

THE EFFECT OF NET WORKING CAPITAL AND CASH CONVERSION CYCLE ON CASH HOLDING AT PT NIPPON INDOSARI CORPINDO TBK FOR THE 2015–2025 PERIOD

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Abstract

This study examines the effects of Net Working Capital (NWC) and the Cash Conversion Cycle (CCC) on Cash Holding (CH) at PT Nippon Indosari Corpindo Tbk during 2015-2025. A quantitative associative design was applied to 11 annual observations derived from the company's published financial statements. The analysis used descriptive statistics, classical assumption tests, multiple linear regression, the coefficient of determination, partial t-tests, and the simultaneous F-test. The results show that NWC has a positive and significant effect on Cash Holding ($t = 5.299$; $p = 0.001$), whereas CCC has a negative and significant effect ($t = -2.580$; $p = 0.033$). Simultaneously, NWC and CCC significantly affect Cash Holding ($F = 22.654$; $p = 0.001$). The model yields $R^2 = 0.850$, indicating that 85.0% of the variation in Cash Holding is explained jointly by NWC and CCC, while the adjusted R^2 is 0.812. These findings emphasize that both the liquidity buffer embedded in working capital and the efficiency of cash conversion are important for corporate cash policy. The study provides firm-specific longitudinal evidence from a major Indonesian bread producer across the pre-pandemic, pandemic, and post-pandemic periods.

Keywords:

Net Working Capital; Cash Conversion Cycle; Cash Holding; Liquidity; Working Capital Management.

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INTRODUCTION

The food and beverage industry is an important component of Indonesia's manufacturing economy. The original manuscript reports that the industry grew by 5.53% in the second quarter of 2024 and continued to make a substantial contribution to non-oil and gas manufacturing and national GDP in 2025. This environment creates opportunities for processed-food companies while simultaneously exposing them to changes in operating costs, consumer purchasing power, investment needs, and liquidity pressure.

PT Nippon Indosari Corpindo Tbk, widely known through the Sari Roti brand, provides a relevant setting for examining corporate liquidity management. The company's financial data show a tightening liquidity pattern toward the end of the observation period. Net Working Capital declined from approximately Rp433 billion in 2024 to Rp263 billion in 2025, while the Cash Conversion Cycle lengthened from approximately 29 days to 34 days. At the same time, Cash Holding declined to 7.64% in 2025. These movements make the interaction between working-capital resources, cash-conversion efficiency, and retained cash economically important.

Cash Holding represents the liquid resources available to support operations, investment, debt service, dividends, and precautionary needs. NWC captures the excess of current assets over current liabilities and therefore reflects a firm's short-term liquidity buffer. CCC captures the time required to recover cash committed to inventories and receivables after considering supplier financing. Although both variables are closely connected to liquidity, previous empirical studies have reported inconsistent results. Some studies find a positive association between NWC and Cash Holding, while others report an insignificant relationship. Likewise, CCC has been reported as negatively significant in some settings but insignificant in others. These contradictions indicate that the relationship may depend on firm characteristics, industry conditions, and the observation period.

The research gap is particularly relevant in the Indonesian food and beverage subsector. This study therefore focuses on PT Nippon Indosari Corpindo Tbk over an 11-year period (2015-2025), enabling observation of liquidity dynamics before, during, and after the COVID-19 pandemic. The study aims to test the partial effects of NWC and CCC on Cash Holding and their simultaneous effect, while interpreting the findings through Trade-Off Theory, Pecking Order Theory, and Working Capital Management Theory.

Table 1. NWC, CCC, and Cash Holding, 2015-2025. Source: Processed from company financial statements

Year	NWC (Rp)	CCC (days)	CH (%)
2015	417,070,639,283	3	19.03
2016	628,912,513,675	3	20.92
2017	1,292,760,907,779	10	41.56
2018	1,350,987,149,189	16	29.46
2019	767,472,725,873	18	25.32
2020	1,145,050,058,768	22	22.70
2021	798,844,014,637	22	18.10
2022	673,254,654,410	20	15.19
2023	495,845,751,796	25	13.64
2024	433,416,676,541	29	11.50
2025	263,490,031,851	34	7.64

