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Working Capital Management Determinants of Small And Large Firms In Malaysia

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ABSTRACT

Recently, the importance of working capital management has been the subject of intense focus. Firms require efficient working capital management to ensure that their operations remain continuously profitable, which further increases shareholder wealth. The aim of this paper is to provide evidence regarding the determinants of working capital management among small and large firms listed on the Bursa Malaysia stock exchange. Secondary data from 2009-2013 was analyzed using Stata12 software. Results of random effects model demonstrate that firm leverage, firm performance, capital expenditure, operating cash flow, executive compensation and economic conditions are the most significant factors that affect working capital management. In addition, we found that managers of small and large firms make decisions differently in managing working capital.

JEL Code: C23,G01,G10,G31

Keywords: Large firms, Panel data analysis, Small firms, Working capital management.

INTRODUCTION

Working capital is a financial metric that demonstrates the operating liquidity of a firm. It is crucial for a firm to manage working capital efficiently since it relates to operating capital, which is used in daily operations. Previous research has suggested that working capital management is important since it affects both the liquidity and the profitability of firms (Nazir and Afza, 2009). Working capital management refers to decisions relating to how firms manage their current assets and current liabilities to control

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their liquidity levels. Too much current assets increase firm liquidity. However, this can also be costly, since it increases the cost of inventory storage and obsolete stock, which can further reduce firm profitability. However, when liquidity is too low, this may also cause firms to have difficulty fulfilling obligations related to current liabilities, such as payments to creditors and short-term debt. If this happens continuously, firms will experience financial difficulties and may cease operations.

The goal of working capital management is to ensure that a firm is able to continue its operations by having sufficient cash flow to satisfy both maturing short-term obligations and upcoming operational expenses. Therefore, it is vital for a firm to develop efficient working capital management, because this will secure a firm's financial position and help build its business. A cash conversion cycle has been widely used to measure the efficiency level of working capital management (Raheman, Afza, Qayyum and Bodla (2010), Iftikhar (2013)). It is defined as the length of time between cash payment for the purchase of resalable goods and the collection of accounts receivable generated by sales of these goods. Thus, it indicates the length of time a firm has funds invested in working capital. Therefore, by reducing the length of time cash is tied up in working capital, a firm can operate more efficiently (Banomyong, 2005).

Firm managers can choose to implement aggressive or conservative working capital financial policies in the management of working capital. However, working capital policy choices were found to be different among countries with different legal systems (Franck and Mittoo, 2002). For example, the U.S. and Britain, which are developed countries, have different legislative systems when compared to developing countries like Malaysia. Therefore, there is no single, unique policy that can be implemented for all firms. The process is entirely dependent on the expertise of a firm's manager to develop an efficient working capital management strategy in order to optimize the firm's liquidity and profitability, which in turn further maximizes shareholder wealth. Firm managers must know the determinants of working capital in order to develop an efficient working capital management strategy. Firm characteristics and external factors such as economics conditions should be considered when managers make decisions about investing and financing working capital. As seen in Figure 1, due to the financial crisis of 1997 and 2008, average current liabilities of all firms listed on the Bursa Malaysia stock exchange began to increase gradually in the wake of the crisis. This demonstrates that a firm's working capital reacts to changes in economic conditions. Hence, if firms do poorly in managing their working capital, the amount of current labilities will affect firm liquidity. If this happens continuously, it will affect a firm's financial position and may finally lead to default.

