

## Working Capital Management: Evidence From Malaysian ICT Industry

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### Abstract

Previous studies dedicate their knowledge in working capital management. This paper provides useful insights on the determinants of working capital management in Malaysian ICT industry. Efficient working capital management is vital to ensure companies liquidity and ensuring its sustainability. The objective of this study is to examine working capital's influence on profitability, leverage, operating cash flow, and non-debt tax shield. Using unbalanced panel data, the study employs random effects model for 634 observations. The study covers a ten (10) years period from 2004 to 2013 of 104 publicly listed ICT companies in Malaysia. The study have shown significant relationship between all determinants and working capital ratio. Leverage, cash flow, and non-debt tax shield is negatively related with working capital while profitability is positively related with working capital. The interaction effects disclose cash flow and leverage have a different impact on working capital for small and large ICT companies in Malaysia.

Keywords: Working Capital Management, ICT, Firm Size

### Introduction

Working capital management involves decision-making processes regarding investment in a firm's current assets and how the assets are to be financed. The decisions in working capital made by financial managers involve risk-return tradeoffs between liquidity and profitability (Khan, 2012). Working capital management plays a great deal in a firm because it influences the firm's profit and market value (Moradi et al., 2012). Thus, it is imperative for financial managers to have proper understanding of working capital management in order to strike a balance between risk and return to ensure the survival of the company.

Smith (1980) suggests that company's failure can be attributed to the inability of financial managers to control their company's current assets and liabilities. Managers are required to operate at optimal level of working capital. However, puzzling question to any given firm is 'what is the optimal level of working capital'? Excess working capital is inefficient because it will not be able to generate additional future incomes to the firm. Conversely, inadequate working capital may lead to the disruption in firm's business activities and hence, may lead to the collapse of the firm.

Managers spend most of their time and effort on working capital management and that is why determining important factors that affect working capital management would help managers to be well prepared and ready for unpredictable situations that may arise later.

Academics have actively studied on working capital management and factors that affect working capital (Gupta, 1969; Mansoori & Muhammad, 2012; Mohamad & Elias, 2013; Nazir & Afza, 2008; Smith, 1980). Previous studies focus from different angles and various countries, which includes factors such as firm-specific features or multiple macroeconomic conditions. Prior studies have used leverage, profitability, size, growth, assets tangibility and other firm-specific factors affecting efficient working capital management with inconsistent and inconclusive results in Malaysia and other countries (Charitou et al., 2012; Makori & Jagongo, 2013; Mansoori & Muhammad, 2012; Vural et al., 2012). Most of the working capital management studies use profitability and cash conversion cycle (CCC) as well as net liquid balance as the proxies of working capital requirement but even fewer studies consider net working capital to total assets as their dependent factors (Chiou et al., 2006; Narender et al., 2008; Nazir & Afza, 2009).

This research uses the net working capital to total assets to proxy working capital management following studies by Abbadi and Abbadi (2012), and Gill (2011) in Palestine and Canada respectively. The paper contributes to the literature as to the best of our knowledge, there are only few researches of similar nature that have been done in Malaysia, particularly in Information, Communication and Technology (ICT) sector. Recently, there is only one similar study on ICT industry conducted by Vaicondam et al. (2015) and by this we add to the body of knowledge through the employment of a more recent and extensive data of ICT companies in Malaysia. The paper includes profitability, leverage, operating cash flow and non-debt tax shield as the possible determinants of working capital management for ICT sector in Malaysia.

### Literature Review

The analysis of short term assets and liabilities requires a careful investigation since it plays an important role in firm's profitability, risk management as well as ensuring maximization of the firm's value (Smith, 1980). Previous studies in working capital management signify that profitability is affected by how company handles their current assets and as well as their current liabilities. Effective working capital management will lead to an increase in a firm's profitability (Appuhami, 2008).