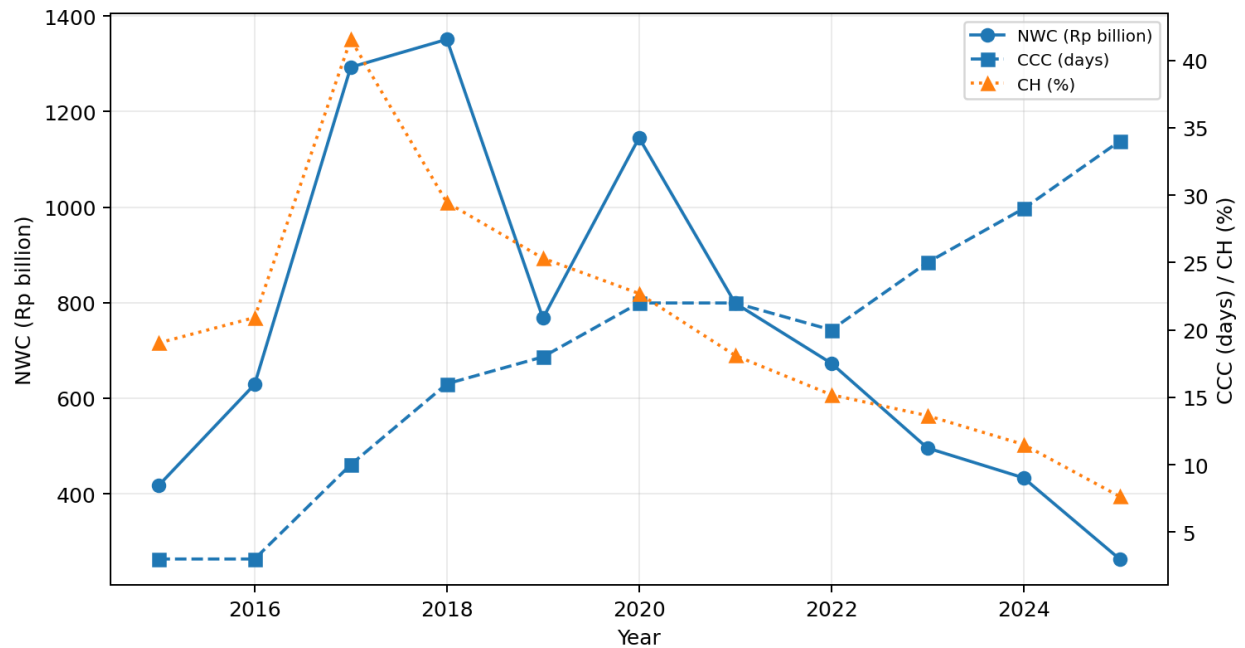


Figure 1. Trends in Net Working Capital, Cash Conversion Cycle, and Cash Holding, 2015-2025. The figure highlights the post-2018 decline in NWC and Cash Holding alongside a generally lengthening CCC.

LITERATURE REVIEW

Trade-Off Theory

Trade-Off Theory views cash policy as a balance between the benefits of liquidity and the opportunity costs of holding idle funds. NWC can transmit to Cash Holding through the liquidity-buffer channel: a stronger net current-asset position increases short-term financial flexibility and may permit the firm to maintain a larger cash reserve. CCC operates through the timing channel. A longer cycle delays the recovery of cash invested in operations and may either increase precautionary cash needs or, when operating liquidity is constrained, coincide with lower observable cash balances. Thus, the theory does not imply that more cash is always optimal; rather, the firm seeks a level at which the marginal liquidity benefit equals the marginal cost of holding cash.

Pecking Order Theory

Pecking Order Theory (Myers & Majluf, 1984) proposes that firms prefer internal funds to external debt and issue equity only after less information-sensitive financing sources are exhausted. In this framework, Cash Holding is part of internal financing capacity. Higher NWC may be associated with higher Cash Holding when internally generated liquidity is accumulated rather than immediately distributed or invested. Conversely, an inefficient or prolonged CCC ties funds up in inventory and receivables, reducing the speed at which internal funds return to cash and potentially lowering the cash balance available for financing operations and investment.

Working Capital Management Theory

Working capital management emphasizes the coordinated management of current assets and current liabilities to preserve liquidity while supporting profitability and operational continuity. NWC reflects the stock dimension of short-term liquidity, whereas CCC reflects the flow and timing dimension. When NWC rises because liquid current assets increase relative to current liabilities, the firm may have greater capacity to retain cash. By contrast, a longer CCC indicates slower conversion of operating resources into cash, which can weaken cash availability.

The two measures therefore capture complementary mechanisms through which working-capital policy can shape Cash Holding.

