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**Working Capital Behavior, Risk and Profitability:
Empirical Study of Manufacturing Companies in
Indonesia**

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Abstract: This research aims to empirically test the influence of industry volatility, sales growth, and company size on working capital behavior and its impact on liquidity risk, operational risk, financial risk, and profitability. This research was conducted on industrial sector companies listed on the Indonesian Stock Exchange. Data consists of panel data from 2018-2022 totaling 272 samples after screening for outliers and normality. Structural equation modeling is employed to test the recursive model. This research proves that there is a positive influence of industry volatility on working capital aggressiveness. Company size influences working capital behavior negatively, and sales growth has no influence on it. Furthermore, working capital behavior influences liquidity risk positively and negatively on financial risk, but has no influence on operational risk. This research proves that simultaneously liquidity risk has a positive effect and financial risk has a negative effect on profitability. Operational risk has no effect on profitability.

Keywords: Working Capital Behavior; Liquidity Risk; Operating Risk; Financial Risk

Introduction

Working capital management is the main driver for companies in order to be able to react quickly to anticipate various external changes to keep up with competitors in a rapidly changing environment. Working capital management is for efficiency purposes that balance between the need for maintaining liquidity and the opportunity cost of liquid assets and use a combination of funding sources with minimum cost of capital, which can sustain company activities in an ever-changing environment (Brealey, Meyers and Marcus 2003; Ross et al., 2008; Adair, 2011; Sagner, 2011; Damodaran, 2015). To maintain proper cash

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balance, it is important to place working capital with a minimum of risk that is able to affect positive cash flow as value creation for the company. Excessive level of current assets will have negative impacts on the firm's profitability, whereas a low level of current assets will lead to stockout, resulting in difficulties in maintaining smooth operations (Van Horne and Wachowicz, 2004; Damodaran 2015). Some literature has explained that working capital investment can give a positive cash effect or negative cash effect (Ross et al., 2008; Damodaran, 2015), and other studies show poor working capital management and insufficient long-term funding as a cause of corporate failure (Enqvist, Graham and Nikkinen, 2014) in line with Van Horne and Wachowicz (2004) and Damodaran (2015). To balance between profitability and risk, management will establish optimum working capital although in practice it is difficult to achieve (Wasiuzzaman, 2016; Chauhan and Banerjee, 2018; Eldomiaty et al., 2018).

For this, companies need careful strategies and policies in managing working capital, especially dealing with industry dynamics, sales growth and an uncertain macroeconomic environment. Therefore, research on working capital behavior and the risks posed by aggressive behavior is very important, because this will have implications for the strategies and policies used by companies in managing elements of working capital and short-term debt for efficiency and profitability purposes. Therefore, some companies choose aggressive, moderate or conservative policies in working capital (Weston and Copeland, 2008) which reflects the working capital management behavior.

The behavior of working capital is an endogenous variable, this is shown by several studies which show that macro factors such as inflation, unemployment, Gross Domestic Product have an impact on the responsiveness of working capital (Hussain, 2021), (Mahmood et al., 2022), (Yilmaz & Acar, 2022), (Soukhakian & Khodakarami, 2019), (Reyad et al., 2022), it was found that fixed asset growth, GDP growth has an impact on working capital aggressiveness (Korent & Orsag, 2022). Working capital behavior can also be influenced by industrial environment and industrial uncertainty as well as crisis conditions (Dbouk et al., 2020), (Akbar et al., 2021). Meanwhile (Moussa, 2019) found that growth opportunities have a positive impact on working capital behavior.

Working capital behavior with inventory policies that are too high and aggressive credit policies can have an impact on liquidity risk (Asif & Nisar, 2022; Hofmann et al., 2022; Moussa, 2019). Liquidity risk will be high if the company is unable to meet its short-term obligations. Companies with effective working capital behavior can be reflected in high operational efficiency (Zimon & Tarighi, 2021). An aggressive inventory policy strategy can also trigger a company to increase sales and loosen receivables policies. However, high levels of inventory and receivables that are not balanced with appropriate controls can have an impact on operational risk (Seth et al., 2020). Funding policies for working capital that are not managed carefully can have an impact on financial risks, namely the company's inability to increase income which must cover debt costs, both short and long term. Several researchers show that the influence of changes in working capital has a negative effect on the level of changes in debt (Riaz et al., 2022). In line with Chauhan et al., (2019), it is proven that companies that implement aggressive working capital policies have a negative impact on profitability and market value, whereas financing policies with conservative working capital have a positive impact on profitability.

