Determinants Of Working Capital Requirements: Case Of Vietnamese Conglomerates

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Abstract: *Using financial data from the top seven conglomerates from various industries during the five years from 2018 to 2022, this analysis seeks to uncover the influences influencing the working capital requirements of Vietnamese conglomerates. The findings show that various factors, including financial leverage, profitability, tangible assets, and GDP, exert considerable force on working capital requirements in Vietnamese conglomerates. This study adds useful insights to previous research on the factors that impact conglomerates' working capital requirements, which might aid managers of finances, investors, and financial advisors alike.*

Keywords: Working capital requirement, conglomerates, Vietnam..

Introduction

According to the theory of corporate finance, the primary goal of any firm is adding value for owners or maximizing the wealth of shareholders (Ross et al., 1998). This goal can also be applied to large firms or conglomerates (Fatemi et al., 1983). Shareholders' wealth can be maximized in various ways, however, one of the mechanisms that is often underestimated and ignored is working capital management. The management of working capital is able to assist organizations strike the correct balance among liquidity and profitability, increasing their value, particularly in volatile and quickly shifting industries. Working capital management, on the contrary, has been identified as a crucial element contributing to business failure if poorly handled (Altman 1968).

Budgeting in conglomerates is a tedious process and it requires a lot of time especially where the organization has decentralized and diverse budgeting information systems. However,

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the financial planning of large economic groups or conglomerates is even more problematic to achieve the necessary quality indicators. In the context of the business's entire corporate-wide financial liquidity or hedging plan, financial forecast data containing hundreds of thousands of forecasted items from various subsidiaries must be gathered using standardization. According to Azarenkova et al (2017), the process of financial planning for the enterprise includes several steps and the fourth one is the adjustment, coordination, and specification of the enterprise's financial plan with the forecast data. The forecast is therefore crucial to note that the quality of managing working capital requirement is a critical aspect in the work of working capital management. Goodman et al (2014) have postulated that managers

who provide a better-quality external earnings forecast are more likely to make better investment decisions.

For all that, these forecasts are often influenced by the forecasters' personal opinions and are biased by factors such as cultural background, organizational structure, or the company's industry. Hence, acknowledging factors influencing working capital requirements can find the key to this complication and enhance the accuracy rate of working capital forecast in businesses generally and conglomerates particularly. Researchers progressively call attention to the noteworthiness of this field of study.

In their 1993 investigation, Fazzari and Petersen discovered an inverse correlation between working capital levels and fixed investments, especially when dealing with budgetary constraints. They discovered that as fixed investments increase, working capital requirements fall and are heavily influenced by cash flow variations. Gill (2011), Mansoori & Muhammad (2012), Azami and Tabar (2016), and Oseifuah (2016) examined other factors that can create an impact on working capital requirements. In the studies of Gill (2011) as well as Azami and Tabar (2016), a range of firm characteristics, specifically profitability, leverage, firm age, and size, is listed as the cause for changes in working capital forecasted level, Mansoori & Muhammad (2012) and Oseifuah (2016) pointed out that macro factors, for instance, interest rates, foreign exchange rate, inflation rate as well as economic growth can also be the factors.

Recent studies have been focusing on the determinants impacting the working capital needs of companies, but the effects on conglomerates' financial performance in emerging countries are still unclear and require further investigation. Hence, our research adds to the existing knowledge in multiple aspects. First and foremost, our study is one of the initial papers investigating the influences on working capital needs in emerging markets, particularly focusing on Vietnam. Additionally, our research delves deeply into the correlation between endogenous and exogenous factors and the necessary working capital levels in conglomerates.

The left papers are organized into six sections as indicated in the following. The first section includes an examination of current literature, leading to the development of a hypothesis. Next, we explain the process of selecting samples and our methodology for research. The results are talked about in the fourth section, with further analyses provided in the fifth section. The paper wraps up with the conclusion section.

