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Working capital management and its effect on profitability: Empirical evidence from Malaysian capital market

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Abstract

This study examines the effect of working capital management on profitability among 803 companies listed on Bursa Malaysia. The data collected from DataStream for the year 2010 to 2014 was analyzed using panel data analysis. It was found that number of sales inventory days and number of account receivable days determine profitability of Malaysian public listed companies. Additionally, the debt to equity ratio, current ratio and firm size also has significant effects on the firm's profitability.

Keywords: Working capital management, Performance, ROA, Tobin Q

1. Introduction

Working capital refers to the amount of capital that is promptly accessible to the company. The way firms manage its working capital will give impact on their liquidity and profitability. In fact, many companies have invested large amounts of resources in the account receivable and inventory, besides regularly depended on short term payables as a source of refinancing the company operations (Deloof, 2003). In addition to that, large size inventory and the facilities of trade credit policy may lead to high volume of sales. Sufficient inventories may reduce the risk of a stock-out; and by allowing the customers to enjoy product before paying for it also can attract them to buy from the company.

Working capital can be seen statically as the harmony between current assets and current liabilities. Alternatively, it can be seen as the harmonization between profit generating and material purchasing actions of a company. Cash conversion cycle (CCC), one of the working capital management (WCM) measures, is the timeframe between cash outflow on purchasing materials until the money is received from sales of the products. Simply put, CCC is a number of days of operation either account receivables, inventory and payable. The higher the number of CCC in days, the costly

investment is required in working capital. The length number of days of the CCC depends on the length of the number of sales inventory days (DSI), the number of account receivable days (DSO) and the number of account payable days (DPO).

The number of DSI is the average time taken to use the raw material in the company, change the raw materials into finished goods, and finally sell the finished goods to customers. The number of DSI may take monthly for a few sectors such as manufacturing company, or a few hours for some other sectors such as service sector. The number of DSO is the average time taken by credit customers to settle their accounts, while the number of DPO is the average time taken by a company to pay its trade payables.

According to Knauer and Wöhrmann (2013) enhancement of working capital balance means that the company should minimize the requirement of working capital and at the same time achieve optimum target of profit. Furthermore, effective WCM expands the firms' free cash flow, and builds the companies' development opportunities to give return to the shareholders. Along these lines, the firms are trying their best to achieve optimal level of working capital that help boosts their value (Aktas, Croci, & Petmezas, 2015). An effective WCM can promote better performance where disregard can be very dangerous to any firm (Christopher & Kamalavalli, 2009). The importance of working capital is widely discussed in the literature such as in Mohamad and Saad (2010). They portrayed efficient WCM as dealing in planning and controlling current assets and liabilities in a manner that it eliminates the risk of failure to meet short-term commitments in hands with the evasion of over investments in these assets. Siddique, Moniruzzaman, Khan and Mahmud (2009) show that the wasteful management of working capital does diminish gains as well as cause a concern to financial crisis. As a result, every company, regardless of its size and nature of business, needs essential measure of working capital. Consequently, effective WCM is the most critical component in looking after survival, solvency, liquidity and profitability of the concerned business organization. Along these lines, it can be stated that the approach in overseeing working capital has tremendous impact to the company performance.

Numerous empirical studies on WCM has been done around the world in relevant to its effect on the company' performance (for instance: Shin & Soenen, 1998); Padachi, 2006; Nazir & Afza, 2009; Pandey & Jaiswal, 2011; Singhania, Sharma, & Rohit, 2014). Despite to the existing evidence, findings from Malaysian's point of view may be different due to dissimilarity in business environment between different nations. Malaysia study in this area is sparse, so this study was led to add more literature. The purpose of this study is to identify the effect of DSI, DSO, DPO and CCC on the financial performance of Malaysian listed companies. These findings will facilitate companies to draw up a proper WCM to ensure that the company can achieve high profit without

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having liquidity problem.

2. Literature review

2.1 Working capital management concept

Working capital approaches varies according to business types. A manufacturing company put intensely in extra parts and components and has high amount of account receivables. A food retailer however, may have large inventories of products for resale but with only small amount of receivables. The manufacturing companies obviously need carefully thought on its receivables policy, while the food retailer may not grant any credit at all. WCM is dealing with the current assets and liabilities and how these two components correlate with each other. If companies do not have capacity to keep up an optimal level of working capital, they will have difficulty to run its daily operation. The current assets of a company should be sufficient to cover its current liabilities to ensure a reasonable margin of safety. Each of the current assets must be managed effectively to ensure that company able to pay its short-term obligation.