Some researchers found different results: a positive relationship between working capital investment decisions and profitability (Abuzayed, 2012; Shrivastava et al., 2015). Other

researchers found a negative relationship between working capital and profitability (Pais and Gama, 2015; Nufazil and Shah, 2017; Altaf and Shah, 2018;). Furthermore, most researchers found the relationships between working capital and profitability are in concave form. It is an indication that there is an optimal level of working capital investment (Silva, 2012; Gomes, 2013; Aktas, Croci and Petmezas, 2015; Khan and Akbar, 2016). The effect of working capital investment is not only on liquidity risk and profitability, but also on company value. Most studies of working capital management explain the relationship between profitability and company value.

This research aims to examine important determinants that influence working capital behavior and their impact on liquidity risk, operational risk and financial risk which in turn will affect company profitability. Research was conducted on industrial sector companies listed on the Indonesian Stock Exchange. The novelty of this research is building an integrated model of the endogeneity of aggressive capital behavior and its implications for the three main risks in the company and profitability. Structured empirical testing of several endogenous constructs in this research will provide a more comprehensive answer about the behavior of working capital towards risk and company performance. The structural equation model was carried out carefully by paying attention to the complexity of the variables being tested and the fulfillment of assumptions with the goodness of fit parsimony test. Structured equations model that will provide strong support to explain working capital management literacy and previous research. It is expected that this study will add to the enrichment of the working capital management literature in the field of financial management.

Literature Review

Working Capital Behavior Theory

Working capital behavioral theory is an approach to financial management that aims to understand and manage the working capital needs of a company. Working capital behavior is related to strategies and policies in selecting investment elements of current assets and funding decisions, which can be done in three ways: aggressive, conservative, or moderate (Hill, 2010; Mandipa & Sibindi, 2022; Moussa, 2019; Zheng et al., 2022). In this context, the company will optimize the trade-off between profitability and liquidity by ensuring efficient current asset investment that can meet its short-term obligations. However, it can happen that the company's actions in managing working capital have different behavior. This is based on several arguments about several behavioral orientations of working capital, which follow (a) a conservative flow where companies maintain high inventory levels, reduce sales credit and slow down debt payments (Chauhan et al., 2019; Korent & Orsag, 2022); (b) aggressive behavior where the company implements working capital policies by minimizing inventory, providing longer sales credit and slowing down debt payments (Aytac et al., 2020; Mabandla & Makoni, 2019); (c) cyclical working capital behavior, where the company adopts a working capital policy that always changes in line with the company's business cycle (Nguyen, 2020; Voyko et al., 2021); d) Trade-Off that places a balance between working capital costs and risks with liquidity security (Hung & Su Dinh, 2022; Prasad et al., 2019); (e) optimal working capital policy, to determine the optimal level of working capital that is most efficient (Eldomiaty et al., 2018; Mandipa & Sibindi, 2022). The choice between aggressive and conservative policies in working capital depends on factors such as industry volatility, business cycles and company strategy. Prudent working

capital management can help a company manage its liquidity efficiently and improve overall financial performance.

Concepts that are always discussed in the field of working capital management are conversion cash cycle, liquidity level, working capital turn over and working capital requirements, and optimal working capital and their relationship to profitability and company value (David, 2010; Singh and Kumar, 2014; Pais and Gama, 2015; Akbar, 2016; Talonpoika et al., 2016; Altaf and Shah, 2018; Chauhan and Banerjee, 2018). Non-cash net operating working capital requirements change from year to year reflecting the non-cash Net Operating Capital Requirements (NCOWCR) (Hill, Kelly and Highfield, 2007; Damodaran, 2015). If a company has a positive NCOWCR as an indication of the need for additional funding for non-cash working capital, the funds can be sourced from internal or external funds. If it is funded internally, it will reduce free cash flow and, if funded externally, it will increase short-term or long-term debt, which in turn will create a cost of debt. While, if the company has a negative NCOWCR, it can increase cash flow, or an alternative increase in long-term assets, which will have an impact on reducing short-term debt in stable sales conditions. However, in the condition of growing sales, it can have an impact on the opportunity cost because investment in long-term assets is financed by debt. There is an argument that investment decisions in working capital have a relationship with funding decisions that can have an impact on liquidity risk in the short term and financial risk in the long term because of funding sources mismatch and operating risk due to sales uncertainty (Imbierowicz and Rauch, 2014; Li, Nissim and Penman, 2014; Sajjad, 2018).

Therefore, it is necessary to manage working capital that is able to bridge the liquidity risk and operating risk, namely through optimization of free cashflow as the impact of both risks as a trade-off. The difference between costs and risks from a combination of funding sources can affect company performance and company value (Weinraub, Herbert and Visscher, 1998; Mokeira, 2014; Baños-Caballero, García-Teruel and Martínez-Solano, 2016; Ramiah et al., 2016; Mehta, 2017; Rasyid, 2017).