LITERATURE REVIEW

The management of working vital is essential for maintaining both profitability and liquidity. Efficient working capital management strikes a balance between these factors, enhancing a firm's value. The relationship between firm financial planning efforts and performance has garnered significant attention. However, despite numerous studies on the topic, results remain inconclusive, showing positive, negative, or no correlations. Researchers have tried to make sense of these conflicting findings. Armstrong (1982) was among the first to address this, analyzing 14 studies and generally supporting the usefulness

of formal planning. However, he pointed out "serious research problems," particularly the lack of clear descriptions or definitions of the financial planning processes used in the studies. He concluded that without clear planning techniques, assessing the value of planning scientifically is impossible. Arasa and K'Obonyo (2012) found a strong correlation between performance and strategic planning, with a Pearson correlation coefficient of 0.616. Their exploration indicated that firms with higher levels of strategic planning had superior results on both non-financial and financial metrics compared to those with lower levels of strategic planning. They also observed that various components of strategic planning are correlated with performance. With the same opinion, Alsurayyi and Alsughayer (2021) found that effectively implemented enterprise resource planning (ERP) systems enhance corporate governance. ERP systems improve the flow of information and reduce agency problems, thus improving governance. Their findings recommend the adoption of ERP systems for better corporate governance, stressing the importance of successful implementation for listed companies.

Managers must forecast future cash flows from potential investments to make corporate investment decisions (Goodman et al., 2014). While essential for profitable investment, these predictions remain out of sight for outside parties. The research investigates if the accuracy of publicly reported earnings predictions by managers can reflect the level of excellence in the investment choices they made for the company. Goodman et al (2014) suggested that managers who excel at external profit predictions also make superior investment choices due to the similar skills required for both tasks. Confirming their forecast, they discovered that prediction accuracy is linked to the effectiveness of both acquisition decisions and capital expenditure choices. Their findings imply that the quality of capital allocation choices in businesses can be reflected in the forecasting quality viewed elsewhere.

Identifying determinants that affect the effective working capital management allows managers to effectively and efficiently handle and predict it. Therefore, managers are required to take heed of these essential elements. Cross-sectional time series analysis, which includes fixed effects, pooled OLS, and random effects, found that random effects are the preferred method for evaluating the handling of working capital within companies in Singapore. Mansoori and Muhammad's research (2012) discovered that the cash conversion cycle was adversely affected by firm size, operating cash flow-to-sales ratio, and capital expenditures-to-sales ratio. In addition, there is an adverse correlation between GDP and working capital management, while an enterprise's profit margin is positively correlated with the length of the cash conversion cycle. There was no significant association found between the cash conversion cycle and the debt ratio.

Gill's (2011) research discovered that leverage, running cycle, return on assets, and Tobin's Q all exert considerable effect on working capital conditions. The regulations and management techniques fluctuate depending on the industry and country, which may result in inconsistencies with previous well-known studies (for example, Nazir and Afza, 2009; Taleb et al., 2010). Considering these disparities, investors should conduct thorough reviews of firms before investing in debt and equity instruments.

Azami and Tabar (2016) carried out a research on factors influencing the quantity of working capital in Tehran Stock Exchange companies. They evaluated data from 143 companies over 12 years (2003-2014) to see how company characteristics relate to working capital. The data show that in periods of low GDP, businesses keep high levels of working capital. Furthermore, organizations with lesser profitability have less leverage, larger working capital levels from the previous year, more information asymmetry, and higher working capital investments than other companies. There was no significant association found between a company's size and age of the firm, the total count of non-executive directors, and the quantity of working capital.

Agreeing with all the above researchers, by testing with chosen non-financial enterprises listed on the Johannesburg Securities Exchange, Oseifuah (2016) revealed that there are three main endogenous factors affecting the working capital requirements, namely: sales growth, capital expenditure, and management of debts. Along with these micro factors, working capital requirements can also be impacted by macro factors, for instance, interest rates, foreign exchange rates, inflation rates as well as economic growth. Fixed investment is demonstrated as a cause for the changes in forecasted working capital, however, under different circumstances, the correlation will vary. This fact has been examined in the work of Fazzari and Petersen (1993) by choosing financial data of US manufacturing enterprises from 1970 to 1984 as a sample for the study.

