INVESTIGATING THE NONLINEAR RELATIONSHIP BETWEEN CASH CONVERSION CYCLE AND PROFITABILITY: EVIDENCE FROM INDONESIAN PROPERTY AND REAL ESTATE COMPANIES

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Article history:
Received
6 August 2024

Revised
14 January 2025

Accepted
20 March 2025

Available online
31 May 2025

Abstract:

Background: This study investigates the nonlinear impact of the Cash Conversion Cycle (CCC) on profitability, as measured by Return on Assets (ROA), in the property and real estate sector in Indonesia.
Purpose: The research aims to provide insights into financial management development, inform decision-making regarding working capital policies, and serve as a reference for further studies.
Design/Methodology/Approach: The study employs dynamic panel data analysis using the Generalized Method of Moments (GMM) in EViews12. The sample includes 43 property and real estate companies listed on the Indonesia Stock Exchange (IDX) for the 2017-2019 period, selected through purposive sampling. Data were sourced from Bloomberg, and analysis involved GMM specification tests (Arellano-Bond and Sargan Test), Wald tests, and t-statistical tests.
Findings/Results: The Wald test results indicate that CCC, CCC^2, company size (SIZE), sales growth (GROWTH), company age (AGE), leverage (LEV), and liquidity (CR) significantly affect ROA. Additionally, the t-statistical test reveals that CCC has a significant negative effect on ROA, while CCC^2 has a significant positive effect on ROA, suggesting a U-shaped nonlinear relationship between CCC and profitability.
Conclusion: This study confirms a U-shaped nonlinear relationship between the Cash Conversion Cycle (CCC) and profitability (ROA) in Indonesia's property and real estate sector. Balancing CCC is essential, as both excessively short and long cycles affect profitability differently. Additionally, company size, sales growth, age, leverage, and liquidity significantly influence ROA. These findings emphasize the importance of strategic working capital management to optimize financial performance.
Originality: This research contributes to the literature on working capital management by identifying a U-shaped nonlinear relationship between CCC and profitability, emphasizing its practical implications for financial decision-making in emerging markets.

Keywords: facultative administration, FMEA, operational risk, Pareto diagram, risk priority

How to Cite:
Kusuma D. P., & Mawardi W. (2025). Investigating The Nonlinear Relationship Between Cash Conversion Cycle and Profitability: Evidence From Indonesian Property and Real Estate Companies. Jurnal Aplikasi Bisnis Dan Manajemen (JABM), 11(2), 635. https://doi.org/10.17358/jabm.11.2.635

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INTRODUCTION

Since the 19th century, financial management has been recognized as one of the important sub-fields in the management discipline. Its role and relevance have steadily increased over time as business decisions are heavily influenced by financial information. Today, the management of resources and cash flows is crucial to the success of financial management, affecting the value of the company and the interests of investors. Financial management is divided into many sub-fields, and working capital management is crucial for improving business profitability. Therefore, working capital management is considered very important in the context of financial management (Yusuf, 2019).

Financial experts and researchers define working capital management as the process of formulating strategies, policies, rules, and guidelines to manage short-term assets and debts. It also involves the management of funds required to support day-to-day operations (Yusuf, 2019). A sound approach to working capital management ensures the balance of the company's working capital variables to create an effective combination to provide sufficient capital for the business.

Horne and Wachowicz (2008) divide working capital into gross and net working capital. Gross is used to determine the company's total funding for short-term assets such as cash, securities, receivables, and inventory. Net working capital is the difference between short-term assets and short-term financial liabilities. Agha (2014) states that working capital is a combination of current assets and current liabilities. Working capital is needed to fund day-to-day operations, with the expectation that the investment will be returned through product sales. In this process, working capital is continuously used and is related to the profitability of the company through financing its operational activities (Riyanto, 2001).

It is necessary to analyze working capital in the company because working capital has an important role in the operations of each company. This is due to several factors (Besley et al. 2008):

1. Daily operational activities cannot be carried out by the company if it does not have adequate working capital.
2. Most of the company manager's time is spent managing working capital.
3. Current assets, in both manufacturing and service companies, are a significant component of the company's total assets.

