading to improved profitability.

These findings align with Kayani et al. (2023), who reported a negative relationship between CCC and ROA, meaning shorter cash conversion periods lead to higher profitability. Similarly, shorter ICD and ARP are associated with increased ROA.

However, unlike previous studies, this research finds a positive relationship between APP and ROA, suggesting that firms may delay payables to invest in higher-return opportunities.

Interaction Between Firm Risk (FR) and Working Capital Management (WCM)
Based on the estimation of Model 3 in Table 4, only inventory conversion days (ICD) show a statistically significant direct effect on ROA, while ARP and APP have no direct impact. This suggests that longer ICD consistently reduces ROA regardless of firm risk levels. However, although APP has no direct effect, its interaction with firm risk significantly influences ROA.

Table 4. Regression Coefficient of Model 3 and Model 4

Independent Variable	Model 3	Model 4
ICD	-0.029***	
ARP	-.0009	
APP	0.006	
CCC		-0.008
FR_ICD	0.0001	-
FR_ARP	0.0004	-
FR_APP	-0.005**	-
FR_CCC		0.000
SIZE	-0.003	0.007
LEV	0.035	0.033
GROWTH	0.012	0.019
LIQ	0.002***	0.002***
C	0.212	-0.052
R^2	0.5069	0.1329
Wald Test	-	**75.91 *****
F-test	Prop > F = 0.0000	-
Model	FEM	REM
Explanation: *** $p<.01$, ** $p<.05$		

The results indicate a negative and significant coefficient for FR_APP, suggesting that under high firm risk, extending payment periods harms profitability. Although delayed payments can enhance short-term liquidity, in high-risk contexts they may reduce supplier trust, limit credit access, and damage business relationships. As Deloof (2003) noted, payment delays are only beneficial within optimal limits and may become inefficient when used aggressively under elevated risk.

Interaction Between Impact of the COVID-19 Pandemic (DPC) and Working Capital Management (WCM)

In Model 5, the significant finding lies in the interaction variable DPC_ARP, representing the interaction between the COVID-19 Pandemic (DPC) and accounts receivable period (ARP) on ROA. The negative and significant coefficient indicates that during the pandemic, longer receivable periods further reduced profitability. This is economically reasonable, as weakened customer payment capacity and cash flow uncertainty turned accumulated receivables into liquidity risks. Loose collection policies worsened financial conditions during the crisis. This finding aligns with Le (2019), who emphasized the importance of conservative working capital management during economic instability.

Table 5. Regression Coefficient of Model 5 and Model 6

Independent Variable	Model 5 ROA	Model 6 ROA
ICD	-0.004	
ARP	-0.008	
APP	-0.006	
CCC		-0.006
DPC_ICD	-0.006	-
DPC_ARP	-0.016**	-
DPC_APP	-0.014	-
DPC_CCC	-	-0.004**
SIZE	0.009	0.007
LEV	0.033***	0.033***
GROWTH	0.014***	0.018***
LIQ	0.002***	0.002**
C	-0.067	-0.06
Wald Test	62.30***	44.87***
R^2	02302	0.1539
Model	REM	REM
Explanation: *** $p<.01$, ** $p<.05$		

Model 6 uses the Cash Conversion Cycle (CCC) as an aggregate proxy for working capital management and tests its interaction with systematic risk on ROA. The negative CCC coefficient indicates that longer cash conversion periods reduce profitability. The negative and significant DPC_CCC interaction suggests that the adverse impact of CCC on ROA worsens under high systematic risk, such as during the COVID-19 pandemic.

DISCUSSION
In the capital-intensive property and real estate industry, working capital management is often overlooked due to greater emphasis on asset acquisition and long-term development.

However, this study highlights that competitive advantage also stems from efficiency in the cash conversion cycle (CCC), not just asset scale. Firms should adopt operational transformation strategies such as implementing ERP systems and project management software to monitor construction projects in real-time, reduce idle inventory, and accelerate production and sales cycles. The use of big data and predictive analytics is also recommended to

forecast cash needs and adjust working capital policies proactively.

Cross-functional training between finance and operations is essential to ensure company-wide understanding of working capital's contribution to ROA. The significant negative interaction between ARP and ROA during the pandemic (DPC_ARP) suggests that lenient receivables policies under economic uncertainty harm profitability. Tighter credit terms, faster collections, and customer credit scoring systems are necessary. While APP shows no direct effect on ROA, its interaction with firm risk (FR_APP) indicates that extending payables under high-risk conditions may damage long-term supplier relationships and reputation.

CONCLUSION

This study reveals significant differences in working capital management among property and real estate companies listed on the Indonesia Stock Exchange across the pre-pandemic, pandemic, and post-pandemic periods. These changes reflect corporate adaptation to the economic disruptions caused by the COVID-19 crisis.

Working capital management particularly the cash conversion cycle (CCC) shows a significant effect on financial performance as measured by Return on Assets (ROA).

Greater efficiency in inventory conversion days (ICD) and accounts receivable period (ARP) is associated with improved profitability. Furthermore, risk both systematic (e.g., the COVID-19 pandemic) moderates the relationship between working capital management and firm performance.

Companies that maintained efficient working capital practices during high-risk periods were better able to preserve profitability, underscoring the importance of flexibility in working capital strategies during crises.

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