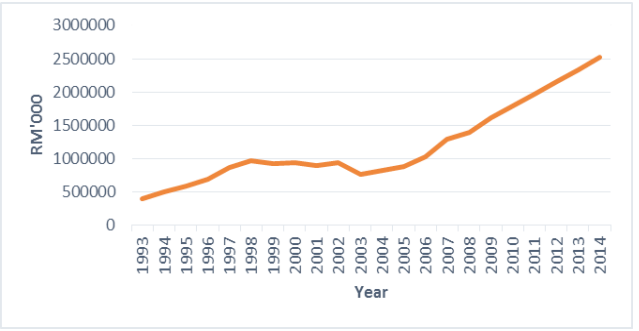

Figure 1 Average Current Liabilities of Firms on Bursa Malaysia Stock Exchange

Therefore, it is important to know the determinant factors of working capital management to ensure that firms can withstand economic fluctuations over the long term. Even though many researchers have conducted studies in this area, few have focused on those factors affecting the working capital management of developing countries. The objective of this study is to investigate the determinants of working capital management strategies in small and large firms in Malaysia. There is economic benefit in understanding these factors based on different firm size, because small and large firms have different management structures in place. Large firms have easy access to capital through external financing. Conversely, small firm have limited access to external financing. As a result, policies implemented to manage working capital in small and large firms are different. Hence, identifying those factors that affect the working capital management of these firms can assist firm managers in more efficiently managing working capital, which further enhances firm value.

LITERATURE REVIEW

Efficient working capital management has become a well-known concept, as managers are aware of the importance of working capital management. Arnold (2008) defines working capital as 'the difference between current assets and current liabilities.' Because current assets and current liabilities in part comprise short-term capital, working capital management can also be defined as a firm's management of its short-term capital (Jeng-Ren, Li and Han-Wen, 2006). Short-term capital refers to a firm's current assets and current liabilities, which are used in its daily operations. Current assets can be defined as assets used in a firm's daily operations to provide returns to the firm within a period of approximately a year, consisting of cash, inventories, accounts receivable, and other current assets. According to Al-Shubiri (2011), working capital management is a component of corporate finance and is important to all firms since it affects the profitability and the liquidity of a firm. Working capital affects the profitability and liquidity of firms because it is involved in the management of current assets and current liabilities.

Working capital policy is an important aspect of working capital management, as business success depends heavily on the ability of managers to effectively manage inventories,

account receivables, and account payables of a firm (Filbeck and Krueger, 2005). Previous empirical studies (Filbeck and Krueger, 2005) have demonstrated that efficient working capital management is important through their analysis of the working capital management policies of 32 non-financial firms in the United States. Additionally, a study done by Afza and Nasir (2007) revealed that there are significant differences in the adoption characteristics of working capital policy across different industries. These studies also found that there is a negative relationship between profitability measures and the degree of aggressiveness of working capital policies. Furthermore, many researchers (Deloof, 2003; Shin and Soenen, 1998; Raheman and Nasr, 2007; Lazaridis and Tryfonidis, 2006) have proven that working capital management significantly affects firm profitability. Hence, firms can increase their profits when they effectively and efficiently manage working capital. Therefore, managers must identify those factors that should be considered in working capital management.

Recently, Mansoori and Muhammad (2012) conducted a study on the determinants of working capital management among Singapore firms. They divided the determinants of working capital management into internal and external factors. Internal factors affecting working capital management focus on a firm's unique characteristics, while external factors refer to forces that cannot be controlled by firms, such as economic conditions. In a study conducted by Nazir and Afza (2009), operating cycle, leverage, return on assets and tobin's q are identified as internal factors that significantly influence firms' working capital. In addition, Mansoori and Muhammad (2012) found that firm size, operating cash flow to sales, and capital expenditure to total sales are negatively correlated with working capital management, while there is no significant relationship between working capital management and debt ratio. However, Nazir and Afza (2009), Chiou and Cheng (2006), and Zariyawati et. al. (2010) all contend that debt ratio is negatively related to working capital management. The different findings on leverage factors could be explained by different sample pools. Mansoori and Muhammad (2012), for example, used data from a developed country, while others relied upon data from developing countries.

In addition, capital expenditure was suggested by Appuhami (2008) and Mansoori and Muhammad (2012) to be among those factors that affect working capital management. Capital expenditure includes the firm's entire expenditure to buy new physical assets or an expenditure incurred to add value to existing assets. They found that capital expenditure is negatively related to working capital management. In addition to capital expenditure and operating cash flow, Mansoori and Muhammad (2012) found that growth opportunity, which is measured by sales growth, is an internal factor that affects working capital management. This finding is consistent with Caballero, Teruel and Solano (2009), and Zariyawati *et al*. (2010).