Hypothesis Generation

Industry Volatility and Working Capital Behavior

Volatility can be interpreted as the variance of the average observed values (Andersen et al., 2006). This is also a reflection of instability in prices, level of competition, level of demand or market within a certain period of time (Ederington & Guan, 2005). Various literature has shown that an important variable regarding uncertainty is the ability to respond and adapt to changes that occur (Garrido-Vega et al., 2021; Morgan et al., 2023; Napoleone et al., 2023). In the context of working capital behavior, industrial uncertainty is responded to by companies, whether aggressively or conservatively, as a strategy and policy regarding investment in current asset components and funding sources. As previous research shows, there is an influence of sales volatility on working capital behavior (Eldomiaty et al., 2018), (Dbouk et al., 2020; Rosa et al., 2022). In unstable market conditions, it can affect the company's credit policy and the timing of payments by customers. If market conditions are unstable, companies may be more careful about extending credit to customers or implement stricter collection policies. This has an impact on greater investment in receivables which has an impact on changes in working capital.

H1.1: Industry volatility has a positive effect on the aggressiveness working capital.

Sales Growth and Working Capital Behavior

Sales growth is an important concept in the financial literature, which is widely used to explain various stakeholders (Brush, 2000), (Al-Hussaini, 2019), (Yu & Zheng, 2020), (Yu & Zheng, 2020), (Boshnak, 2023). Sales growth can have an impact on changes in working capital elements such as inventory, receivables and does not rule out the possibility of financing additional working capital with short-term or long-term debt (Higgins, 1981), (Panda, 2012) (Pratama, 2018), (Panigrahi et al., 2022). Companies with high sales volumes require more financing in the form of current assets, while companies with low sales growth require less financing (Mandipa & Sibindi, 2022). Sales growth puts pressure on to encourage companies to implement more aggressive working capital strategies (Hill, 2010). Several studies show a positive relationship between sales growth and working capital (Panda, 2012), (Yilmaz & Nobanee, 2022). However, the growth rate reduces working capital efficiency (Afrifa et al., 2022).

H1.2: Sales growth has a positive effect on the aggressiveness of working capital.

Company Size and Working Capital Behavior

Company size is often used as an important variable for various empirical research. Several studies show that company size is a determinant of working capital behavior (Briones et al., 2022; Moussa, 2019; Zimon & Tarighi, 2021). However, the placement of company size in various empirical studies can be grouped as (a) an exogenous variable (Drempetic et al. al., 2020; Kumar & Francisco, 2005; Pranata et al., 2021; Yang et al., 2020); (b) control variables (Crisóstomo & Freire, 2015; Rao & Tilt, 2016; Younis & Sundarakani, 2020) ; (c) moderating variable (Ilyas et al., 2022), (Pahi et al., 2023), (Shou et al., 2020). This means that the placement of the company size variable will really depend on the context. In relation to working capital behavior , in this study, the firm size variable is placed as an exogenous variable. Several studies show that firm size is one of the determinants of working capital behavior (Hill et al., 2014; Moussa, 2019). This is with several arguments that company size will influence capital behavior work, namely large companies are more aggressive in determining their working capital strategy, because several studies show that large companies find it easier to access external funding sources (Kumar & Francisco, 2005; Wang, 2019). On the other hand, companies that have large assets can have a negative impact on aggressive working capital behavior because of their ability to convert assets into cash. Companies with internal financing will be more conservative in their working capital policies (Hill, 2010), so that size has a negative impact on aggressive working capital behavior.

H1.3: The size of the company has negatif effect on the aggressiveness of working capital.

The Aggressiveness of Working Capital, Liquidity Risk and Profitability

Liquidity risk is a broad concept not only discussed in real assets but also in financial assets in investment strategies (Antoniades, 2016; Wang, Xu and Yang, 2017; Huang and Mazouz, 2017; Li, Zhang and Liu, 2018). In real asset investment, liquidity risk is a risk arising from

investment decisions in current assets that cause failure to meet external financial obligations or where the company is unable to meet obligations immediately. However, some researchers have shown a negative relationship between liquidity risk and maturity debt or long-term financial obligations (Sajjad and Zakariah 2018), and liquidity failure has an impact on over-leveraging, and early bankruptcy (Wang et al., 2017). This finding is in line with Fredrick, Jeremiah and Onsomu, (2018) who show that liquidity risk is the cause of commercial bank failures in Kenya and (Imbierowicz and Rauch, 2014). Antoniades (2016) shows there is a positive relationship between liquidity risk and credit risk.

