

Working Capital Management and Profitability: Evidence from Manufacturing Firms Listed on the Indonesia Stock Exchange

Monica Novelia Herdayanti

Management, Universitas Widyatama, Bandung, Indonesia

Corresponding author: monica.novelia@widyatama.ac.id

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ABSTRACT: This study examines the effect of working capital management, proxied by the cash conversion cycle (CCC), on the profitability of manufacturing firms listed on the Indonesia Stock Exchange (IDX). Working capital efficiency directly shapes the liquidity-profitability trade-off, yet recent sector-specific evidence from Indonesia's post-pandemic period remains scarce. This study specifies profitability (ROA) as a function of CCC, firm size, leverage, and sales growth. Using purposive sampling, a panel of 78 manufacturing firms listed on the IDX for the 2019–2023 period was analyzed (390 firm-year observations), estimated with a Fixed Effect panel regression model selected via the Chow and Hausman tests. Results indicate that the cash conversion cycle has a significant negative effect on profitability ($\beta = -0.087$, $p < 0.01$), firm size has a significant positive effect ($\beta = 0.041$, $p < 0.05$), and leverage has a significant negative effect ($\beta = -0.156$, $p < 0.01$), while sales growth is not a significant predictor. The findings confirm operating-cycle theory and indicate that shortening the cash conversion cycle is a controllable, non-financing lever for improving manufacturing-firm profitability. Financial managers are encouraged to tighten inventory turnover, receivables collection, and payables policy as a coordinated working capital strategy.

Keywords: Working capital management, Cash conversion cycle, Profitability, Manufacturing firms, Indonesia Stock Exchange

INTRODUCTION

Working capital management remains one of the most consequential yet operationally overlooked dimensions of corporate financial management. Unlike long-term investment and financing decisions, working capital decisions are recurrent, short horizon, and directly shape a firm's liquidity profitability trade off (Deloof, 2003). For manufacturing firms in particular, which typically carry substantial inventory and extend trade credit to customers, the efficiency with which cash is converted from raw material purchase to sales collection can materially affect reported profitability.

The cash conversion cycle (CCC) the sum of days inventory outstanding and days sales outstanding, net of days payables outstanding has become the dominant operational proxy for working capital efficiency in the finance literature (Richards & Laughlin, 1980; Jose et al., 1996). A shorter CCC implies that a firm recovers cash from its operating cycle more quickly, reducing the need for external financing and its associated cost. Conversely, an excessively aggressive (short) CCC may impair sales growth or supplier relationships, suggesting a nonlinear, firm-specific optimum (Baños-Caballero et al., 2012).

Empirical evidence on the working capital profitability relationship remains mixed across institutional contexts. Studies in developed markets (Deloof, 2003; Lazaridis & Tryfonidis, 2006; Enqvist et al., 2014) generally report a negative association between CCC and profitability, while evidence from emerging markets characterized by less developed capital markets, higher financing costs, and greater reliance on trade credit is comparatively scarce, particularly for Indonesian manufacturing firms in the post-pandemic recovery period (2019–2023).

This study addresses that gap by examining the effect of working capital management, proxied by the cash conversion cycle, on the profitability of manufacturing firms listed on the Indonesia Stock Exchange (IDX). The research questions are twofold: (1) does the cash conversion cycle significantly affect firm profitability, and (2) how do firm size and leverage moderate this relationship as control variables? The study contributes to the literature by providing recent, sector-specific evidence from an emerging-market context and by offering practical guidance for corporate treasurers and financial managers on working capital policy.

METHOD

Research Design

This study employs a quantitative, explanatory research design using secondary panel data. Panel data regression is appropriate because it captures both cross-sectional variation across firms and time-series variation within firms, increasing degrees of freedom and mitigating omitted-variable bias relative to a purely cross-sectional design (Gujarati & Porter, 2009).

Population and Sample

The population consists of all manufacturing companies listed on the Indonesia Stock Exchange during the 2019–2023 observation period. Firms were selected using purposive sampling based on the following criteria: (1) consistently listed and actively traded throughout 2019–2023; (2) publishing complete audited annual financial statements for each year of observation; (3) reporting positive equity and positive sales throughout the period; and (4) not delisted, suspended, or under financial distress restructuring during the observation window. Applying these criteria to an initial population of 196 listed manufacturing firms yielded a final sample of 78 firms observed over five years, producing 390 firm-year observations.

Financial statement data were obtained from the IDX official website and each firm's annual report. All continuous variables were winsorized at the 1st and 99th percentiles to reduce the influence of extreme outliers, consistent with standard practice in corporate finance panel studies (Baños-Caballero et al., 2012).

Variable Measurement

Dependent Variable: Profitability

Profitability is measured by Return on Assets (ROA), calculated as net operating income divided by total assets. ROA is preferred over Return on Equity in working capital studies because it is unaffected by capital structure choices and therefore isolates operating performance (DeLoof, 2003).

Independent Variable: Cash Conversion Cycle (CCC)

CCC is calculated as Days Inventory Outstanding (DIO) plus Days Sales Outstanding (DSO) minus Days Payables Outstanding (DPO), each expressed in days and derived from year-end balance sheet and income statement figures using a 365-day convention.

Control Variables

Firm size (SIZE) is measured as the natural logarithm of total assets, controlling for economies of scale in working capital efficiency. Leverage (LEV) is measured as total debt divided by total assets, controlling for the effect of capital structure on profitability. Sales growth (GROWTH) is measured as the year-on-year percentage change in net sales, controlling for the effect of business expansion on both working capital needs and profitability.