Executive compensation represents remuneration received from executive officers in a particular firm in exchange for their services on behalf of the firm. In accordance with agency theory, insufficient executive compensation may influence management decisions that affect working capital management. Therefore, executive compensation can be considered a determinant of working capital management. According to Kieschnick, Laplante and Moussawi (2006), executive compensation has a significant impact on the efficiency of a firm's working capital management.

Researchers have also identified a few macroeconomic variables as determinants of a firm's working capital management policies, such as gross domestic product (GDP) and the inflation rate of a country. Most past empirical studies (Unayama, 2004; Welfe, 2000; Arize, Malindretos, and Nippani, 2004) have suggested that the inflation rate is negatively related to the cash conversion cycle. Firms tend to reduce their working capital when inflation is high because the cost of working capital will be greater, which can diminish the profitability of a firm. On the other hand, Moyer, Mcguigan and Kretlow (2003) and Lamberson (1995) found that firms tend to invest more in working capital during an economic uptick. To summarize, in developing efficient working capital management policies, firms must not only consider their own unique internal variables that affect working capital management, but also external macroeconomic factors (Sheluntcova, 2014; Jagongo and Makori, 2013; Enqvist, Graham, and Nikkinen, 2014; Zariyawati et. al., 2010; Chiou and Cheng, 2006; Lamberson, 1995).

METHODOLOGY

This research strives to enhance the overall understanding of the determinants of working capital management in firms in Malaysia. The study used secondary data collection methods, with data obtained from DataStream that includes data from financial statements and balance sheets of firms listed on the Bursa Malaysia stock exchange. Large firms are comprised of the 30 largest firms listed on the FTSE Bursa Malaysia KLCI index, while small firms are comprised of firms listed on the FTSE Bursa Malaysia Small Cap Index. The data for macroeconomic variables used in this study were gathered from the Department of Statistics Malaysia. The analysis extends from 2009 to 2013, representing a five-year period. The results of this study were derived from panel data analysis, which was conducted using STATA12 software. In this study, the cash conversion cycle (CCC) is used as a measurement of working capital management. Therefore, a model of working capital management in this study can be expressed as follows:

$$CCC_t = \gamma_0 + \gamma_1 LEV_t + \gamma_2 CE_t + \gamma_3 OCF_t + \gamma_4 FG_t + \gamma_5 ROA_t + \gamma_6 EC_t + \gamma_7 CPI_t + \gamma_8 GDP_t + \varepsilon_t$$

where;

CCC_t = cash conversion cycle
LEV_t = firm leverage
CE_t = capital expenditure
OCF_t = operating cash flow
FG_t = growth opportunity
ROA_t = firm performance
EC_t = executive compensation
CPI_t = inflation rate
GDP_t = economic growth
ε_t = disturbance
γ_0 = intercept

CCC is calculated by the inventory and accounts receivable period minus the accounts receivable period (Uyar, 2009). This study takes into consideration six firm-specific internal factors and two external factors as independent variables. Firm-specific variables consist of firm leverage, capital expenditure, operating cash flow, growth opportunity, firm performance and executive compensation, while external factors consist of the inflation rate and economic growth.

A firm's leverage is measured by the ratio of total debts over total assets. Meanwhile, capital expenditure can be defined as the value of additional investment in fixed assets each year. Operating cash flow represents the amount of cash generated from business operations. Sales growth of a firm is used as a proxy for growth opportunity. Sales growth is calculated as sales for the current year minus sales for the previous year, which is then divided by sales from the previous year. A firm's return on assets is used as a proxy for firm performance. Return on assets is calculated by dividing total net income by total assets. Executive compensation represents remuneration received by executive officers in a firm in exchange for their services on behalf of the firm. In this study, total current compensation is used as a proxy for executive compensation, which was previously employed by Kieschnick, Laplante and Moussawi (2006). The two external factors, inflation rate and economic growth, are represented by the consumer price index and real gross domestic product, respectively.