Efficient and stable working capital management is essential for companies to ensure error-free fulfillment of future operating expenses and to avoid risks and uncertainties. As a result, many companies, regardless of type and size, face difficulties with lenders or creditors, especially in this modern era, due to company management that does not regularly monitor and manage liquidity which is mostly working capital (Yusuf, 2019).

A common method of measuring working capital management is the Cash Conversion Cycle (CCC), which describes the period of change in cash from operational activities to cash from product sales. CCC can increase profitability with increased sales, but it can also decrease if the investment is too large in cash compared to inventory or consumer credit (Anton & Afloarei Nucu, 2020). CCC is measured by Inventory Conversion Period (ICP), Receivable Collection Period (RCP), and Payable Deferral Period (PDP) (Gill et al. 2010). Companies need to consider inventory levels and credit policies for optimal working capital. Sufficient inventory reduces the risk of running out, while a good credit policy can increase sales as buyers can evaluate products before payment. Accounts payable is also important; purchasing on credit allows evaluation of products before payment and delayed payment to suppliers (Deloof, 2003).

The main goal of the company is profit maximization to increase shareholder value (Tripathi, 2019). Profitability, the company's ability to generate profits, is measured by quantitative variables such as return on assets (ROA), return on equity (ROE), return on sales (ROS), gross profit margin, net profit margin, and so on. These variables provide an overview of the company's efficiency in managing assets (Yusuf, 2019).

According to Firmansyah et al. (2018), the property and real estate sector has a very important role in a country's economy. Apart from being an indicator of the health of the national economy, this sector also has a significant impact in creating jobs and contributing to other economic sectors. Business characteristics in the property and real estate industry are different from other industrial sectors because they require high working capital.

In this industry, land acquisition is one of the initial stages that requires a large investment given the ever-increasing price of land. In addition, the process of licensing and acquiring land is also time-consuming due to the legal issues involved. Once the land is purchased, developers need to spend a considerable amount of time developing and constructing buildings that will be used for production and sales. This stage involves the preparation of infrastructure such as roads, waterways, and power grids, which is costly (Firmansyah et al. 2018). Moreover, in real estate companies, working capital is very high, concentrated in larger items of cash, inventory, and receivables (Prša, 2020).

Many studies in various countries have examined the effect of working capital management on firm profitability using return on assets (ROA) as an indicator of profitability. Examples of research involve manufacturing companies in Bangladesh by Hossain (2020), research in Poland by Anton and Afloarei Nucu (2020), research in Asia by Singhania and Mehta (2017), as well as research in the European Union by Deari et al. (2022), and in India by Altaf and Shah (2018), all using ROA as a proxy for profitability. EL-Ansary and Al-Gazzar (2021) also used ROA in a study of working capital management in consumer goods sector companies in Middle East and North Africa (MENA) countries.

In the context of property companies, research conducted by Firmansyah et al. (2018); Shafti and Hasanah (2019); and Rizki et al. (2019) also emphasizes the influence of working capital management on profitability. According to the findings of the studies by Firmansyah et al. (2018) and Rizki et al. (2019), there is a negative correlation between CCC (Cash Conversion Cycle) and profitability. However, research by Shafti and Hasanah (2019) did not find any relationship between the two. This indicates inconsistency in the results of previous research.

This paper contributes to the existing literature as our study extends the existing paper by identifying whether there is any U-shaped nonlinear relationship between CCC and profitability. Thus, this analysis may disclose the inconclusive outcomes of prior studies.

This study examines the nonlinear relationship between the Cash Conversion Cycle (CCC) and profitability (ROA) by employing a dynamic panel data approach using the Generalized Method of Moments (GMM). The research integrates CCC, its squared term (CCC^2), and other financial factors such as company size, sales growth, age, leverage, and liquidity to provide a comprehensive analysis.