It is stated that, with finance constraints, working capital requirement negatively correlates with fixed investment and is sensitive to cash-flow fluctuations.

Jose and colleagues (1996) aimed to expand on Soenen's (1993) results by studying a bigger sample size and for a more extended duration. They investigated how intensive working capital management impacts profitability in US enterprises, employing the Cash Conversion Cycle (CCC) as a metric to demonstrate improved control. The data demonstrated a notable inverse relationship between the CCC and the company's profitability, showing that focusing more emphasis on the management of working capital leads to increase profitability. Shin and Soenen (1998) corroborated this, noting that a minor reduction in current assets can boost profitability.

Deloof (2003) examined large Belgian firms from 1992 to 1996, affirming that profitability can be boosted by reducing inventory levels and the duration of accounts receivable. Teruel and Solano (2005) similarly proposed that value creation can be achieved by shortening accounts receivable periods and inventory cycles, which in turn enhances profitability through a reduced CCC.

HYPOTHESIS DEVELOPMENT

Working capital requirement is stated to have a significant relationship with information asymmetry. This relationship is described by the pecking order theory. From the agency theory, shareholders will prefer debt for additional financing as it is believed that by using debt, they can lower agency costs (Jensen & Meckling, 1976). The results of this preference are a lower value and higher risk of current debts, which lead to the requirement of a higher risk premium from creditors. In other words, when the information is asymmetric, the cost of capital for external resources will be higher (Myers, 1977). Furthermore, when the information is asymmetric between firms and other stakeholders, signals from firms are essential (Spence, 1973). In this situation, according to Myers and Majluf (1984), to prevent negative signals, firms will choose to finance their operations from internal resources. As a result, working capital is considered as a potential source for additional funding.

Conversely, it is believed that a company with a high level of leverage probably lacks internal funds. As a result, to avoid fund deficit problems, there are restrictions in engaging capital with the operating cycle of activities in firms (Nazir & Affza, 2009). By way of explanation, leverage and working capital requirements have a negative relationship (Chiou & Wu, 2006). Building on the above references, we propose the first hypothesis:

Hypothesis 1: *Firms with high leverage have a lower working capital requirement*

According to the pecking order theory put forward by Myers and Majluf (1984), it is demonstrated that internal capital is the first resort for additional financing as its cost is far lower than other finance alternatives. Consequently, firms with higher cash-flow levels would raise their levels of required working capital. Also, as argued by Fazzari and Petersen in 1993, an increased level of cash flow means firms will have greater internal funding sources for working capital, leading to a higher level of current-asset investing. This relationship is also

examined in the work of Hill et al. (2010). Additionally, due to the reasons above, we can also conclude that profitability can affect forecasted working capital in ways. Consequently, large firms with a higher volume of sales would require a great amount of working capital. However, controversies remain when mentioning this statement. Accordingly, we come to the following hypotheses:

Hypothesis 2: *There is a strong correlation between working capital requirement and profitability of companies.*

Working capital and fixed-assets investments have a negative connection as other things equal, if firms invest more in fixed assets, the working-capital investment decreases and vice versa. However, an opposite view about this does occur. As mentioned above, cash flow affects positively working capital requirements. Meanwhile, in response to the temporary movements in cash flow, firms tend to stabilize the investment in fixed assets or even increase it (Griliches & Hausman, 1986). This leads to the fact that working capital requirements should be positively correlated with changes in fixed investments. Moreover, it is pointed out that firms with high levels of intangible investments seem to deal with more agency problems because of a severe information asymmetry (Banos-Caballero et al., 2010). Therefore, enterprises investing more in tangible assets can reduce their cost of capital for current-asset investment. In this situation, the working capital level is predominant. Consequently, we come to the third hypothesis:

Hypothesis 3: *Working capital requirement is positively correlated with changes in tangible assets*