RESULTS AND DISCUSSION

Table 1 presents a summary of statistics for variables used in the analysis. Total observations in this study were comprised of 100 companies listed on the Bursa Malaysia stock exchange. Firms require 129 days to convert resource input such as inventories to cash flow. The average cash conversion cycle period is 129 days. Furthermore, about 47% of a firm's total assets are financed by debt. The average capital expenditure as a total percentage of sales is 14%, while average operating cash flow to total sales is 22.28%. Additionally, the mean of growth opportunity is 16%, and the standard deviation is 69.41. Firm performance as measured by return on assets is represented by a 5.09% return on each dollar on assets invested. Meanwhile, the average total executive compensation is RM9767. Finally, the mean for inflation rate and for economic growth are 102.7 and 2.58, respectively.

Table 1 Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard Deviation
CCC	-3380.955	6510.100	129.301	572.684
LEV	0.008	8.028	0.466	0.501
CE	0.001	2.536	0.137	0.224
OCF	-6.639	11.466	0.223	1.047
FG	-100.000	1011.420	15.797	69.413
ROA	-5.543	3.526	0.0509	0.397
EC	8000.000	90524.000	9766.910	3140.650
CPI	98.300	107.100	102.700	3.200
GDP	-0.021	0.056	0.024	0.026

Table 2 presents the Pooled OLS, fixed effects and random effects estimations of the determinants of working capital management with all of the independent variables in this study. The appropriation of a Pooled OLS estimation model for working capital management determinants was investigated. Based on the p-value (0.000) of the Breusch-Pagan Langrage Multiplier test of homogeneity, it rejected the null hypothesis that the slopes and intercepts are the same across firms. Because the slopes and intercepts are not the same across firms, fixed or random effects are better estimates for determinants of working capital management than a Pooled OLS estimation. Therefore, the Hausman specification test was conducted to compare fixed effects and random effects estimations in selecting the most appropriate model estimation (Baltagi, Bresson and Pirotte, 2003; Hsiao, 2007). As the random effects model assumes the exogeneity of all of the regressors and the random individual effects, the fixed effects model allows for endogeneity of all of the regressors, as well as individual effects (Mundalk, 1978). Therefore, Hausman and Taylor (1981) introduced a model in which some of the regressors are correlated with individual effects. This indicates that the individual means of the strictly exogenous regressors are used as instruments for the time invariant regressors, which are correlated with the individual effects. Therefore, the choice of exogenous regressors is a testable hypothesis. The value (0.063) of the Hausman test, which is more than 0.05, indicates that the random effects estimation is a better estimate than the fixed effects estimation. Therefore, the individual effects and the regressors have no relationship, and exogeneity between the individual effects and regressors is assumed. As a result, the interpretation of results will be based on the random effects model.

Referring to Table 2, the random effects estimation, six out of eight independent variables are significantly correlated with the cash conversion cycle. A firm's leverage, operating cash flow, firm performance, executive compensation and inflation rate were significantly and negatively correlated with the cash conversion cycle, while capital expenditure was positively and significantly correlated with the cash conversion cycle. However, this study lacked the evidence to prove that both growth opportunity and economic growth will affect working capital management, as both variables were not significantly correlated with the cash conversion cycle.

Table 2 Regression Analysis for All Samples

Dependent variable: Cash Conversion Cycle (CCC)			
Independent variables	Pooled OLS	Fixed Effects	Random Effects
LEV	-0.690***	-0.555**	-0.522***
	(0.001)	(0.038)	(0.008)
CE	0.0604	0.123**	0.102**
	(0.240)	(0.018)	(0.030)
OCF	-0.327***	-0.098	-0.234**
	(0.000)	(0.545)	(0.011)
FG	0.0945*	-0.060	-0.034
	(0.089)	(0.167)	(0.414)

Table 2 (Cont.)

ROA	-0.908***	-0.732**	-0.649***
	(0.000)	(0.036)	(0.004)
EC	-0.162***	-0.072	-0.186***
	(0.002)	(0.532)	(0.006)
CPI	-2.212	-3.429**	-2.743*
	(0.368)	(0.039)	(0.088)
GDP	0.755	1.741	1.643
	(0.800)	(0.357)	(0.386)
Constant	16.455	21.769***	19.436***
	(0.149)	(0.004)	(0.009)
LM Test		(0.000)	
Hausman Test	-	(0.0630)	

Notes: ***Significant at 1 percent, **Significant at 5 percent, *Significant at 10 percent. Parentheses are p-values.