Data Analysis Strategy

Data were analyzed using panel data regression with EViews 12. Model selection followed the standard sequence: the Chow test to choose between the Common Effect and Fixed Effect Model, followed by the Hausman test to choose between the Fixed Effect and Random Effect Model. Both tests favored the Fixed Effect Model (Chow test $p < 0.05$; Hausman test $p < 0.05$), which was therefore used for hypothesis testing. Classical assumption tests normality, multicollinearity (variance inflation factor), heteroscedasticity, and autocorrelation were performed prior to interpretation, and hypotheses were evaluated using the t-test for partial effects and the F-test for overall model significance at the 5% level.

The estimated model is specified as: $ROA_{it} = \alpha + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \epsilon_{it}$, where i denotes firm and t denotes year.

RESULT AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics for all variables across the 390 firm year observations. The average cash conversion cycle is approximately 92 days, indicating that, on average, sample firms require just over three months to convert operating activities into cash receipts, with considerable dispersion across firms.

Variable	Mean	Std. Dev.	Minimum	Maximum
ROA (%)	6.84	5.92	-4.10	24.35
CCC (days)	91.6	38.4	12.0	205.0
SIZE (Ln Total Assets)	28.41	1.63	24.98	32.77

Variable	Mean	Std. Dev.	Minimum	Maximum
LEV (Debt/Total Assets)	0.42	0.19	0.05	0.87
GROWTH (Sales, %)	8.92	14.27	-22.60	61.30

Table 1. Descriptive Statistics ($n = 390$ firm-years)

Panel Regression Results

Table 2 presents the Fixed Effect Model estimation results. The overall model is statistically significant (F-statistic $p < 0.001$), and the adjusted R^2 of 0.412 indicates that the model explains approximately 41.2% of the variation in profitability across firms and years.

Variable	Coefficient (β)	t-statistic	p-value	Decision
Constant	0.184	3.62	<0.001	—
CCC	-0.087	-3.14	<0.01	H1 Supported (negative, significant)
SIZE	0.041	2.27	<0.05	Significant (positive)
LEV	-0.156	-4.05	<0.01	Significant (negative)
GROWTH	0.018	1.32	0.187	Not significant

Table 2. Fixed Effect Panel Regression Results

Discussion

Cash Conversion Cycle and Profitability (H1 — Supported)

Consistent with the hypothesized negative relationship, the cash conversion cycle shows a significant negative effect on ROA ($\beta = -0.087$, $p < 0.01$). This finding is consistent with DeLoof (2003) and Lazaridis and Tryfonidis (2006), and suggests that manufacturing firms with shorter conversion cycles achieved through faster inventory turnover, tighter receivables collection, and strategic use of payables generate higher operating returns, likely because they rely less on costly external short-term financing to fund operations.

Firm Size and Profitability

Firm size is positively and significantly associated with profitability ($\beta = 0.041$, $p < 0.05$), consistent with economies of scale: larger manufacturing firms can negotiate more favorable supplier and customer credit terms, spreading fixed operating costs over a larger revenue base.

Leverage and Profitability

Leverage is negatively and significantly associated with profitability ($\beta = -0.156$, $p < 0.01$), consistent with the pecking order and pre-emptive financial-distress literature: firms financed more heavily by debt bear higher interest burdens that erode net operating returns, and may also face tighter trade-credit terms from suppliers who perceive higher default risk.

Sales Growth and Profitability

Sales growth shows a positive but statistically insignificant effect on profitability ($\beta = 0.018$, $p = 0.187$), suggesting that revenue expansion alone does not automatically translate into higher returns unless accompanied by disciplined working capital management rapid growth can strain inventory and receivables management if not carefully controlled.

Theoretical and Practical Implications

This study offers the following contributions and implications:

- Theoretical contribution: The findings reinforce the operating-cycle theory of working capital, extending it with recent post-pandemic evidence from Indonesian manufacturing firms a context underrepresented in the existing literature.
- Managerial implication: Financial managers should actively monitor and shorten the cash conversion cycle through faster inventory turnover, more disciplined receivables collection, and judicious extension of payables as a lever for improving profitability without requiring additional external capital.
- Policy implication: Given the negative effect of leverage on profitability, firms should evaluate whether short-term financing needs driven by an inefficient cash conversion cycle can instead be addressed through improved working capital efficiency rather than additional borrowing.

CONCLUSION

This study examined the effect of working capital management, proxied by the cash conversion cycle, on the profitability of manufacturing firms listed on the Indonesia Stock Exchange over the 2019–2023 period. The Fixed Effect panel regression results indicate that the cash conversion cycle has a significant negative effect on profitability, while firm size shows a significant positive effect and leverage shows a significant negative effect. Sales growth was not found to be a significant determinant of profitability in this sample.

The main conclusion is that working capital efficiency is a meaningful and controllable lever for improving manufacturing-firm profitability, independent of external financing decisions. Firms that shorten their operating cycle through coordinated inventory, receivables, and payables management can improve returns without incurring the additional cost and risk associated with debt financing.

Limitations and Future Research

This study is subject to several limitations. First, the sample is restricted to manufacturing firms listed on the IDX, which may limit generalizability to other sectors with different operating-cycle characteristics, such as services or trading companies. Second, the cash conversion cycle is measured using year-end balance sheet figures, which may not fully capture within-year seasonal fluctuations in working capital. Third, this study uses a linear specification; prior literature suggests the working capital–profitability relationship may be nonlinear, with an optimal CCC beyond which further shortening harms profitability (Baños-Caballero et al., 2012).

Future research is encouraged to: (1) test for a nonlinear (quadratic) relationship to identify an optimal cash conversion cycle; (2) extend the analysis to other sectors for cross-industry comparison; (3) incorporate macroeconomic moderators such as interest rates and inflation; and (4) employ quarterly data to capture intra-year working capital dynamics.

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