Traditional approaches use liquidity measures generally with current ratio, but several other studies use CCCs that reflect dynamic liquidity. This is in line with Jose et al. (1996) and Talonpoika et al. (2016) who state that the traditional balance sheet measures of liquidity, such as current ratio and quick ratio, are useful to analyze liquidity, but CCC in a dynamic measure of ongoing liquidity management uses both balance sheet as well as income statement data combined with time dimension. The dynamic working capital model has been studied widely in previous literature. The dynamic model presents similar information about working capital management as traditional measures of working capital, but the dynamic model seems to be more predictive (Silva et al., 2012).

Aggressiveness in fulfilling working capital that is not balanced with efficient cash management can increase liquidity risk. A company may have difficulty meeting short-term financial obligations if it cannot manage cash flow well. Several researchers show that a high WCR can have an impact on liquidity risk and profitability (Bintara, 2020), and liquidity risk has a negative impact on profitability (Moussa, 2019). In line with (Masood & Javaria, 2021) shows that working capital requirements have an impact on risk. Companies with high sales generally extend receivable payments, which can increase working capital in the receivables aspect. If it is not balanced with payments to suppliers to delay payments, this can have an impact on liquidity risk. In times of high uncertainty the availability of cash and liquidity plays an important role. This research will show the aggressive behavior of working capital which has an impact on the working capital turnover cycle, whether the collection days are shorter or longer, as indicated by the cash conversion cycle (CCC) level. CCC is getting longer as a reflection of liquidity risk. Liquidity risk is the ability of an entity to meet its maturing obligations without experiencing significant losses. The influence of liquidity risk on profitability can be complex and vary depending on a number of factors (Aminu, Yusuf, 2015; Korent & Orsag, 2022; Moussa, 2019; Yilmaz & Acar, 2022). Several researchers show that liquidity has a negative effect on profitability (Caby et al., 2022; Caratas et al., 2021; Guserl, 2016; Nochebuena-Evans, 2022; Wei et al., 2021).

H.2.1: The aggressiveness of working capital has positive effect on liquidity risk

H.3.1: The liquidity risk has negative effect on profitability

The Aggressiveness of Working Capital, Operational Risk and Profitability

Operational risk is part of the enterprise risk management concept whose purpose is to improve profitability (Battaglia, 2017), in addition to non-operational risk such as reputation risk, political risk, exchange rate risk, and interest rate risk. In general, the concept of operating risk is defined as a concept that deals with risks or losses that occur due to either the failure of the process, the person and the internal system or from external events (Nasif and Al-Shubiri, 2010). As stated by Gardner (1986), that there are three

measurements to describe operating risk, namely a) the coefficient of variation in demand variability); b) the coefficient of variation in cost of goods sold (to reflect cost variability); and c) the degree of operating leverage (to capture the role of technology). On the other hand, Li et al. (2014) describe operating risk from the volatility of operating profit or a decrease in DOL from the Du Pont model. Foot and Michael (2002) uses the term operational risk as part of risk of economic capital. Dhaliwal, Heitzman and Li (2006) use measurements of operating risk with the standard deviation of earnings before interest and tax (EBIT) and find positive interactions between leverage and operating risk.

Companies that have efficient business processes and good risk management can manage growth in their working capital to reduce operational risks. Sales growth can create market power and economies of scale, which in turn can reduce operational costs per unit. This can reduce operational risks due to efficiency. Company efficiency can be seen from changes in EBIT to changes in sales. The occurrence of inefficiencies and poor quality risk management in a company can have an impact on operational risks. Companies that implement aggressive working capital policies to guard against higher inventory levels will have an impact on control costs, storage costs and inventory risk. This is shown by (Akbar et al., 2021) which proves that companies with aggressive working capital policies have a greater risk, whereas companies with lower working capital or conservative behavior have a lower operational risk. Several previous studies show different results regarding the influence of operational risk on profitability, operational risk has a negative impact on profitability (Berlin et al., 2009; Sondakh et al., 2021), while other research proves that operational risk has a positive impact on profitability (Caby et al. , 2022; Habibniya et al., 2022; Hunjra et al., 2022).

H2.2: The aggressiveness of working capital has negative effect on operational risk

H3.2: The operational risk has negative effect on profitability

The Aggressiveness of Working Capital, Financial Risk and Profitability

Financial risk is a part of enterprise risk and among other risks, such as credit risk, liquidity risk, market risk, operational risk, external risk, fraud risk, reputation risk, strategic risk, legal/ethical risk, administrative risk, corporate governance risk, information risk, and health /safety risk. Bezzina et al. (2014) and Battaglia, Fiordelisi and Ricci (2017) show that financial and credit risk are higher than other risks. Damodaran (2014) classifies risk into continuous risk, event risk, market risk and specific risk that can affect cash flow. He also stated that the rate of return expected by shareholders is the trade-off between expected return and the risk. Although some literature has not explained in detail about financial risk, financial risk has always been associated with the growth of swaps, options, futures and forward contracts as hedging equipment (Blacks and Scholes,1973; Merton,1973; Tapiero, 2004) in overcoming financial risks, such as credit risk, interest risk, currency risk commodities risk and others, which is used to control the risk of raw material prices or manage credit risk, including economic digital investments (Li, 2014; Li and Liu, 2014). The findings of relationship between financial risk and company operations assuming the company uses debt to finance its business vary. Some studies reveal the relationship between business risk and financial risk are positive when financial risk is measured using the variability of return on equity and debt to equity (Turvey and Kong, 2009). This is in line with (Sharifi, 2014), who shows that business risk has an impact on financial distress. Thus, financial risk is interpreted as a potential financial distress because of the inability of