This study aims to investigate the nonlinear relationship between the Cash Conversion Cycle (CCC) and profitability (ROA) in Indonesian property and real estate companies. The research seeks to provide valuable insights into financial management strategies, particularly in optimizing working capital to enhance profitability and sustain long-term growth. It also aims to support decision-making processes for managers and policymakers by developing effective working capital policies tailored to the unique dynamics of the property and real estate sector. Additionally, the study contributes to the academic literature by exploring the U-shaped nonlinear relationship between CCC and profitability, emphasizing its implications in emerging markets like Indonesia. Furthermore, the findings are intended to serve as a foundation for future studies, encouraging further exploration of working capital management and its impact on financial performance across various sectors.

METHODS

This study will utilize data from property and real estate companies listed on the Indonesia Stock Exchange in the period 2017 to 2022. Therefore, the total population in this study reached 92 companies. Data sources were accessed through a Bloomberg terminal.

The sampling method used in this research is purposive sampling. Purposive sampling is a non-random sampling approach based on provisions or criteria that have been determined by the researcher in accordance with the research objectives, with the intention of providing relevant conclusions in the research context (Sugiyono, 2018).

This research applies the panel data analysis method, which is a combination of cross-section data and time series data (Kuncoro in Wulandari and Muharam, 2021). The panel data analysis model has advantages in handling heterogeneity problems, which can cause bias in research results. In this context, the company is used as the object of research, and the company as an object has heterogeneous properties because there are characteristics that are difficult to measure and can

affect value. Another advantage of panel data analysis is its ability to overcome endogeneity problems that may arise in the analysis and can affect the estimation results. Endogeneity problems can arise from the correlation between independent variables and model errors.

This study will utilize a dynamic approach by using the first difference generalized model of moments (GMM) method of Arellano-Bond (1901). Dynamic panel data is chosen because in panel data, the dependent variable depends not only on the exogenous variables, but also on the lag of the dependent variable. The lag of the dependent variable is included as part of the independent variables to control for endogeneity problems, which make a difference in the model estimates. In static panel data regression, such as in the Pooled Least Square (PLS) model, Fixed Effects Model (FEM), and Random Effects Model (REM), least squares estimation shows efficiency and consistency. However, in dynamic panel data, y_{it} as a function of μ_i causes y_{it-1} to also be a function of μi. Therefore, least squares estimation may produce biased and inconsistent estimates, even though yi is not serially correlated. To overcome this inconsistency, the Anderson & Hsiao (1982) estimation method can be used by including instrumental variables (IV) that replace variables that are correlated with errors, so that the results are unbiased, consistent, and efficient. The analysis of this method is expected to produce an appropriate model for understanding short-term and long-term effects (Nabilah & Setiawan, 2016; Wulandari & Muharam, 2021). In this study, the dependent variable is ROA, the independent variables are CCC and CCC², and the control variables are SIZE, GROWTH, AGE, LEV, and CR. The following is the dynamic autoregressive panel data estimation model:

$$ROA_{it} = ROA_{it-1} + \beta_1 CCC_{it} + \beta_2 CCC^2_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 AGE_{it} + \beta_6 LEV_{it} + \beta_7 CR_{it} + \lambda_t + \eta_i + \varepsilon_{it}$$

This section offers a concise summary and theoretical definition of each variable utilized in this investigation, as illustrated in Table 1.

The use of quadratic functions is used to model the non-linear results of working capital management produced by the companies concerned. The resulting parabolic curve will create a turning point between the dependent variable and the independent variable. The purpose of this study is to analyze the impact of CCC on company profitability. This relationship can be explained through the CCC and CCC² coefficients in the equation. Changes in CCC on ROA will create a break-even point or an inflection point. This break-even point is the point where the effect of working capital management on profitability reverses. When the company reaches the break-even point, changes in the impact of working capital management on profitability will reverse. A U curve has the break-even point at its base, while an inverted U curve has the break-even point at its apex. This break-even point is used to identify policy boundaries and prove the existence of a trade-off between working capital management and profitability, showing that the relationship between the two is non-linear. The inflection point or break-even point can be formulated as $((-\beta_1)/(2\beta_2))$

Companies with aggressive working capital policies reduce investment in current assets, especially inventory and accounts receivable, accelerating the cash conversion cycle (CCC). The goal is to reduce inventory storage and insurance costs, thereby increasing profitability (Altaf & Shah, 2018).

