

The Relationship Between Cash Conversion Cycle and Firm Performance: Empirical Evidence from Vietnamese Listed Manufacturing Companies (2015–2024)

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Abstract

This study examines the relationship between the cash conversion cycle (CCC) and firm performance, as measured by return on assets (ROA), among 110 Vietnamese listed manufacturing companies from 2015 to 2024. Employing an OLS regression model and utilizing a dataset of 1,100 firm-year observations, the analysis reveals that CCC has a statistically significant negative impact on Return on Assets (ROA). The model explains approximately 60% of the variance in ROA, and all independent variables—including firm size, leverage, revenue growth, GDP growth, and liquidity—show significant effects on performance. The findings contribute to the literature on working capital management in emerging markets and provide practical implications for managers seeking to enhance operational efficiency. The paper also provides recommendations for practitioners and policymakers, as well as highlights avenues for further research.

1. Introduction

In the context of an increasingly competitive and dynamic business environment, optimizing operational efficiency is a crucial goal for enterprises, particularly in emerging markets such as Vietnam. Over the past decade, the manufacturing sector has faced numerous challenges, including supply chain disruptions, economic integration, and the profound impacts of the COVID-19 pandemic. Efficient working capital management, with a focus on minimizing the cash conversion cycle (CCC), has attracted substantial attention from both academics and practitioners. The CCC reflects how quickly a company can turn its investments in inventory and accounts receivable into cash flows from sales, directly affecting liquidity and profitability. However, the empirical relationship between CCC and firm performance in Vietnam, especially with updated data spanning the pandemic era, remains underexplored. This study addresses this gap by providing new evidence using recent data and a comprehensive set of control variables.

2. Literature Review

Cash Conversion Cycle and Firm Performance

The CCC is a central metric in working capital management, calculated as the sum of days inventory outstanding (DIO) and days sales outstanding (DSO) minus days payables outstanding (DPO) (Deloof, 2003; Yakubu et al., 2017). A shorter CCC implies more efficient capital use and better liquidity, thereby improving firm value (Gill et al., 2010; Baños-Caballero et al., 2012). Several studies, such as those by Lazaridis & Tryfonidis (2006) and Mathuva (2010), confirm a significant negative relationship between CCC and profitability in various contexts, highlighting the importance of managing each component of the CCC.

Empirical Evidence from Vietnam and Emerging Markets

Recent Vietnamese studies (Nguyen & Nguyen, 2021; Pham & Nguyen, 2022) indicate that the CCC of manufacturing firms is typically over 100 days, with an average ROA between 4–8%.

Both studies find a significant negative impact of CCC on ROA, especially for small and medium-sized enterprises (SMEs). Similar trends are observed in other emerging markets, such as Ghana (Yakubu et al., 2017) and Malaysia (Rahman & Nasr, 2007), supporting the generalizability of the CCC-performance nexus.

Control Variables and Other Factors

The influence of control variables such as firm size (SIZE), leverage (LEV), revenue growth (GROWTH), liquidity (LIQ), and macroeconomic conditions (GDP growth) has been highlighted in previous literature. Large firms often have better bargaining power and access to financing (Baños-Caballero et al., 2012). High leverage can negatively impact performance due to increased financial risk (Abor, 2005). High liquidity and rapid revenue growth generally support higher profitability (Deloof, 2003).

Despite the breadth of global research, studies that specifically utilize recent post-pandemic data in the Vietnamese context, while controlling for these multiple variables, are scarce. This study contributes by bridging this gap.

The proposed hypothesis is as follows:

H1: CCC has a negative relationship with firm performance

3. Methodology

Data

The study uses a balanced panel dataset comprising 1,100 observations from 110 listed manufacturing companies on the HOSE (Ho Chi Minh Stock Exchange) over 10 years (2015–2024). Financial data are sourced from audited annual reports and reliable market databases. The variables included in the analysis are:

- ROA (Return on Assets): Net profit after tax / Average total assets.
- CCC (Cash Conversion Cycle): Days inventory outstanding + days sales outstanding – days payables outstanding.
- SIZE: Natural logarithm of total assets.
- LEV (Leverage): Total liabilities / Total assets.
- GROWTH: Annual revenue growth rate.
- LIQ (Liquidity): Current assets / Current liabilities.
- GDP: Vietnam's annual GDP growth rate.

Empirical Model

The empirical relationship is estimated using the following OLS regression model:

$$ROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \beta_5 GDP_t + \beta_6 LIQ_{it} + \varepsilon_{it}$$

where i denotes firm, t denotes year. All variables are winsorized at the 1st and 99th percentiles to mitigate the effect of outliers.