According to Dixon (1991), working capital policy is a function of two types of decisions: the appropriate level of investment in, and mix of currents assets for, a set level of activities and the chosen methods of financing this investment. He also explained further that the level of company's current assets and working capital, in respect of the company's total capital structure and flow of funds, is a tradeoff between profitability and risk. So, if there is little risk, an aggressive working capital requires minimum levels of cash, securities, debtors and inventories. However, if there is little stability, a more conservative policy will be called for, requiring high cash balances and high inventory reserves. The WCM is essential to the financial strength of all organizations. The amount invested in working capital is usually high so it is important to ensure their effective utilization (Padachi, Howorth, & Narasimhan, 2012). The net working capital refers to the differences between current assets and current liability (Knauer & Wöhrmann, 2013). Padachi et al. (2012) stated that working capital structure refers to the components of working capital and it indicates which components, account receivables, inventory or payable are needed for investment. Working capital can be regarded as the backbone of a company as inefficient WCM may lead to company downfall.

Due to the importance of WCM, an organization should identify clear approaches concerning different components of working capital. Rao (1989) stated that poor WCM could be due to misuse of company's cash for self-interest and delay payment to supplier. The failure of WCM may also due to mismatch between current and long term asset or liability. Evidence shows that WCM directly affect firm liquidity (Knauer & Wöhrmann, 2013) and influences the firm value (Kieschnick, Laplante, & Moussawi, 2013). Therefore, it shows that WCM is linked to the company profitability. To increase revenue, a company may decide to adopt loose trade credit policy, or hold huge amount of inventories to avoid stock out (García, Martínez, & Pedro, 2007;Garcia, Martins, & Brandão, 2011). However, these measures will lead to higher capital employed and increase the company cost of capital. Firms may also delay payment made to accounts payable to maintain their cash, as it is an inexpensive source of funding. The firms however, could loss financial benefits when missing the trade discounts that can help in cutting off the cost or face the risk of tarnishing their relationship with the suppliers. Aktas et al., (2015) provides a comprehensive

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evidence of a relationship between WCM and firm performance using an exhaustive US sample over a 30-year period between 1982 and 2011. They found that firms that converge to that optimal level of WCM, either by increasing or decreasing their investment in working capital, would improve their stock and operating performance over the subsequent period. They also reported that corporate investment is a channel through which efficient WCM transforms into superior firm performance. The results emphasizes that firms adopt aggressive working capital policy so that they can use the cash to more efficient use such as funding growth investment.

Firms must enhance their current liquidity position to stay stable at the season of disparities or economic problem. If they attempt to create higher returns back from its assets, an ideal harmony between liquidity and profitability for proficient utilization of its working capital is necessary. In a nutshell, firms should always monitor their working capital policy for better profitability, stability, reliability, growth and consistency of the companies (Khatik & Varghese, 2015).

2.2 Number of sales inventory days

The number of sales inventory days (DSI) refers to the number of days taken to hold stock before it is sold. Filbeck and Krueger (2005) stated that company success is partly depending on how effective the management manages their inventory. Huge inventory base and trade credit facilities may result to higher sales volume; and large amount of inventory in hand reduces the risk of a stock out (Bagchi, Chakrabarti, & Roy, 2012). However, huge inventory level may lead to wastage if they cannot be sold. Empirical evidence showed that companies that have high number of DSI obtained lower rates of return (Shin and Soenen (1998) Deloof 2003). The negative association between DSI and firms' profit had been widely reported in the literature (see: Mohamad and Saad (2010) Afeef (2011) Bieniasz and Gołaś (2011) Raheman, Qayyum and Afza (2011) which means that prolonging these cycles translated into a decrement in the profitability. The results confirm that industries, which are success in terms of WCM, are mainly due to proper inventory management. In fact, Mansoori and Muhammad (2012) who examined Singapore firms found that all components of cash conversion cycle have a negative association with profitability. Napompech (2012) examined companies listed on the Thailand Stock Exchange identified that gross operating profit was inversely related to number of sales inventory days and the number of receivables days. Ahmadpour, Zare and Rostami (2012) who reported negative relationship between inventories cycle and financial performance demonstrates that reducing cycle inventories at reasonable levels in optimal level of inventories held is one of the ways that managers can do to boost the profit of the companies.