Companies with fast working capital turnover can achieve high levels of profitability. Although the risk is higher due to less investment in working capital, the risk involves loss of sales, production disruption, insolvency, and refinancing (Baños-Caballero et al. 2014). Increased investment in inventory and accounts receivable increases profitability up to the minimum point of the curve or Break-even Point (BEP). After passing the minimum point, additional working capital may result in a decrease in profitability or working capital efficiency.

Research by Singhania and Mehta (2017) concluded that there is a non-linear relationship between Cash Conversion Cycle (CCC) and Return on Assets (ROA) which forms a U curve in companies that implement aggressive working capital policies. The company's profitability decreases to the lowest point or Break-even Point (BEP) when CCC continues to increase, and after passing the BEP point, an increase in CCC will increase profitability. This aggressive policy carries a high risk high return approach because current assets that are too low have risks such as loss of sales, production disruption, refinancing risk, and insolvency risk. Therefore, companies need to know the lowest point of the relationship between CCC and ROA to minimize risk.

Table 2. Variable definition

Variable	Definition	Formula	References
Return on Assets (ROA)	Measures the company's ability to generate profits	EAT/(Total Assets)	(Altaf & Ahmad, 2019; Altaf & Shah, 2018; Deari et al. 2022)
Cash Conversion Cycle (CCC)	A measure of working capital management	ARP+ICP-APP	Altaf & Shah, (2018); Hossain, (2020); Öğr. Gör. Dr. Mehtap ÖNER, (2016); Deari et al. (2022).
Cash Conversion Cycle^2 (CCC^2)	To determine the non-linear relationship between working capital management and profitability over a longer period of time	CCC^2	Altaf & Ahmad, (2019;) Anton & Afloarei Nucu, (2020); Baños-Caballero et al. (2014); Panda & Nanda, (2018).
Sales Growth (GROWTH)	Increase in product sales from this year to the previous year	$(Sales_n-Sales_{n-1})/Sales_{n-1}$	(Altaf & Shah, 2018)
Liquidity (CR)	The company's ability to pay short-term liabilities	Current Assets/Current Liabilities	(Altaf & Shah, 2018)
Firm Size (SIZE)	The scale of the company is seen from the amount of total assets	Ln (Total Assets)	(Altaf & Shah, 2018; Deari et al. 2022)
Firm Age (Age)	Length of time the company was established	Ln (Firm Age)	Wibisana et al. (2018); Wulandari & Muharam (2021)
Leverage (LEV)	Debt to assets ratio	(Total Debt)/(Total Asset)	(Altaf & Shah, 2018)

Research on 21,075 SMEs in Norway by Lyngstadaas and Berg (2016) states that aggressive working capital policy can increase the profitability of the company. The U-shaped non-linear relationship indicates the use of aggressive working capital policy. Although this policy has a high level of profitability, it should be applied with caution due to its high risk.

Hypothesis Development

The approach used in this study is nonlinear regression analysis to examine the impact of CCC on ROA. The use of a nonlinear regression model aims to capture non-linear relationships, which may take the form of an inverted U-shape or U-shape, where changes in CCC may have a positive or negative impact on profitability depending on the level of the company's CCC. Additionally, control variables such as company size, leverage, and industry-specific factors will be included in the model to isolate the external influences on the relationship between CCC and ROA. The data for this study will be obtained from the financial statements of property and real estate companies listed on the Indonesia Stock Exchange (IDX) over the past five years, focusing on both large and small companies to provide a representative picture of working capital management in this sector.