Firm leverage was negatively correlated with the cash conversion cycle at a 1% significance level. This is consistent with the findings of Chiou and Cheng (2006), which state that debt ratio is negatively correlated with working capital management. The higher the debt of a firm, the greater they gain external monitoring from debt funder to ensure the implementation of efficient working capital management strategies. As a result, the cash conversion cycle is reduced. Firms with high debt basically have a shorter cash conversion cycle. In addition, firms with a higher debt ratio will have a shorter cash conversion cycle, because the cost of funds invested in working capital is higher for firms with higher leverage (Caballero *et al*., 2009).

The capital expenditure factor was significantly and positively correlated with the cash conversion cycle at a 5% significance level. This implies that firms in Malaysia most likely will finance their investment in fixed assets with short-term financing and thus increase their working capital. However, the findings in this study contradict the findings of Fazzari and Petersen (1993), who identified a negative relationship between capital expenditure and the cash conversion cycle.

Furthermore, Table 2 reveals that operating cash flow is negatively related to the cash conversion cycle at a 5% significance level. These findings are consistent with the findings of Boisjoly (2009) and Chiou *et al*. (2006), which suggest that better cash flow management will lead to more aggressive working capital management. As a result, the cash conversion cycle will be shortened. However, a negative relationship between working capital management and operating cash flow should be managed carefully as it could be a sign that the firm has cash flow problems because the management of the firm is converting non-cash working capital into cash (Steyn, Hamman and Smith, 2002).

Furthermore, the random effects analysis proved that a firm's performance is negatively correlated with the cash conversion cycle at a 1% significance level. This supports the findings of Deloof (2003) that firm performance is inversely related to the cash conversion cycle. This means that firms with strong performances typically retain less working capital. This is

because firms with good reputations are able to secure external financing to fulfill customer demand with ease if their investment in working capital is not sufficient to support immediate or strong demand from customers. Nonetheless, this contradicts the findings of Mansoori and Muhammad (2012), who identified a positive relationship between firm performance and the cash conversion cycle, as a firm with higher profitability tends to have a longer cash conversion cycle. The positive relationship between a firm's performance and the cash conversion cycle suggests that profitable firms can afford to lengthen trade credit to their customers (Niskanen and Niskanen, 2006; Petersen and Rajan, 1997).

In addition, executive compensation was negatively correlated with the cash conversion cycle at a 1% significance level. This is in line with a study conducted by Kieschnick *et al*. (2006), which contends that higher executive compensation will lead firm managers to develop efficient working capital management strategies and will further improve firm profitability.

Other than the six firm-specific internal variables, one of the two external variables, the inflation rate, was found to be negatively correlated with the cash conversion cycle at a 10% significance level. A higher inflation rate will in turn lead to a shorter cash conversion cycle. This may be attributable to the cost of inventory, which increases during high inflation periods and will lead many firms to reduce their short-term investments and, by extension, their working capital.

In conclusion, five out of the six firm-specific internal variables have a significant relationship with the cash conversion cycle, and one of the two macroeconomic variables has a significant relationship with the cash conversion cycle. This study failed to produce sufficient evidence to prove that there is a significant correlation between a firm's growth and overall economic growth with the cash conversion cycle. The results in this section were derived from an analysis of the determinants of working capital management of 100 firms listed on the Bursa Malaysia stock exchange, while the next section will discuss the determinants of working capital management of large and small firms who comprise these 100 firms.

Table 3 shows the regression results of the random effects model for large firms and small firms. Large firms in this analysis are comprised of the top 30 firms listed on the Bursa Malaysia composite index, while small firms consist of the remaining 70 firms listed on the FTSE small cap index of the Bursa Malaysia stock exchange.