Existing evidence documented that the lower the number of DSI, the higher the financial performance of the firm. This is proven from the findings on manufacturing companies of Pakistani firms (Majeed, Makki, Saleem, & Aziz, 2013), Bombay Stock Exchange companies (Singhania et al., 2014), tea firms from Kenya (Yegon, Kiprono, & Willy, 2014), Saudi Arabia cement firms (Almazari, 2014) and Iran listed companies (Rezaei & Pourali, 2015). In contrast, studies also reported positive association between DSI and profitability for Kenya, Pakistan and Bangladesh listed firms (see: (Makori & Jagongo, 2013; Onodje, 2014; Asaduzzaman & Chowdhury, 2014; Agha, 2014). Due to overwhelmed evidence supporting the negative association of the variables, it is hypothesized that,

H1: The number of sales inventory days is inversely related to the profitability of firms. Number of account receivable days

The number of account receivable days (DSO) refers to the time taken to collect cash from the customers. A firm success is partly depending on how effective it manages the receivables. If the company makes fast collection of receivables, it may not have cash problem to maintain the operational costs. Longer credit term however, will attract customers to purchase from the company as compared to the competitor.

Most empirical studies have shown that shorter DSO leads to higher profit. For instance, those studies were carried out in various countries such as in America (Shin & Soenen, 1998), Belgium (Deloof, 2003), US (Filbeck & Krueger, 2005), Vietnam (Dong & Su, 2010), Japan (Nobanee, Abdullatif, & AlHajjar, 2011), Poland (Bieniasz & Gołaś, 2011), India (Bagchi et al., 2012), Singapore (Mansoori & Muhammad, 2012), Karachi, (Afeef, 2011; Gakure, Cheluget, Onyango, & Keraro, 2012), Ghana (Ahmadpour et al., 2012; Akoto, Awunyo, & Angmor, 2013), Kenya (Makori & Jagongo, 2013), Pakistan (Majeed et al., 2013), Bombay (Singhania et al., 2014), Portuguese (Pais & Gama, 2015) and Iran (Ahmadpour et al., 2012; Rezaei & Pourali, 2015). Positive association between DSO and profit are also documented by previous studies (Agha, 2014; Asaduzzaman & Chowdhury, 2014; Onodje, 2014), but it was argued that sample size could have influence the results. Therefore, it is hypothesized that,

H2: The number of account receivable days is inversely related to the profitability of firms.

2.3 Number of account payable days

Deloof (2003) generally stated that, payment period is the time taken to settle accounts payments. Quick payment allows the company to enjoy cash discount and maintain good reputation with supplier. Delaying payment to the accounts payable however, enable company to use the cash for generating returns but it may jeopardize relationship with supplier and lost the cash discount. Both approaches may have impact on the company's financial performance. Existing evidence shows negative association between number of accounts payable days (DPO) and profit (see: Ahmadpour et al., 2012; Asaduzzaman & Chowdhury, 2014; Bieniasz & Gołaś, 2011; Deloof, 2003; Filbeck & Krueger, 2005; Mansoori & Muhammad, 2012; Mohamad & Saad, 2010; Rezaei & Pourali, 2015; Sabri, 2012; Shin & Soenen, 1998; Singhania et al., 2014; Zakaria & Amin, 2013). It suggests that firm's profit will increase if firms are fast in paying its account payable. Makori and Jagongo (2013) and Agha (2014) found positive association between DPO and profit. Their results suggest that if firms use the extra cash for other effective purpose while at the same time manage to maintain good reputation with the supplier, it will have positive effect on the profit. Insignificant result reported by Afeef (2011) indicates that regardless whether firm is quick or delay payment, it did not have impact on the firms' profit. It is hypothesized that,

H3: The number of account payable days is positively related to the profitability of firms.

2.4 Cash conversion cycle

The cash conversion cycle (CCC) is the prominent measurement of working capital management, that is, the time different between the cash outflow to purchase material, and cash inflow on sales.

The longer the cash conversion cycle, the higher the profitability is because it leads to higher sales. This is because there is need on the large inventory (DSI), shorter collection period (DSO) and more time taken to pay its payable (DPO) as the formula of cash conversion cycle was summation of DSI and DSO minus DPO. Richards and Laughlin (1980) stated that cash conversion cycle as a standard measure of the firm's operations and efficiency. Cash conversion cycle is also defined as the amount of time taken between purchases of raw material to the time taken cash is collected while doing the sales of the product. Good understanding on the role and drivers for working capital management to reach the right levels of working capital enable company to minimize risk, prepare for uncertainty and increase performance and profitability. Evidence supports negative association between CCC and profitability (see: Ahmadpour et al., 2012; Deloof, 2003; Dong & Su, 2010; Filbeck & Krueger, 2005; Jose, Lancaster, & Stevens, 1996; Majeed et al., 2013; Makori & Jagongo, 2013; Raheman et al., 2011; Rezaei & Pourali, 2015; Zakaria & Amin, 2013) suggest that the combination of the three working capital components (short DSI and DSO and long DPO) will result in higher financial performance. Nevertheless, results are mixed as some studied reported positive relationship between CCC and profitability (Abuzayed, 2012; Agha, 2014; Akoto et al., 2013; Asaduzzaman & Chowdhury, 2014; Mousavi & Jari, 2012) and insignificant finding (Jacob, 2014). The following hypothesis is developed:

H4: The cash conversion cycle is inversely related to the profitability of firms.

Figure 1 is the conceptual framework used in this study. Four independent variables measuring working capital are DSI, DSO, DPO and CCC is regressed to the company's profit measured by ROA and Tobin Q. The expected effect on the dependent variable is shown in the diagram.

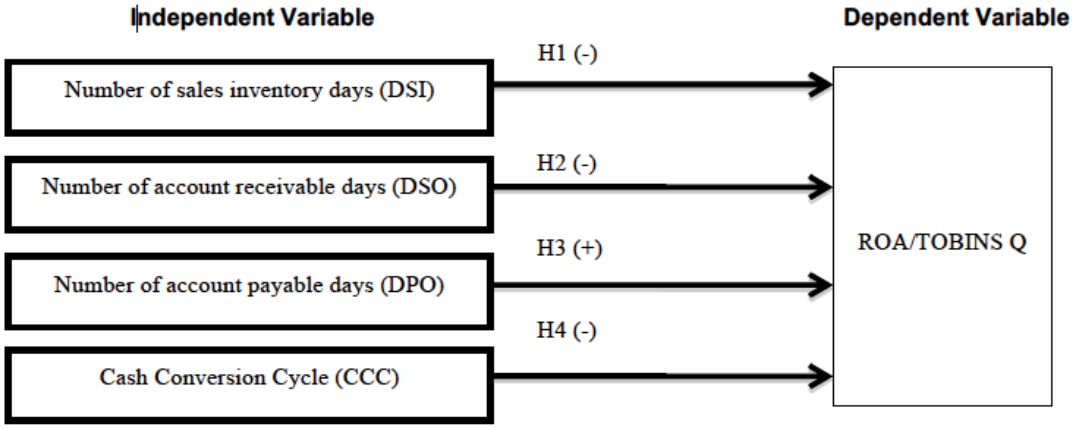

Figure 1: Conceptual Framework

3. Research methodology

3.1 Sample

This study examines Malaysian public listed companies in the main market of Bursa Malaysia from 2010 to 2014. All financial and unit trust companies were omitted from the study because of differences in regulatory requirements. In addition, the study excluded companies, which failed to comply with any obligations under Practice Note such as Practice Note 4 (PN4) and Practice Note 17 (PN17), and also companies with incomplete data. As a result, 4,015 observations for 803 companies across the five years were selected. Data was extracted from the annual reports and financial databases, DataStream.

3.2 Variables measurements

This study employs two dependent variables namely; ROA and Tobin Q to measure profitability. Independent variables included in the regression model are DSI, DSO, DPO and CCC. The control variables are firm size, current ratio and debt to equity ratio.

3.2.1 Dependent variable: Profitability

This study uses two proxies for profitability namely (1) Tobin' Q calculated as market value of equity added by total leverage and divided by total asset, and (2) Return on asset (ROA) is calculated by net profit divided by total assets. Previous studies (e.g: Mohamad & Saad, 2010; Nazir & Afza, 2009) have adopted similar measure of profitability. Tobin Q reflects the company value given by financial markets with the value of a company's assets. A low Tobin Q that is between 0 and 1 means that the cost to replace the firm's assets is greater than the value of its share. This implies that the share is undervalued. Tobin Q greater than 1 means that a firm's share is more expensive than the replacement cost of its assets, which implies that the share is overvalued. ROA is a better measure since it measures efficiency of consuming assets to generate net income. Higher values of ROA show that business is more profitable. Table 3.1 presents the summary of the variable measurements.