The expected results of this study are to reveal a nonlinear relationship between CCC and ROA, where both short and long CCCs may negatively affect profitability. It is also expected that an optimal CCC will be identified that maximizes ROA, where companies can efficiently manage their working capital without being trapped in cash shortages or excessive capital wastage. These findings suggest that companies with a shorter CCC may experience an increase in ROA because efficient working capital management allows them to reduce financing costs and improve liquidity. On the other hand, *longer CCCs are expected to reduce ROA due to higher financing costs and inefficiencies in converting working capital into cash.

Furthermore, the results of this study are expected to provide valuable insights into the specific characteristics of the property and real estate sector in Indonesia, which faces unique challenges related to financing, project cycles, and applicable regulations. Thus, the findings are anticipated to not only contribute to the development of working capital management theory but also offer practical recommendations for companies in this sector to optimize their working capital management, ultimately improving profitability and long-term financial performance.

Overall, this research aims to fill a gap in the existing literature regarding the effect of CCC on profitability, particularly within the context of the Indonesian property and real estate sector, by employing a nonlinear approach that allows for a more comprehensive understanding of effective working capital management in enhancing company profitability.

Based on the trade-off theory, the non-linear relationship between CCC and ROA occurs due to the trade-off between profitability, risk, and liquidity. Continuous addition of working capital will increase profitability until it reaches the minimum break-even point, after which, the effect of working capital management on profitability will be positive. The hypothesis will be accepted if the coefficient value of CCC is significantly negative and the coefficient value of CCC^2 is significantly positive, forming a U curve. The hypothesis will be rejected if CCC and CCC^2 produce similar effects, with both coefficient values being positive or negative. The hypothesis will also be rejected if the test results show that the CCC coefficient value is significantly positive and the CCC^2 coefficient value is significantly negative. Thus, this understanding leads to the formulation of the following hypothesis: This study will produce a relationship pattern between the dependent variable and the independent variable that forms a U pattern (Figure 1). The relationship pattern between CCC and ROA will form a U pattern if the coefficient (β1) is negative and the coefficient (β2) is positive. Conversely, an inverted U relationship pattern will be created if the coefficient (β1) is positive and the coefficient (β2) is negative.

H1: The non-linear relationship between Cash Conversion Cycle (CCC) and Return on Assets (ROA) is U-shaped.

RESULTS

Table 2 provides an overview of the results of descriptive statistical analysis for 43 companies in the property and real estate sector in Indonesia during 2017-2022. ROA reached a maximum of 88% at PT Bima Sakti Pertiwi Tbk (2018) and a minimum of -32% at PT Bliss Properti Indonesia Tbk (2018). The mean, median, and standard deviation of ROA are 2%, 1.0%, and 9%. Skewness and kurtosis are 36 and 40.37, respectively.

The Cash Conversion Cycle (CCC) variable reaches the maximum value at PT Urban Jakarta Propertindo Tbk (15,799 days, 2022) and the minimum at PT Andalan Perkasa Abadi Tbk (-463 days, 2020). The average CCC is 1398 days with a median of 914.5 days, indicating most companies in the sample have relatively slow cash conversion turnover. The CCC^2 variable, which measures another aspect of cash conversion turnover, shows significant variation with a maximum value of 250,000,000 days (PT. Urban Jakarta Propertindo Tbk, 2022) and a minimum of 0 days (PT. Suryamas Dutamakmur, 2017). The average CCC^2 is 6,257,911 days with a median of 836,310.50 days, showing a notable difference among companies in terms of cash turnover efficiency.