Following the prediction of Pecking Order Theory, a negative relationship between profitability and working capital management should be expected (Myers, 1984). According to Chiou, et al. (2006) it was easy for profitable firms to obtain funding, and therefore, cash should be kept at a minimum level. This statement is consistent with earlier study such as by Shin and Soenen (1998) and Zariyawati et al. (2009), where there is a negative relationship between profitability with working capital management.

Conversely, Nazir and Afza (2008) argue that firms with high profit have excess cash to invest in investment activities, as they are not as concerned with efficient working capital management. Thus the effect of profitability on working capital requirements can be either positive or negative. In their study on the 17 industrial groups listed on Karachi Stock Exchange (KSE) they find a positive and significant relationship between return on asset (ROA) and working capital. In another study of 132 manufacturing firms in Pakistan by the same authors reveal that there is a positive significant relationship between ROA and working capital requirement, which confirms their earlier study

on similar topic (Nazir & Afza, 2009). Gill (2011) studies 166 manufacturing Canadian firms listed on Toronto Stock Exchange (TSE) for a period of three years from 2008-2010. The author documents a positive relationship between ROA and working capital requirement. In a more recent study in Nigerian Stock Exchange (NSE), Onaolapo and Kajola (2015) find a strong positive significant relationship between profitability and working capital requirement. The result is supported by many previous researches (among others, Nazir & Afza, 2008; Wasiuzzaman & Arumugam, 2013; Wu, 2001).

Following the prediction of Pecking Order Theory on leverage, a negative relationship between leverage and working capital level should be expected. Highly leveraged firm aims to work with low level of current asset to avoid new debt-issuance. Onaolapo and Kajola (2015) find a negative and significant relationship between leverage and working capital requirement. Their study is consistent with previous studies conducted by Nazir and Afza (2009) and Chiou et al. (2006). The authors have shown that there is a lower working capital requirements by highly leveraged companies. The studies imply that firms with high leverage will manage their working capital more carefully. Similar results were also found in various studies (among others, Deesomsak & Chau, 2011; Saarani & Shahadan, 2012; Wasiuzzaman & Arumugam, 2013). In contrast, Appuhami (2008) in their study of companies in Thailand reveals a positive relationship between leverage and working capital management, which implies that inefficient management of working capital leads to higher amount of working capital and higher leverage, and will ultimately lead to a higher risk exposures to the company. The study is supported by Gill (2011) that posits positive relationship between leverage and working capital requirement indicating that higher level of debt requires the higher level of working capital.

Abbadi and Abbadi(2012) study on Palestinian industrial firms finds that operating cash flow is positively significant with working capital requirements. This study is consistent with Hill et al. (2010). Appuhami (2008) however, documents a contradicting results where operating cash flow has a significant negative relationship with working capital management. Chiou, Cheng et al.(2006) find similar relationship between operating cash flow and working capital requirements. Narender et al. (2008) investigate the determinants of working capital management of cement industry in India by using

different proxies for working capital requirements. The study finds inconsistent results in two of the proxies, i.e., net liquid balance and working capital ratio. Size and leverage is found to have a significant effect on the net liquid balance, while size and operating cash flows is found to render similar effect on the working capital ratio.

This study includes non-debt tax shield as one of the working capital determinant, following a cue from an earlier study by Saarani and Shahadan (2012). To the best of our knowledge, until recently, only Saarani and Shahadan (2012) has been found to use non-debt tax shield as one of the independent variables. The authors in their study of the E-50 companies in Malaysia find non-debt tax shield to have a significant negative relationship with working capital decision. Non-debt tax shield is measured by depreciation, may represent the firm asset tangibility and greater depreciation reflect to higher tax deductible incentives.

Another factor that was taken into consideration in this study is the firm's size. Theoretically, large firms may require larger investment in working capital because of larger volume of revenues. Since these firms have easier access to capital, they are more incline to keep cash at a minimum level. Hence, a positive relationship between size and working capital requirement is expected. Chiou, et al.(2006) find a

positive impact of size and working capital management in their study of 20,000 American companies. On the other hand, Abbadi and Abbadi (2012) find that the size of the firm has a negative, significant effect on working capital. This implies that a larger firm requires lower investment on working capital because larger firms are better in managing their cash flows. Inter alia, Zariyawati, et al. (2009), Gill (2011), and Wasiuzzaman and Arumugam (2013) also report the same finding.