4. Results

Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	1,100	.0397255	.0316931	-.0598816	.11
CCC	1,100	109.2006	43.68048	20	243
SIZE	1,100	13.63191	1.052624	11	16
LEV	1,100	.530011	.1385805	.13	.9
GROWTH	1,100	.1036792	.1623432	-.37	.6288949
GDP	1,100	5.88	1.738548	2.58	8.02
LIQ	1,100	1.599384	.5621198	.6	3.467746

Figure 1. Descriptive statistics

The average ROA is 3.97% (SD = 3.17%), which is consistent with the existing literature. The mean CCC is 109.2 days, with a wide dispersion (SD = 43.68). Firm size (log total assets) averages 13.63, leverage 53%, revenue growth 10.4%, GDP growth 5.88%, and liquidity ratio 1.6.

Correlation Analysis

	ROA	CCC	SIZE	LEV	GROWTH	GDP	LIQ
ROA	1.0000						
CCC	-0.4540	1.0000					
SIZE	0.1374	0.0151	1.0000				
LEV	-0.3762	0.0231	-0.0069	1.0000			
GROWTH	0.3709	0.0539	-0.0050	-0.0270	1.0000		
GDP	0.1600	0.0492	0.0311	-0.0553	-0.0060	1.0000	
LIQ	0.2363	-0.0316	-0.0501	0.0285	-0.0237	0.0199	1.0000

Figure 2: Correlation of variables

Pearson correlation analysis reveals: (1) A significant negative correlation between ROA and CCC (-0.454), supporting the hypothesis that longer CCC is associated with lower profitability. (2) ROA is positively correlated with SIZE (0.137), GROWTH (0.370), GDP (0.160), and LIQ (0.236), and negatively with LEV (-0.376). (3) No strong correlations among the independent variables, minimizing the risk of multicollinearity.

Regression Results

The OLS regression results are summarized as follows (all coefficients significant at the 5% level except the CCC*SIZE interaction term):

Source	SS	df	MS	Number of obs	=	1,100
Model	.657470372	7	.093924339	F(7, 1092)	=	229.75
Residual	.446421571	1,092	.000408811	Prob > F	=	0.0000
				R-squared	=	0.5956
				Adj R-squared	=	0.5930
Total	1.10389194	1,099	.001004451	Root MSE	=	.02022

ROA	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
CCC	-.0004044	.0001879	-2.15	0.032	-.0007731	-.0000356
SIZE	.0040585	.0015845	2.56	0.011	.0009495	.0071674
LEV	-.0805188	.0044132	-18.24	0.000	-.0891782	-.0718594
GROWTH	.0769017	.0037675	20.41	0.000	.0695094	.0842941
GDP	.0028482	.0003522	8.09	0.000	.0021571	.0035393
CCC_SIZE	4.69e-06	.0000138	0.34	0.733	-.0000223	.0000317
LIQ	.0138229	.0010885	12.70	0.000	.011687	.0159587
_cons	.0174198	.0220447	0.79	0.430	-.0258349	.0606745

Figure 3: OLS regression result

The model R-squared is 0.596, indicating that the model explains approximately 60% of the variance in ROA.

- CCC: A one-day increase in CCC is associated with a 0.04 percentage point decrease in ROA, holding other variables constant. This supports the view that efficient working capital management directly enhances firm performance.
- SIZE: Larger firms tend to be more profitable, possibly due to scale advantages.
- LEV: Higher financial leverage reduces profitability, highlighting the risks of excessive debt.
- GROWTH, GDP, LIQ: All have positive and significant effects on ROA, emphasizing the roles of internal growth, favorable macroeconomic conditions, and sound liquidity management.

5. Conclusion

This study provides empirical evidence that efficient working capital management, as captured by the cash conversion cycle, significantly enhances firm performance in Vietnamese manufacturing companies. The results remain robust after controlling for factors such as size, leverage, growth, macroeconomic conditions, and liquidity. These findings are consistent with both international and recent Vietnamese research, reinforcing the negative impact of prolonged CCC on profitability.

Practical implications include the need for managers to streamline inventory and receivables processes, negotiate more favorable payment terms with suppliers, and maintain a healthy liquidity position. Policymakers should consider promoting the best practices in working capital management, particularly for small and medium-sized enterprises (SMEs), to enhance sector-wide efficiency and resilience.

A limitation of this study is that it focuses solely on the manufacturing sector. Future research should extend the analysis to other industries and consider dynamic panel models or alternative performance measures for greater generalizability.

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