Critical Review and Hypothesis Development

Prior findings are not uniform. Aryani and Fitrianti (2026), Gustiani and Asroruddin (2025), and Silaban and Benarda (2023) report a positive and significant NWC-Cash Holding relationship, whereas Wahyuni and Bustari (2025) report no significant effect. For CCC, Simanjuntak and Yap (2023) and Fawwazin (2022) report a negative and significant association, while Nurhamidiyah and Utami (2025) find no significant effect. Differences in industry, firm size, liquidity policy, leverage, sample composition, and macroeconomic period may explain these contradictory results. A single-firm longitudinal design cannot resolve all cross-sectional differences, but it can reveal how these relationships behave within a consistent organizational setting over time.

H1: Net Working Capital has a positive and significant effect on Cash Holding at PT Nippon Indosari Corpindo Tbk.

H2: Cash Conversion Cycle has a negative and significant effect on Cash Holding at PT Nippon Indosari Corpindo Tbk.

H3: Net Working Capital and Cash Conversion Cycle simultaneously have a significant effect on Cash Holding at PT Nippon Indosari Corpindo Tbk.

METHOD

This study uses a quantitative associative design. The unit of analysis is PT Nippon Indosari Corpindo Tbk, and the dataset consists of 11 annual observations covering 2015-2025. Secondary data were obtained from published annual reports and financial statements. NWC is measured as current assets minus current liabilities; CCC is measured as Days Inventory Outstanding plus Days Sales Outstanding minus Days Payable Outstanding; and Cash Holding is measured as cash and cash equivalents divided by total assets.

Table 2. Operationalization of variables.

Variable	Role	Measurement	Scale
Net Working Capital (NWC)	Independent	Current Assets - Current Liabilities	Ratio
Cash Conversion Cycle (CCC)	Independent	DIO + DSO - DPO	Ratio
Cash Holding (CH)	Dependent	Cash and cash equivalents / Total Assets	Ratio

Data were processed using SPSS Statistics 25. The analytical sequence comprised descriptive statistics, normality, multicollinearity, heteroscedasticity, and autocorrelation diagnostics, followed by multiple linear regression, the coefficient of determination, t-tests, and the F-test. The model is specified as $CH = \alpha + \beta_1(NWC) + \beta_2(CCC) + e$.

Because the study contains only 11 annual observations and two predictors, statistical power and external validity are limited. Accordingly, coefficient estimates and significance tests should be interpreted as firm- and period-specific evidence rather than as broad generalizations to all food and beverage companies. The small sample also increases sensitivity to individual

annual observations and structural changes. The diagnostic tests are therefore used as supporting evidence for model adequacy, while substantive interpretation remains cautious.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3. Descriptive statistics. Source: SPSS Statistics 25.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
NWC	11	263,490,031,851	1,350,987,149,189	751,555,011,254.73	367,070,736,917.80
CCC	11	2.67	34.42	18.4836	10.09066
CH	11	7.64	41.56	20.4600	9.38932

NWC fluctuated substantially and reached its highest level around 2018 before trending downward. CCC generally lengthened over the period, while Cash Holding peaked in 2017 and subsequently declined. These movements suggest that the company experienced a gradual reduction in cash reserves while cash remained tied up in the operating cycle for longer periods.

Classical Assumption Tests

Table 4. Summary of classical assumption tests. Source: SPSS Statistics 25.

Diagnostic	Statistic / criterion	Result	Conclusion
Normality	K-S Asymp. Sig. = 0.200	$p > 0.05$	Residuals approximately normal
Multicollinearity	Tolerance = 0.928; VIF = 1.077 for both predictors	Tolerance > 0.10 ; VIF < 10	No multicollinearity
Heteroscedasticity (Glejser)	NWC $p = 0.405$; CCC $p = 0.981$	Both $p > 0.05$	No evidence of heteroscedasticity
Autocorrelation (Runs Test)	Asymp. Sig. = 0.977	$p > 0.05$	No evidence of non-random residual sequence

The reviewer-identified implausible CCC coefficient in the original Glejser table is not reproduced here; the inference is reported using the verified significance value ($p = 0.981$). The raw SPSS coefficient should be checked against the original output before final publication.

Regression and Model Explanatory Power

Table 5. Multiple linear regression results. Source: SPSS Statistics 25.