**Data and Methodology**

Focusing on the ICT industry in Malaysia, the study covers 104 publicly listed companies for ten (10) years period. The unbalanced panel data comprises of 634 observations. The data includes the four regressors i.e., profitability, leverage, cash flow, and non-debt tax shield. All data were obtained from the Osiris database by Bureau van Djik. The study incorporate firm size dummy to distinguish the small and large ICT companies in Malaysia. The inclusion of firm size dummy is to test the interaction effects between firm size and leverage and cash flow. Table 1 provides a list with proxy and definitions of the interest variable and the explanatory variables used in the model.

Table 1: Variables Definitions

Variables	Proxy	Definition
<i>Dependent variable:</i>		
Working capital management	Working capital ratio	Net working capital to total assets
<i>Explanatory variables:</i>		
Profitability	Return on average assets	Net income after preferred dividend to average total assets
Leverage	Debt ratio	Total debts to total assets
Cash Flow	Operating cash flow	Operating cash flow to average total assets
Non-debt tax shield	Depreciation	Depreciation to average total assets
Firm size	Size dummy	Small and medium = 0, Large = 1

The study employs random effects model (REM) using Statistic/Data Analysis (STATA) software application version 12. The panel data GLS estimation with interaction effect presented in Eq. (1):

$$\begin{aligned}
 WCM_{it} = & \delta_0 + \delta_1 PRO_{it} + \delta_2 LEV_{it} + \delta_3 OCF_{it} + \\
 & \delta_4 NTS_{it} + \delta_5 SIZE_{it} + \delta_6 LEV_{it} \times SIZE_{it} + \\
 & + \delta_7 OCF_{it} \times SIZE_{it} + \epsilon_{it}
 \end{aligned}
 \tag{1}$$

where, *WCM* is the interest variables while *PRO*, *LEV*, *OCF*, *NTS*, and *SIZE* representing profitability, leverage, cash flow, non-debt tax shield and firm size dummy respectively. It is possible to have a situation where a firm size will result in differing degrees on leverage and cash flows. Therefore, by incorporating the size dummy, the study

includes interaction effects of size with leverage and cash flow in the model.

The main aim of this study is to investigate whether the working capital decision in Malaysian ICT industry is driven by the four factors; the profitability, leverage, cash flow, non-debt tax shield. In addition, we are interested to find if there is any effect of firm size on leverage and cash flows. In order to achieve the objectives, the study specifies the following hypotheses:

H<sub>1</sub>: There is a significant relationship between profitability and working capital management in Malaysian ICT companies.

H<sub>2</sub>: There is a significant relationship between leverage and working capital management while the firm size reacts as the moderating variable in Malaysian ICT companies.

H<sub>3</sub>: There is a significant relationship between cash flow and working capital management while the firm size reacts as the moderating variable in Malaysian ICT companies.

H<sub>4</sub>: There is a significant relationship between non-debt tax shield and working capital management in Malaysian ICT companies.

**Empirical Results and Findings**

Table 2 presents the random effect model GLS estimation of our model. The results can be summarized as in Eq. (2):

$$WCM_{it} = 0.24 + 0.22PRO_{it} - 0.08LEV_{it} - 0.33OCF_{it} - 0.008NTS_{it} + 0.006SIZE_{it} - 0.09LEV_{it} \times SIZE_{it} + 0.17OCF_{it} \times SIZE_{it}$$

Table 2: Random Effects Model Estimation

	Coefficient	z-value	Marginal Effect
Profitability	0.22***	8.50	0.22
Leverage	-0.08*	-0.07	-0.12
Cash Flow	-0.33***	-6.35	-0.24
Non-debt tax shield	-0.008***	-2.66	-0.008
Firm size	0.006	0.22	0.006
Leverage x Size	-0.09*	-1.95	
Small			-0.08*
Large			-0.17***
Cash flow x Size	0.17***	2.69	
Small			-0.33***
Large			-0.15***
Constant	0.24***	10.87	
Number of observations	634		
Number of groups	93		
R-squared (overall)	0.2454		
Wald chi2 (7)	175.74		
Prob > chi2	0.0000		

Note: \*\*\*z-value is significant at 1%, \*\*z-value is significant at 5%, \*z-value is significant at 10%.