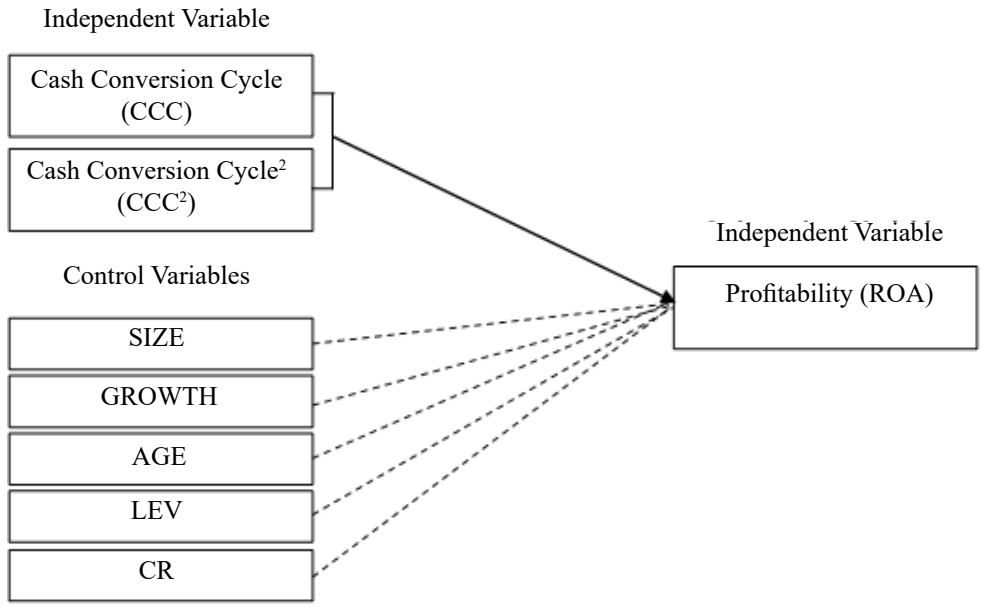

Figure 1. Research framework

In addition, the analysis includes other variables such as Company Size (SIZE), Sales Growth (GROWTH), Leverage (LEV), Liquidity (Current Ratio-CR), and Company Age (AGE). Although most companies have good liquidity with an average Current Ratio (CR) of 2.72 times, some companies show high liquidity ratios, requiring attention to maximize the utilization of funds. The sales growth variable (GROWTH) shows a high level of variation with an average of 21%, while the company age variable (AGE) shows most companies have a more mature age with a median of 3.07.

Table 3 presents the results of the Arellano-Bond Autocorrelation Test, with ROA as the dependent variable without control variables. This test indicates the significance probability of AR(2), which in this study is found to be 0.8386. These results illustrate that there is no second order autocorrelation in the disturbances in the research sample. Then Table 3 displays the results of the Arellano-Bond Autocorrelation Test with ROA as the dependent variable and includes control variables, showing the significance probability value of AR(2). The results show that the significance probability value of AR(2) is 0.7324. Thus, it can be concluded that the estimation results of the GMM model are consistent in both scenarios with and without control variables.

Table 3 provides an overview of the Sargan Test results without control variables. The results of data processing with EViews 12 show a J-statistic probability value of 0.108349. With this value greater than alpha 0.05, it can be concluded that the instrument variables used are valid, and there are no signs of heteroscedasticity problems in the residual data. Meanwhile, on the right side displays the results of the Sargan Test with ROA as the dependent variable, by including control variables. Data processing with EViews 12 shows a J-statistic probability value of 0.365869. So it can be concluded that both regression models are valid and do not have heteroscedasticity problems.

From the estimation results in Table 4, it is known that the ROA(-1) variable has a coefficient value of -0.176375, with a significance probability value of 0.0000. The significance probability value is smaller than the alpha value of 0.05, so it can be concluded that ROA(-1) has a significant negative effect on ROA.

Table 2. Descriptive Statistics

	Mean	Median	Max	Min	Std.Dev.	Skewness	Kurtosis
ROA	0.02	0.01	0.88	-0.32	0.09	4.16	40.37
CCC	1398.00	914.50	15799	-463	2078.52	3.53	19.17
CCC^2	6257911.00	836310.50	250000000	0.00	23423499.00	7.06	60.64
SIZE	29.03	29.12	31.75	24.54	1.48	-0.29	2.48
GROWTH	0.21	0.001093387	11.77	-0.95	1.22	6.10	47.22
LEV	0.20	0.18	0.70	0.00	0.16	0.70	3.17
CR	2.72	2.01	13.40	0.08	2.39	2.01	7.32
AGE	2.76	3.07	3.75	-0.92	0.70	-1.32	5.63