It is indicated that a firm's inventory investment can be impacted by the macroeconomic elements, specifically Gross domestic product (GDP). Evidence suggests that enterprises often allocate more resources to working capital during the boom of the economy (Zariyawati et al., 2010) and lower the working capital required level, particularly inventory investment while being under financial crisis and economic downturn to carry out activities as firms are experiencing the liquidity and cash- flow pressure (Banos et al., 2010). This outcome is a result of challenging credit market conditions and decreased market demand. On the other hand, it is also believed that during the recession, the operational activities of firms may cause problems, most of which are difficulties relating to inventory sales, receivables collection, and debt payments. Under this circumstance, the amount of working capital investment may increase to ensure its daily operations can run smoothly (Chiou et al., 2006). With the above reasons, we come to the fourth hypothesis:

Hypothesis 4: *GDP is significantly correlated with changes in working capital requirement*

It is believed that larger organizations incur lower working capital investment costs than smaller enterprises due to a lower information asymmetry level followed by lower external financing costs (Jordan et al., 1998; Berger et al., 2001). Similarly, larger businesses will benefit from increased access to financial markets, allowing them to extend credit and invest more in working capital (Petersen & Rajan, 1997; Niskanen & Niskanen, 2006). Likewise, Moussawi et al. (2006) suggest that enterprises with higher sales may require more working capital. examining this evidence, we can conclude the following hypothesis.:

Hypothesis 5: *Firm size is directly associated with working capital requirement*

Another factor that can make an impact on the forecasted amount of working capital is firm growth. Firm growth is stated to be the result of differences in granted trade credit for firms as well as their inventory investment. According to Scherr and Hulburt (2001), firms with better growth rates tend to have opportunities for continuous growth in the future. To prepare for further growth, firms will invest more in inventories, leading to the extension of working capital (Blazenko & Vandezande, 2003 Kieschnich et al., 2006). Hence, we come to the hypothesis:

Hypothesis 6: *Firm growth has a significant correlation with working capital requirement*

Young businesses, by having better growth opportunities, are expected to have higher growth rates. After periods, firms grow more steadily and become stable with larger retained capital. In other words, due to the decrease in growth speed, mature firms are believed to have greater working capital (Chiou et al., 2006). Conversely, companies with greater ages will have stronger relationships with customers as well as gain more experience in managing inventory so the relationship can be in both ways. As a consequence, we come to the final hypothesis:

Hypothesis 7: *There is a significant association between the age of firms and their profitability.*

RESEARCH METHODOLOGY

Sample selection

This paper used the data of conglomerates to examine which factors impact the forecasted working capital. The authors specifically used panel data from the top seven Vietnamese conglomerates in different industries for a period of five years, from 2018 to 2022. Information was gathered by hand from the annual financial reports published by enterprises on the Vietnamese Stock Exchange, as well as from the websites of the conglomerates. The sample was carefully selected to ensure ongoing business operations throughout the entire period, resulting in a well-balanced sample.

Variables

The dependent variables

To comprehensively obtain the working capital requirement of enterprises, we adopt the cash conversion cycle (CCC). The reason for the authors to choose this ratio to represent for working capital requirement is this ratio not only determines the forecast for each element of the working capital but also expresses the time lag between them. Other studies using CCC as a measurement can be listed including Deloof (2003), Lazaridis and Tryfonidis (2006), Garcia-Teruel and Martinz-Solano (2007), Samiloġlu & Demirguneş (2008), Banos et al. (2010), Gill et al. (2011) and Azami & Tabar (2016).

The independent variables

To test the above hypotheses, we choose seven dependent variables, including Leverage (LEV), Profitability (ROA), Tangible assets (TANG), GDP (LnGDP), Firm size (SIZE), Firm age (AGE), and Firm growth (GROWTH).

In terms of financial leverage, we employ debt ratio, calculated as total debt divided by total assets. For the evaluation of profitability, investors tend to focus on indicators for instance return on sales (ROS), capital profitability such as return on equity (ROE), and return on assets (ROA). According to Yoo S. and Kim J. (2015), the ROA ratio is able to describe how firms maximize profits by managing their assets. Similarly, the perspective of Yazdanfar D. (2013) and Sufian F. and Chong R R. (2008), pointed out that ROA reflects not only the effectiveness of financial capabilities, business operations, human factors, etc. of the business but also its investments and operational activities generating profits, while ROE only indicates the efficiency of equity usage to generate profits for the company. As a result, we choose ROA for the profitability as we believe it is able to describe a comprehensive picture of the firm.