The REM estimation reveals that all regressors are statistically significant with the working capital decision for ICT companies in Malaysia. Profitability, cash flow and non-debt tax shield is statistically significant at 1 percent level while leverage is statistically significant at 10 percent level. The study *The 2015 International Conference on the Future of ASEAN (ICoFA 2015) Special Issue*

managed to reject all the null hypotheses and alternate hypotheses are therefore accepted. Other variables remaining constant, the increase in leverage, cash flow and non-debt tax shield cause to decrease in working capital while increase in firm profitability leads to greater working capital for the firm.

As for the firm size however, the study failed to reject the null hypothesis, and thus is unable to prove if there is a significant effect of firm size on working capital requirement. However, with the use of firm size as moderating variables, the study finds that there is a different effect of leverage (significant at 10 percent) and cash flows (significant at 1 percent) for small and large ICT companies towards working capital decision.

Holding other variables as constant, an increase of 1 unit leverage ratio induce the unconditional expected value for working capital ratio to decrease by 0.08 units for small ICT companies and decrease by 0.17 units for large ICT companies. The change in leverage ratio has a greater impact on large ICT companies compared to small ICT companies in Malaysia.

As for the interaction effect between cash flow and working capital, there is evidence of greater effect of changes in cash flows towards working capital for small ICT companies rather than large ICT companies in Malaysia. Other variables remaining constant, an increase of 1 unit operating cash flow ratio lead the unconditional expected value for working capital ratio to decrease by 0.33 units for small ICT companies and decrease only by 0.15 units for large ICT companies.

## Conclusion

The study aims to identify and investigate the determinants of working capital ratio decision for ICT companies in Malaysia. The sample is divided into two groups i.e., small and large ICT companies. The objectives are to investigate the relationship between working capital requirements and profitability, leverage, operating cash flow and non-debt tax shield. The REM estimation reveals all the independent variables significantly affect working capital decision in either positive or negative direction.

Operating cash flow has the strongest coefficient in influencing working capital decision in ICT industry

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in Malaysia. The finding reveals that there is a negative relationship between operating cash flow and working capital management (Appuhami, 2008; Chiou et al., 2006; Mansoori & Muhammad, 2012). It is common for ICT companies to increase their inventory in meeting the users demand. This leads to the reduction of operating cash flow and thus increases the working capital. Interestingly, the study finds significant interaction effects for different firm size. Working capital level for smaller firms are more sensitive to changes in operating cash flows as compared to larger ICT firms in Malaysia.

There are positive significant relationship between profitability and working capital management for ICT companies in Malaysia (Abbadi & Abbadi, 2012). As expected, as profit increases, they will be able to enjoy greater cash reserve, and other types of current assets. As a results this scenario are likely to lead to a better working capital management for these companies.

The model includes a relatively new evidence from the effect of non-debt tax shield towards working capital management. The result shows that non-debt tax shield is significantly influencing working capital decision in Malaysian ICT companies. Similar to previous study by Saarani and Shahadan (2012), there are negative association between non-debt tax shield and working capital ratio. This implies increase in depreciation provision will cause profitability reduction and in the end, lowers the working capital.

Another important variable that influences working capital decision for ICT companies in Malaysia is leverage. Greater reliance on leverage leads to lower working capital ratio. Highly leveraged companies have smaller fund allocated for working capital as the fund is dedicated to debt repayments and interest obligations. Evidently, the interaction effect shows large ICT companies have greater effect of leverage towards working capital level as compared to smaller firm. This is probably due to the fact that large companies are more likely to obtain external funding and enjoys higher credit risk exposure.

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