Table 3. Sargan and Arellano-Bond Test Results

Type of Test	Control Variables Excluded	Control Variables Included
	Prob > chi^2	Prob > chi^2
Validity test (Sargan Test)	0.108349	0.365869
Consistency test (Arellano-Bond AR-2)	0.8386	0.7324

Tabel 4. t-Statistic Results

Control Variables Excluded			Control Variables Included		
Variable	Coefficient	Prob.	Variable	Coefficient	Prob.
ROA(-1)	0.015611	0.1359	ROA(-1)	-0.176375	0.0000
CCC	-4.52E-05	0.0435	CCC	-1.36E-05	0.0013
CCC^2	1.52E-09	0.4315	CCC^2	9.28E-10	0.0010
			SIZE	0.006600	0.0001
			GROWTH	0.010380	0.0000
			AGE	0.061175	0.0000
			CR	-0.007797	0.0001
			LEV	-0.271879	0.0002

Based on the t-test results in Table 4, the CCC variable shows a coefficient value of -0.0000136 with a probability of 0.0013, while CCC^2 has a coefficient value of 0.000000000928 with a probability of 0.001. These results indicate a non-linear relationship between CCC and ROA in property and real estate companies in Indonesia, which forms a U curve, with the inflection point at the minimum level. With this finding, hypothesis H1 can be accepted. The left part of the curve shows a negative relationship between CCC and profitability, which means that an increase in CCC level will lead to a decrease in ROA until it reaches the minimum or break-even point. However, the CCC^2 variable shows a significant positive effect on ROA. This illustrates that after reaching a negative effect until the break-even point, the effect of CCC on ROA turns positive. This is in line with research by Firmansyah et al. (2018), Lyngstadaas and Berg (2016), and Singhania and Mehta (2017) where CCC also has a U-shaped nonlinear relationship with ROA.

Break-even point can be calculated using the formula (-β1/2 β2) (Altaf & Shah, 2018; Singhania & Mehta, 2017). The results of the break-even point calculation with the dependent variable ROA show a number of 7,327.6 days. The conclusion from this finding is that when the company has a cash conversion cycle of 7,327.6 days, ROA is at the lowest point of the curve. This finding suggests that the efficiency of the cash conversion cycle on profitability will occur if property and real estate companies have a cash conversion cycle of more than 7,327.6 days. After passing the BEP point, an increase in CCC will result in positive profitability. Therefore, it is recommended that companies in this sector consider aggressive working capital policies to achieve higher levels of profitability.

According to Firmansyah et al. (2018) in the property and real estate sector, the Cash Conversion Cycle (CCC) coefficient value for profitability tends to be lower than other industries. This lower CCC coefficient value is especially evident when the property industry experiences a long cash conversion cycle duration. This prolonged cycle is due to the considerable time required for activities such as land acquisition, infrastructure preparation, property construction, and product sales. As a result, changes in the number of days in the long cash conversion cycle play an important role in affecting the profitability of property companies. However, after passing the break-event point on day 7,327.6, an increase in CCC will have a positive impact on profitability.

According to Chang (2018), the sustainability of a longer Cash Conversion Cycle (CCC) can have a positive impact on profitability because companies have the opportunity to increase sales volume by extending the payment period. An increase in the payment period can be caused by the practice of providing loans to customers with a certain period of time. By implementing a trade credit policy, companies can use incentives such as bulk discounts to encourage customers to shop more actively, thereby increasing sales. The use of trade credit can also bring benefits by increasing the company's revenue through loan interest. In addition, in the context of the property and real estate industry, longer CCC management can achieve increased profitability through faster debt repayment to obtain discounts, as well as by increasing investment in inventory.

Furthermore, based on the estimation results in Table 4, it can be concluded that the company age control variable (AGE) has a coefficient of 0.061175, with a probability value of 0.0000. Current Ratio (CR) has a coefficient of -0.007797, with a probability value of 0.0001. Sales growth (GROWTH) has a coefficient of 0.010380, with a probability value of 0.0000. Furthermore, Leverage

(LEV) has a coefficient of -0.271879, with a probability value of 0.0002. Company size (SIZE) has a coefficient of 0.006600 with a probability value of 0.0001. Thus, it can be concluded that the control variables leverage (LEV) and liquidity (CR) have a significant negative effect on ROA. Meanwhile, company size (SIZE), company age (AGE), and sales growth (GROWTH) have a significant positive effect on ROA.