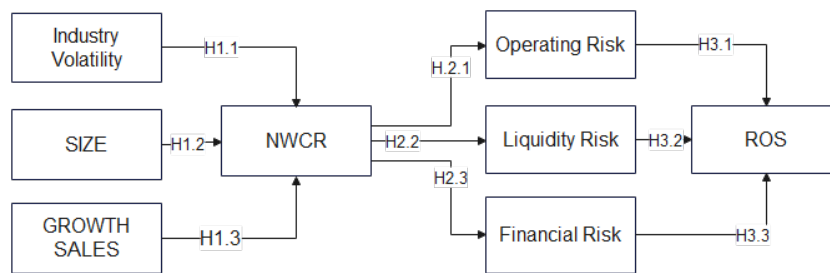
free cash flow to cover total debt. Companies that use debt will increase their exposure to financial risk and have an impact on business risk, whereas the higher the business risk of the company tends to increase debt and increase financial risk. On the other hand, companies that have high survival probability tend to use higher debt (Kim and Sorensen, 1986; Abor et al., 2010). It also is supported by Ross et al. (2008) which found that companies that have a high potential for sustainable growth have higher debt.

Aggressive working capital behavior is a strategy and policy for managing working capital as a trade-off between current assets and current liabilities. This trade-off is highly dependent on internal or external sources of working capital funding. External funding with current liabilities gives rise to current liabilities, which directly impacts liquidity. However, excess financing on current debt will increase financial risk. The aggressiveness of working capital using debt is influenced by interest rates, while interest rates can fluctuate mainly due to changes in exchange rates. This condition can cause financial risks and impact the company's net profits. In line with Hofmann et al., (2022), shows that companies that are aggressive in working capital are more sensitive to the business cycle. When economic conditions decline, financial costs can increase and access to financing becomes difficult, this increases financial risk. Additional debt will also affect the capital structure resulting in financial risk with a higher debt to equity ratio. Several studies also document that financial risk has a negative impact on profitability (Caby et al., 2022; Mudanya & Muturi, 2018; Sondakh et al., 2021).

- H2.3: The aggressiveness of working capital has positive effect on financial risk
- H3.3: The financial risk has negative effect on profitability

Hypothesis development is shown in the conceptual framework on the figure: 1

Figure:1 Conceptual Framework



Methods

This empirical research uses a sample of companies in the manufacturing sector, with 117 companies listed on the Indonesia Stock Exchange. Data range from 2018 to 2022. Final sample is 272 observations, after outlier and normality assumption test. Empirical models are presented in the form of linear equations and recursive models to explain the relationship between variables. Operational definition is presented in Table 1. Structured equation model (SEM) is employed to analyze the data with AMOS 22. Assumption test of the SEM model has been carried out by univariate outlier and multivariate outlier test with critical value of $-2.5 < X_i < 2.5$. Normality and outlier tests have been carried out, the results

are shown in Table 3. Furthermore, the results of the goodness of fit model after the modification iteration of the index are generated as shown in Table 4.