Table 3 Random Effects Model of Small and Large Firms

Random Effects Analysis		
Dependent variable: Cash Conversion Cycle (CCC)		
Independent variables	Large Firms	Small Firms
LEV	-1.411	-0.475**
	(0.106)	(0.032)
CE	-0.015	0.124**
	(0.895)	(0.017)
OCF	-0.264**	-0.244
	(0.015)	(0.107)

Table 3 (Cont.)

FG	-0.095	-0.029
	(0.184)	(0.570)
ROA	-1.630	-0.633**
	(0.302)	(0.022)
EC	0 .016	-0.227***
	(0.903)	(0.009)
CPI	3.033	-5.289***
	(0.265)	(0.007)
GDP	3.112	0.458
	(0.323)	(0.843)
Constant	-9.035	31.678***
	(0.469)	(0.000)

Notes: ***Significant at 1 percent, **Significant at 5 percent, *Significant at 10 percent. Parentheses are p-values.

Analysis results from the small firm sample reveal that five out of eight independent variables were found to be significantly correlated with the cash conversion cycle. All of the significant variables are similar to the sample results, with the exception of operating cash flow variables. Small firm leverage and firm performance were found to be negatively correlated with the cash conversion cycle at a significance level of 5%, while executive compensation and inflation rate were found to be negatively correlated with the cash conversion cycle at a significance level of 1%. Meanwhile, the capital expenditure of small firms was found to be positively correlated with cash the conversion cycle at a significance level of 5%.

Results of the analysis for small firms reveal that managers of small firms will consider firm leverage, firm performance, capital expenditure, executive compensation and economic conditions when making decisions regarding investment and financing of the firm's working capital. Sufficient executive compensation is important to ensure that the executive team manages the firm, and specifically its working capital, efficiently. Furthermore, small firms must consider external monitoring by debt holders in the management of working capital. The lower the amount of working capital management which represent by cash conversion cycle, is to demonstrate to a firm's debt holders that the firm can convert sales to cash in a short period to repay its debt. Additionally, small firms generally retain more working capital because of their limited access to external financing. Due to limited access to external financing in comparison to large firms, small firms will take economic conditions into account in order to ensure that they efficiently manage their working capital. Small firms are concerned about tolerating the high cost of working capital investments, such as inventory price increases, during inflation, which can affect firm profitability.

However, results of a random effects analysis of large firms listed on the Bursa Malaysia stock exchange reveal that only one factor, operating cash flow, was negatively correlated with the cash conversion cycle at a 5% significance level. All other firm-specific internal variables and macroeconomic variables were not found to be significantly correlated with the cash conversion cycle. These results indicate that managers of large firms exclusively

consider the level of operating cash flow when they make decisions regarding investing and financing working capital. Large firms will keep low working capital on hand if they have large amounts of operating cash flow. This decision might be due to the fact that larger firms have better access to capital. Therefore, large firms keep lower amounts of current assets on hand because they can secure financing with relative ease (Moss and Stine, 1993). As a result, the cash conversion cycle of large firms is shorter than that of small firms. To summarize, this study reveals that working capital is managed differently by small and large firms. Those factors that are considered as determinants in small firms' working capital management strategy are markedly different than those factors considered by large firms.

CONCLUSION

Working capital management is important to all firms, as if affects both liquidity and profitability. Hence, firm managers must manage working capital efficiently in order to ensure that firms can sustain profitability and growth over the long term. Firms must also consider determinant factors that affect working capital management. Using panel data analysis, the Hausman test proved that the random effects estimation was preferable to the Pooled OLS and fixed effects estimations in identifying the determinants of working capital management of firms in Malaysia. The result of this study demonstrated that a firm's leverage, operating cash flow, profitability, executive compensation, capital expenditure and inflation rate were considered in managing working capital. Despite this, the study does not yield sufficient evidence to prove that growth opportunity and economic growth are determinant factors of working capital management. Additionally, we found that small firms and large firms listed on the Bursa Malaysia stock exchange manage their working capital differently. This provides some valuable insight for managers of firms in Malaysia on certain areas of particular importance when making decisions regarding working capital management.

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