In the GMM estimation results when not using control variables, the coefficient values of CCC and CCC^2 are -0.0000452 and 0.00000000152, respectively, with CCC and CCC^2 probabilities of 0.0435 and 0.4315. This means that without the control variable, the CCC variable has a significant positive effect on profitability. Meanwhile, CCC^2 has no significant effect on ROA because the probability value is above the alpha value of 0.05. When the control variables are included in the estimation, the coefficient values of CCC and CCC^2 are -0.0000136 and 0.000000000928, respectively, with the probability values of CCC and CCC^2 of 0.0013 and 0.0010. This means that in the presence of control variables, CCC has a significant negative effect on ROA while CCC^2 has a significant positive effect on ROA.

Managerial Implication

Property and real estate companies can adopt an aggressive working capital policy to achieve optimal levels of profitability. This policy involves a working capital structure with low current assets and a significant portion of financing coming from short-term liabilities. Efficiency in managing the working capital of property and real estate companies will be achieved when reaching the Break-Even Point (BEP) at 7,327.6 days. Beyond the BEP point, an increase in working capital, especially in inventory and accounts receivable, is expected to bring about improved profitability. Companies can consider several recommendations to enhance Return on Assets (ROA). Firstly, as the size of the company has a positive impact on ROA, it is advisable to consider growth or acquisition strategies to increase company size. Furthermore, sales growth also has a positive impact on ROA, and companies can focus on sustainable growth strategies aligned with the company's vision and mission. Additionally, the positive impact of the company's age on ROA suggests leveraging the success and trust built over the years. Subsequently, companies should evaluate liquidity management policies, ensuring that sufficient liquidity does not compromise profitability. Lastly, the negative impact of leverage on profitability indicates that management should consider a more prudent capital structure, evaluate the risks and benefits of debt usage, and contemplate diversifying funding sources or restructuring debt if necessary.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study aims to explore the impact of working capital management on profitability using the cash conversion cycle (CCC) and CCC squared as indicators. Control factors such as company age, sales growth, leverage, firm size, and liquidity are also considered in the analysis. The study involves 43 companies in the property and real estate sector listed on the Indonesia Stock Exchange during the period 2017-2022. The results of the analysis indicate a non-linear relationship between CCC and Return on Assets (ROA), confirming the negative and significant impact of CCC on profitability, with CCC^2 showing a positive impact after crossing the break-even point (U-shaped). In addition, the variables SIZE, GROWTH, and AGE together have a positive and significant effect on ROA, while LEV and CR have a negative and significant effect on ROA.

Recommendations

Recommendations based on this study propose that property and real estate companies can adopt aggressive working capital policies to achieve optimal profitability levels. It is recommended to consider growth strategies or acquisitions to increase the size of the company. Furthermore, it is suggested that companies focus on sustainable growth strategies in accordance with the company's vision and mission. In addition, the positive benefit of company age on ROA indicates that the company can capitalize on the success and trust that has been built over the years. To ensure sufficient liquidity without sacrificing profitability, companies need to evaluate liquidity management policies. Then the negative impact of leverage on profitability indicates the need for management to consider a prudent capital structure, evaluate the risks and benefits of using debt, and consider diversifying funding sources or restructuring debt if necessary.

Future research can examine the effect of account receivable period (ARP), inventory conversion period (ICP), and account payable period (APP) on profitability. Future research can also carry out further research by extending the observation period. By involving a wider observation period, the data collected will be more diverse, allowing for more accurate working capital policy making.

FUNDING STATEMENT: This research did not receive any specific grant from funding agencies in the public, commercial, or not - for - profit sectors.

CONFLICTS OF INTEREST: The author declares no conflict of interest.

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