Table 1. **Operasional Definition of Variables**

Variable	Operasional Defination of Variables
Industry Volatilty	<p>Variance of Revenue Market Share in line industry as industry risk.</p> $Ind_Vol = \sigma m_S_{it} = \sqrt{\left[\frac{P_{ijt} - \bar{P}_{ijt}}{M_{ijt}} \right]^2}$ <p>M_{jt} = revenue for similar industry of j at time t. P_{ijt} = revenue market share of firm i in similar industry j at time t. $\bar{P}_{ijt} = \frac{\sum_{t=1}^5 P_{ijt}}{5}$ = average revenue market share of firm i for five years.</p>
Gr_Sales	Growth Sales = $\frac{Net\ Sales_t - Net\ Sales_{t-1}}{Net\ Sales_{t-1}}$
Size	Size of the firm = Log Total Assets
NCOWCR/SALES	<p>Ratio of □ NCOWCR to □ Revenue <i>Non Cash Operating Working Capital</i> (NCOWC) is the difference between total account receivables and inventory minus account payables <i>Non Cash Operating Working Capital Requirement</i> (NCOWCR) is the total additional need for net working capital at time t.</p> $NCOWCR/REV = \frac{NCOWC_{t1} - NCOWC_{t-1}}{Net\ Sales_{t1} - Net\ Sales_{t-1}}$
CCC(Liquidity Risk)	<p>Cash Concercion Cycle is measurement for liquidity risk. The longer the CCC, the higher the liquidity risk and the shorter the CCC, the lower the liquidity risk</p> $CCC = DIO + DSO - DPO$ <p>DIO (<i>Days Inventories Outgoing</i>) = $\frac{Inventories \times 365}{Net\ Sales}$ DSO (<i>Days Sales Outgoing</i>) = $\frac{Accounts\ Receivable \times 365}{Net\ Sales}$ DPO (<i>Days Payable Outgoing</i>) = $\frac{Account\ Payable \times 365}{Net\ Sales}$</p>
□ EBIT/□ SALES (Operational risk)	<p>Operational risk or business risk or degree of leverating leverage is measured by the ratio of the change of EBIT on the change of SALES.</p> $\frac{\Delta EBIT_{it}}{\Delta SALES_{it}} = \frac{EBIT_t - EBIT_{t-1}}{Sales_t - Sales_{t-1}}$
FCF/DEBT (financial Risk)	<p>The ratio of operational cashflows on total debts as a financial ratio</p> $\frac{FCF_{it}}{DEBT_{it}} = \frac{EBIT_{it} + Depreciation_{it} - Cap_Exp_{it} - \Delta WC_{it}}{Total\ Debt_{it}}$
ROS (Profitability)	<p>Return On Sales= The ratio of operating cashflows on sales as an indicator of profitability Cap_Exp= Capital Expenditure ; WC = Working Capital</p>

Variable	Operasional Defination of Variables
	$ROS_{it} = \frac{EBIT_{it} + Depreciation_{it} - Cap_Exp_{it} - \Delta WC_{it}}{Sales_{it}}$
	$Cap_Exp_{it} = Total\ Fixed\ Assets_t - Total\ Fixed\ Assets_{t-1}$
	$\Delta WC_{it} = WC_t - WC_{t0}$

Finding

Descriptive Statistics

Table 2 shows the descriptive statistics of the variables studied. Industry volatility shows that the industry uncertainty rate ranges from 2.8 percent to 40 percent. Meanwhile, the average company growth rate ranges from negative 31 percent to 68.8 percent. The size of the company indicates that most companies have asset values of 488,964,841 thousand dollars. Descriptively, it shows that there is a percentage change in net working capital to net sales on average by 8.7 percent. This means that the change in percent sales leads to a change in the net working capital of 8.7 percent. This is an indication of the aggressive behavior of working capital. Table 2 also shows that there is negative NCOWCR/Sales, meaning there is conservative behavior in working capital, and the highest value is 47.8 percent which shows aggressive working capital. In liquidity risk which is reflected by the CCC. The variable it shows an average of 99 days, meaning that the operational capital turnaround is faster than the payable account cycle and the company has a 99-day saving for the payment of debt. However, there are still companies that have a negative CCC, meaning that the number of cash conversion days is lower than the number of days of current debt obligations. The highest CCC duration is days in the company as an indication of the length of time for collecting cash flows. The average operational risk is 1.32 percent, namely the change in operational costs relative to changes in sales, meaning that operational costs are higher than the increase in sales. There is negative operational risk, meaning changes in operational costs are reduced compared to increased sales. Negative operational risk is an indication of operational cost efficiency. The largest operational value was 7.69 percent. Furthermore, financial risk is reflected in insufficient free cash flow obtained from net profit and depreciation plus asset sales and additional working capital to cover total debt. Table 2 shows that most companies are at positive financial risk with a value greater than 1, meaning that the company has the ability to cover its total debt. However, there is a minimum value of less than 1, meaning the company's inability to cover its total debt. Meanwhile, if we look at the Return On Sales variable, it shows an average of 11.5 percent with the highest value being 24.35 percent and the lowest value being 1.2 percent.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ind_Volatility	272	.0000396	.4002668	.028648340	.0642040945
Growth Sales	272	-.3140	.6888	.084089	.2087696
Total assets (th USD)	272	3,463.349	7,182,435.000	488,964.841	1,031,700.434
NCOWCR/Sales	272	-.2234	.4718	.087790	.1330672

Liq_Risk	272	-32.4300	297.5900	99.098750	59.8410900
Op_Risk	272	-4.8425	7.6978	1.322018	2.6019243
Fin_Risk	272	.3300	134.0400	45.261066	35.9227794
ROS	272	.0122	.2435	.115400	.0577030

Source : data processed

Hypothesis Testing

Hypothesis testing is carried out using structured equation models, which require assumptions of univariate and multivariate normality. If there is a data lag for each variable, a logarithmic data transformation is carried out. The results of the univariate and multivariate tests as well as the sample description are shown in Table 3. The univariate and multivariate normality assumption test shows that all variables have met the critical value - 2.5 <Xi <2.5.