Meanwhile, SIZE is defined using the natural logarithm of a firm's total assets, and GDP is determined using the natural logarithm of GDP. To calculate tangible assets ratio, divide the book value by the gross value of property, equipment, and plant. To calculate the

company's age, we add up the years from its inception to the present, and to analyze its growth, we subtract the current year's net revenue from the previous year's net revenue and then divide the result by the previous year's net revenue.

Methodology

The study examined both the Fixed Effects Model (FEM) and the Random Effects Model (REM). We employed the Hausman test to determine the most appropriate model, revealing that the FEM was the preferable choice in this case. Additionally, to address issues of heteroskedasticity and multicollinearity in the model, the authors utilized the FGLS (Feasible Generalized Least Squares) method. This technique is essential as it yields reliable results even in the presence of heteroskedasticity and multicollinearity. Failure to account for these issues can introduce biased standard errors and inefficient parameter estimates, potentially compromising the validity of statistical tests and confidence intervals. Therefore, correcting for heteroskedasticity is critical to ensure the accuracy and reliability of the analysis.

FINDINGS AND DISCUSSION

Table 1. Findings of the FGLS regression

Variable	Coefficient	t-statistic	P-value
LEV	-1.483***	-3.67	0.000
ROA	-2.445***	-3.01	0.003
TANG	-1.743**	2.49	0.013
SIZE	0.033	0.87	0.387
LnGDP	-0.191*	-1.12	0.064
AGE	0.003	0.20	0.840
GROWTH	-0.031	-0.35	0.723
_cons	7.204	1.13	0.259
Wald chi2 (7)	69.37		
Prob > chi2	0.0000		
***, **, and * represent significance levels of 1%, 5%, and 10%, respectively.			

Source: Author's calculation

Table 1 presents the calculations for the model's fit. According to this table, the numbers in the coefficient column represent the connection between each variable and the firms' cash

turnover rate (CCC). Table 1 shows that only LEV, ROA, TANG, and LnGDP have a strong link with the Cash Conversion Cycle (CCC), whereas other factors such as SIZE, AGE, and GROWTH exhibit no meaningful association with CCC.

The initial concept proposed a link between the cash conversion cycle and an enterprises's financial leverage at the current time. Table 1 shows that the LEV variable's regression coefficient is -1.483, with a P-value of 0.000. According to the study's concept, there is a adverse association between the cash conversion cycle and financial leverage. As corporations' financial leverage increases, their cash conversion cycle decreases, indicating an inverse link. The negative correlation of leverage on working capital aligns with the ideas outlined in the pecking order hypothesis. Based on this theory, companies give more importance to using their funds rather than external financing, turning to debt as a last resort when internal funds are inadequate. The accumulation of liabilities due to debt repayment reduces available capital for daily operations and future investments, compelling management to optimize their use of working capital efficiently (Kargar & Blumenthal, 1994). In other words, companies with high financial leverage can manage capital resources and financial cycles more effectively. They can leverage internal assets and resources to pay off financial obligations more quickly, minimizing the need for debt capital and increasing the company's financial flexibility. These findings align with the findings reported in research by Chiou et al. (2006) and Nazir & Affza (2009).

The second assumption examined how a company's profitability is connected to its working capital. Based on Table 1, the strong t-statistic of -3.01 and the ROA coefficient of -2.445 indicate a significant discovery: a statistically significant adverse association is observed between Return on Assets (ROA), representing profitability in this analysis, and the company's working capital, confirmed with 99% confidence. This implies that as ROA increases, indicating higher profitability, the company's working capital tends to decrease. This relationship can be understood through the dynamics of financial management: when a company generates higher returns on its assets relative to its capital employed, it may have less need to retain high levels of working capital. Instead, it can deploy funds more efficiently in productive investments or distributions to shareholders, thereby decreasing the amount of working capital held. Thus, the adverse association observed between profitability and working capital level underscores the strategic financial decisions companies make to optimize their capital structure and operational efficiency. These results align with the outcomes reported in previous studies by Jose et al. (1996), Shin and Soenen (1998); Deloof (2003); Rehman (2006); Zariyawati et al. (2010); Banos et al. (2010); Wasiuzaman and Arumugam (2013); and Azami and Tabar (2016).