Predictor	B	Std. Error	Beta	t	p
Constant	12.287	4.304	-	2.854	0.021
NWC	1.927E-11	0.000	0.753	5.299	0.001
CCC	-0.341	0.132	-0.367	-2.580	0.033

The estimated equation is $CH = 12.287 + 1.927E-11(NWC) - 0.341(CCC)$. The positive NWC coefficient indicates that, holding CCC constant, stronger net working capital is associated with higher Cash Holding. The negative CCC coefficient indicates that a longer cash conversion period is associated with lower Cash Holding. The model summary reports $R = 0.922$, $R^2 =$

0.850, adjusted $R^2 = 0.812$, and a standard error of estimate of 4.06663. Thus, the two predictors jointly explain 85.0% of the observed variation in Cash Holding in the sample, although the adjusted estimate and small sample size warrant cautious interpretation.

Hypothesis Testing

Hypothesis	Test statistic	Critical / p-value	Decision	Interpretation
H1: NWC -> CH	$t = 5.299$	$t\text{-table} = 2.306$; $p = 0.001$	Supported	Positive and significant
H2: CCC -> CH	$t = -2.580$	$ t = 2.580 > 2.306$; $p = 0.033$	Supported	Negative and significant
H3: NWC & CCC -> CH	$F = 22.654$	$F\text{-critical} \sim 4.46$; $p = 0.001$	Supported	Jointly significant

Table 6. Summary of hypothesis testing.

Net Working Capital and Cash Holding

NWC has a positive and significant effect on Cash Holding ($t = 5.299$; $p = 0.001$). This result supports the view that a stronger short-term liquidity position provides greater capacity to retain cash. From a working-capital perspective, current assets in excess of current liabilities create a liquidity cushion that can support routine operations and precautionary reserves. From the Pecking Order perspective, such liquidity also strengthens internal financing capacity, reducing immediate dependence on external funds. The finding is consistent with Aryani and Fitrianti (2026), Gustiani and Asroruddin (2025), and Silaban and Benarda (2023), but differs from Wahyuni and Bustari (2025). The divergence may reflect differences in industry structure and sample composition: property and real-estate firms can have longer project cycles and different current-asset structures than a consumer-food producer, so NWC may not translate into cash reserves in the same way.

Cash Conversion Cycle and Cash Holding

CCC has a negative and significant effect on Cash Holding ($t = -2.580$; $p = 0.033$). Within this company, a longer operating cash cycle is associated with a lower cash balance. This pattern is consistent with the idea that funds tied up for longer in inventory and receivables reduce immediately available liquidity. The result supports Simanjuntak and Yap (2023) and Fawwazin (2022), but differs from Nurhamidiyah and Utami (2025). Such differences may arise because the economic meaning of CCC depends on inventory perishability, supplier terms, bargaining power, and sales channels. A bread producer faces rapid inventory turnover requirements and distribution constraints that differ from broader samples, making cash-conversion efficiency especially relevant to liquidity.

External Context and Managerial Implications

The 2015-2025 window spans materially different operating environments, including the COVID-19 disruption and the subsequent normalization of demand and supply chains. Changes in consumer purchasing power, input and logistics costs, interest rates, dividend policy, and industry competition may have affected both working-capital needs and cash retention. These external influences are not explicitly included in the regression model and therefore should be considered when interpreting the coefficients.

For management, the findings imply that cash policy should not be separated from working-capital policy. Maintaining adequate NWC can protect operating liquidity, but excessive current assets may impose opportunity costs. At the same time, reducing avoidable delays in inventory

turnover and receivable collection can accelerate cash recovery. Management should therefore monitor NWC and CCC jointly, establish liquidity thresholds, improve receivable and inventory controls, and align dividend and investment decisions with expected operating cash needs.

CONCLUSION

This study finds that Net Working Capital has a positive and significant effect on Cash Holding ($t = 5.299$; $p = 0.001$), while the Cash Conversion Cycle has a negative and significant effect ($t = -2.580$; $p = 0.033$). Jointly, NWC and CCC significantly explain Cash Holding ($F = 22.654$; $p = 0.001$), with $R^2 = 0.850$ and adjusted $R^2 = 0.812$. The results indicate that the stock of short-term liquidity and the speed of operating cash conversion are jointly relevant to corporate cash policy. The study's specific contribution is longitudinal evidence from a major Indonesian bread producer over 11 years encompassing pre-pandemic, pandemic, and post-pandemic conditions. This firm-specific setting extends the cash-holding literature by showing how NWC and CCC operate together within a consumer-food business whose liquidity and operating-cycle characteristics differ from broader manufacturing samples. Nevertheless, the small number of observations limits generalization. Future studies should use multi-firm panels, longer periods, and additional determinants such as profitability, leverage, cash flow, firm size, dividend policy, and macroeconomic conditions.

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