Table 3. Assessment of Normality and Sample Description

Variable	min	max	skew	c.r.	kurtosis	c.r.
Lg_Ind_Vol	-2,402	1,602	-,247	-1,666	-,297	-,999
Lg_Gr_sales	-,164	,228	-,005	-,030	-,325	-1,094
Size	3,539	6,856	,000	,001	-,188	-,632
Lg_NCOWCR/Sales	1,890	2,168	-,209	-1,410	,017	,057
Lg_Liq_Risk	2,338	2,738	,341	2,294	,036	,123
Lg_Op_Risk	2,538	2,554	,100	,670	-,255	-,858
Lg_Fin_Risk	2,177	2,453	,316	2,130	-,964	-3,245
Lg_ROS	,005	,095	,352	2,371	-,586	-1,972
Multivariate					1,088	,709

Source: data processed

Hypothesis testing requires parsimony model testing as a scientific method for testing structural equation models based on confirmatory factor analysis and variance based. The parsimony model test as shown in Table 4, has met the criteria for further hypothesis testing.

Table 4. Model Parsimony Test

Parameter Test	Critical Value	Goodness of Fit Model:
Chi-Square	Relatively small	12,214
CMIN/DF	≤ 2	1,020
RMSEA	≤0.8	0,009
Probability	≥0.05	0,427
NFI	≥0.9	0,972
IFI	≥0.9	0,999
TLI	≥0.9	0,999
CFI	≥0.9	0,999

Source: data processed

After the results of hypothesis testing and decisions, it can be explained that industrial volatility has a positive impact on aggressive working capital behavior, the higher the

industrial volatility, the more aggressive the company is in investing working capital. In line with several studies by Eldomiaty et al., (2018); Dbouk et al., (2020); Rosa et al., (2022), that industrial volatility causes a precautionary effect in working capital investment. (2) Meanwhile, in the case of this research, there is no evidence that sales growth has an impact on working capital behavior. The mismatch between sales growth and working capital behavior is a new indication, in line with (Burger & Hamman, 1999), that companies with high growth maintain their cash flow position so that sales growth does not change the working capital position. This research is also in line with Senan et al., (2022), Dovita et al., (2019), proving that there is no influence on sales growth and working capital behavior. Other research also explains that the relationship between sales growth and working capital behavior is complicated by endogeneity problems, for example the relationship between credit relaxation and inventory policy (Hill, 2010; Hill et al., 2014; Moussa, 2019). This research shows the negative influence of company size on aggressive working capital behavior. This finding is reasonable, because companies that have large assets tend to be more conservative, because there is a guarantee of a large amount of assets. In line with several studies showing a negative relationship between size and aggressive working capital behavior (Abbadi & Abbadi, 2012; Akbar et al., 2021; Moussa, 2019).

Table 5. Hypothesis Testing Results

Variable		Estimate	S.E.	C.R.	P	Hypothesis
Lg_NCOWCR/Sales	<--- Lg_Ind_Vol	,009	,004	2,220	,026	H1.1 Accepted
Lg_NCOWCR/Sales	<--- Lg_Gr_sales	-,011	,038	-,275	,783	H1.2 Rejected
Lg_NCOWCR/Sales	<--- Size	-,021	,005	-4,268	***	H1.3 Accepted
Lg_Liq_Risk	<--- Lg_NCOWCR/Sales	,765	,063	12,084	***	H2.1 Accepted
Lg_Op_Risk	<--- Lg_NCOWCR/Sales	-,002	,004	-,596	,551	H2.2 Rejected
Lg_Fin_Risk	<--- Lg_NCOWCR/Sales	-,657	,079	-8,355	***	H2.3 Accepted
Lg_ROS	<--- Lg_Liq_Risk	,038	,018	2,064	,039	H3.2 Accepted
Lg_ROS	<--- Lg_Op_Risk	,280	,376	,746	,456	H3.1 Rejected
Lg_ROS	<--- Lg_Fin_Risk	-,056	,016	-3,527	***	H3.2 Accepted

Source: data processed

The Aggressiveness of Working Capital and Risk and Profitability

Liquidity Risk

The results of hypothesis testing prove that there is a significant positive influence of working capital behavior on liquidity risk. As explained previously, companies increasing working capital excessively as a precautionary measure or facing industry uncertainty will have an impact on inventory and receivable levels, so that cash turnover days become longer. This finding is in line with several previous studies (Akbar et al., 2021; Bintara, 2020; Hill, 2010; Hill et al., 2014; Moussa, 2019; Seth, 2020). CCC is also referred to as a measure of the efficiency of operating working capital dynamically. Non-Cash Working Capital Requirement (NCOWCR) is an indicator of investment changes in non-cash working capital or also known as operational working capital. The increase in NCOWCR will reduce cash flow, but the reduction in NCOWCR will increase cash flow. This means that the higher the NCOWCR, the higher the liquidity risk or the longer the CCC, which can be interpreted as that companies that are more aggressive in working capital investment will be more less efficient. This finding can be interpreted as that the more aggressive the investment in working capital the higher the liquidity risk.