Third, we investigated the theory of the correlation between an enterprise's tangible asset ratio and working capital. As seen in Table 1, TANG has a notable t-statistic of 2.49 and an estimated coefficient of -1.743. This results in a finding that there exists a statistically relevant negative association between the capital expenditure ratio and working capital of a firm and the hypothesis is supported with 90% confidence. This finding suggests that as the proportion of tangible assets within a company increases, its working capital tends to decrease. This relationship can be explained by operational and financial management practices. Tangible assets such as machinery, equipment, and property typically require substantial upfront investments and ongoing maintenance costs. Therefore, firms with a greater proportion of tangible assets may need to allocate more of their available capital towards acquiring and maintaining these assets, leaving less liquid capital available as working capital. Moreover, companies with more tangible assets may have lower flexibility in quickly converting these assets into cash compared to companies with more liquid assets like cash or marketable securities. Thus, the observed adverse association between the ratio of fixed investments and working capital highlights the trade-off between maintaining a

robust asset base for operational needs and ensuring sufficient liquidity for daily operations and financial flexibility.

The fourth hypothesis investigated the effect of GDP on the working capital requirements of enterprises. As shown in Table 1, the t-statistic for LnGDP is significant (-1.12), and the estimated coefficient is negative (-0.031). Thus, we can conclude that there is a statistically meaningful inverse correlation between GDP and working capital at a 90% confidence level. This finding suggests that as GDP increases, the working capital of the company tends to decrease. This is because when GDP expands, businesses generally experience higher demand for their products or services, leading to increased revenues. In response, companies may choose to expand their operations or invest in growth opportunities, thereby utilizing their working capital for these purposes rather than maintaining higher levels of liquidity. These findings align with the findings reported in research conducted by Zariyawati et al. (2010), Banos et al. (2010), Mansoori & Muhammad (2012), and Azami and Tabar (2016). However, this conclusion goes against the researches of Chiou et al (2006).

CONCLUSION

Working capital, representing the surplus of an enterprise's current assets over its current liabilities, is the lifeblood of day-to-day operations, allowing firms to function smoothly and consistently. Using the financial data of the top seven Vietnamese conglomerates from different industries in the period of 5 years from 2018 to 2022, we aim to present strong evidence of the association between both endogenous and exogenous elements and the projected working capital in the wider framework of financial planning for conglomerates. Our analysis examines various elements that impact the working capital of conglomerates, including financial leverage, profitability (represented by the Return on Assets ratio), tangible assets, Gross Domestic Product (GDP), firm size, age, and growth rate. A key indicator of forecasted working capital in this context is the cash conversion cycle (CCC).

Our findings indicate that in Vietnamese conglomerates, only LEV, ROA, TANG, and LnGDP are significant factors linked to CCC when used as a working capital measure. Additional factors such as SIZE, AGE, and GROWTH do not have a notable correlation with CCC. Our research reveals an adverse correlation between the cash conversion cycle and financial leverage, implying that as companies' financial leverage rises, their cash conversion cycle declines. Furthermore, a strong adverse correlation exists between Return on Assets (ROA) and working capital with a confidence level of 99%. Our results indicate a significant inverse correlation between tangible assets and working capital, at a confidence level of 90%. In conclusion, we note a significant negative correlation between GDP and working capital at a 10% significant level, indicating that when GDP goes up, the company's working capital typically goes down.

As a result, our findings contribute significantly to the existing body of knowledge. For starters, it is among the first studies to examine the determinants impacting working capital requirements in developing economies, specifically Vietnam. Additionally, our study conducts a thorough examination of the way internal and external factors impact the required amount of working capital in conglomerates. As far as we know, our research represents one of the pioneering studies investigating how microeconomic and macroeconomic factors influence the working capital requirements of conglomerates..

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