Furthermore, this research shows that liquidity has a positive effect on return on sales. This research shows different results from several previous studies that liquidity risk has a negative impact on profitability, as shown by Bintara, (2020); Masood & Javaria, (2021), and liquidity risk has a negative impact on profitability (Caby et al., 2022; Caratas et al., 2021; Guserl, 2016; Moussa, 2019; Nochebuena-Evans, 2022; Wei et al., 2021). The findings of this research are in line with (Abbas et al., 2019) which shows that there is a positive influence of liquidity on profitability for large companies and a negative influence on profitability for medium companies in the banking industry. However, this research does not differentiate between large and medium company sizes.

Operational Risk

Operational risk is measured by the degree of leverage for a standard EBIT change in sales. Average operational risk of 1.32 percent means that EBIT is 1 times greater than changes in sales, while the average ROS shows a value of 11.8 percent, interpreted as 100 percent sales contributions to profit by 11.8 percent. ROS is an indication of the company's profitability. Operating risk and business risk are risks that arise because of changes in EBIT to changes in sales. Most studies reveal that the relationship between working capital and profitability produces difference results. indicating a negative, positive or concave relationship. This study shows that NCOWCR has no effect on operational risk. However, previous research by Akbar et al., (2021) shows that aggressive working capital has an impact on operational risk. Furthermore, previous research has shown that working capital can have both positive (Caby et al., 2022; Habibniya et al., 2022; Hunjra et al., 2022) and negative (Berlin et al., 2009; Sondakh et al., 2021) effects.) to operational risks. Meanwhile, the findings of this research prove that operational risk has no effect on Return On Sales. This is in line with the absence of influence of sales growth on working capital behavior and working capital behavior has no effect on operational risk which has no effect on ROS.

Financial Risk

Financial risk can be seen from the variability of FCF to revenue as a measure of net cash available from operational activities (FCF / REV) and, furthermore, whether the available net cash can meet the total debt obligations (FCF / DEBT) as financial risk. Furthermore, the average FCF value of debt as an indication of risk financial shown in Table 2 is 45.26, which means that every one dollar US debt is guaranteed by the free cash flow of 45.26 US\$. The results show there is a negative influence of NCOWCR/Sales on FCF/debt, which means that the more aggressive the changes in working capital will reduce the cash flow position, due to excessive investment in working capital or increasing debt. This has a negative impact on profitability. This can occur because the company finances the aggressiveness of working capital investment by using funds sourced from depreciation, sales of fixed assets that cause reduced cash flow or external funding so that debt increases. It also means that the aggressiveness of working capital has an impact on the smaller FCF/DEBT or increases financial risk. Several researchers have proven the same thing that financial risk has an impact on profitability (Caby et al., 2022; Mudanya & Muturi, 2018; Sondakh et al., 2021).

Conclusion

This study was conducted on industrial sector companies going public in Indonesia from 2018 to 2022 to prove that industry volatility, sales growth and company size influence working capital aggressiveness. The evidence shows that volatility and company size have a significant effect on working capital aggressiveness, while sales growth has no effect on working capital behavior. The results of hypothesis testing found that there was no influence of sales growth on aggressive working capital behavior and working capital behavior had no effect on operational risk and profitability. Meanwhile, industry volatility has a positive effect on working capital aggressiveness and company size has a negative effect on aggressive working capital behavior. The relationship between working capital behavior and risk proves that capital behavior has an impact on liquidity risk and financial risk, but has no effect on operational risk. This research also proves that there is a simultaneous influence of liquidity risk and financial risk on profitability. However, there is no influence of operational risk on profitability.

This research has theoretical implications for working capital behavior theory, that companies implement working capital strategies and policies aggressively when facing industry uncertainty and excessive action on working capital investment has an impact on liquidity risk and financial risk as well as profitability. Practically, this research can provide strategic direction and precautionary policies for working capital investment and funding sources as well as the trade-off between liquidity and profitability. Future research can be developed by differentiating large and medium companies, as well as re-examining the impact of sales growth on working capital behavior and profitability.

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