Table 3.1: Variable Measurement

Variables	Abbreviation	Measurements
Dependent variable		
Tobin Q	TQ	(Market value of equity + total leverage) / total asset
Return on Assets	ROA	Net profit/Total Assets.
Independent variable		
Number of sales inventory days	DSI	Inventory*365/Cost of Sales
Number of account receivable days	DSO	Accounts receivables*365/Sales
Number of account payable days	DPO	Accounts Payables*365/Cost of Sales
Cash Conversion Cycle	CCC	CCC=DSI + DSO - DPO

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Control Variable		
Current ratio	CR	Current assets/Current liability
Debt to equity ratio	DTE	Total debt/Total equity
Size of the company	SIZE	Natural of logarithm of sales

3.2.1 Independent variable: Working capital management

The CCC is used as a comprehensive measure of working capital as it shows the time lag between the cash outflow for the purchases of raw materials and the cash inflow for collection of sales of finished goods. The CCC is calculated as number of sales inventory days (DSI) plus number of account receivable days (DSO) minus number of account payable days (DPO). This measure therefore, reflects the difference between operating cycle time (DSI plus DSO) and DPO. Formally, CCC is computed as, DSI + DSO – DPO.

DSI is a measure for company inventory management. It may different significantly from industry to industry. A high ratio defines fast moving inventories and a low ratio defines slow moving or obsolete inventories in hand. A low ratio can also be the result of maintaining excessive amount of inventory needlessly. Maintaining excessive inventories means tidying up the capital that could be used in other profitable operations. The formula for calculating DSI is inventory multiplied by 365 days and divided by cost of goods sold. DSO shows how many times a company collects its account receivable. High ratio increases the liquidity of the company. It is calculated as accounts receivables multiplied by 365 days and divided by sales. DPO indicates the company's credit worthy. A high ratio implies fast or prompt payment to suppliers for the items acquired using a loan and a low ratio may be an indication of delayed payment. It is computed as accounts payable multiplied by 365 days and divided by the costs of goods sold. In addition to the CCC, each component of the working capital, DSI, DSO and DPO is also included in the regression model to identify their individual effect on profitability. Knauer and Wöhrmann (2013) stated that examining the effect of CCC alone on profitability might give misleading conclusion as tighter accounts receivable and inventory have positive effect on a firm performance.

3.3 Regression model

The effect of WCM on profitability was examined by applying panel data regression model using STATA software. In the multicollinearity test, CCC and DPO are highly correlated; and hence they are not included in the same regression model. The following regression models were run to test the hypotheses.

$$\text{Profitability} = \beta_0 + \beta_1 DSI_{it} + \beta_2 Size_{it} + \beta_3 CR_{it} + \beta_4 DTE_{it} + \varepsilon_{it} \quad (1)$$

$$\text{Profitability} = \beta_0 + \beta_1 DSO_{it} + \beta_2 Size_{it} + \beta_3 CR_{it} + \beta_4 DTE_{it} + \varepsilon_{it} \quad (2)$$

$$\text{Profitability} = \beta_0 + \beta_1 DPO_{it} + \beta_2 Size_{it} + \beta_3 CR_{it} + \beta_4 DTE_{it} + \varepsilon_{it} \quad (3)$$

$$\text{Profitability} = \beta_0 + \beta_1 CCC_{it} + \beta_2 Size_{it} + \beta_3 CR_{it} + \beta_4 DTE_{it} + \varepsilon_{it} \quad (4)$$

$$\text{Profitability} = \beta_0 + \beta_1 DSI_{it} + \beta_2 DSO_{it} + \beta_3 DPO_{it} + \beta_4 Size_{it} + \beta_5 CR_{it} + \beta_6 DTE_{it} + \varepsilon_{it} \quad (5)$$

$$\text{Profitability} = \beta_0 + \beta_1 DSI_{it} + \beta_2 DSO_{it} + \beta_3 CCC_{it} + \beta_4 Size_{it} + \beta_5 CR_{it} + \beta_6 DTE_{it} + \varepsilon_{it} \quad (6)$$

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where,
Profitability = 1. Tobin Q (Market value of equity added by total leverage and divided by total asset)
= 2. ROA (Net Profit to total assets)
DSI = Inventory to cost of goods sold multiply by 365 days
DSO = Accounts receivable to sales multiplied by 365 days
DPO = Accounts payable to cost of goods sold multiplied by 365 days CCC = A sum of DSO and DSI minus DPO
Size = Natural logarithm of sales
CR = Current assets to current liability
DTE = Total debt to total equity
β = Beta coefficient
ε = error term

4. Findings and Discussion

4.1 Descriptive statistics

Table 4.1 indicates the sample companies by industries listed in Bursa Malaysia from 2010-2014. The largest sample for the sector is trading and services sectors with a total of 201 firms or 1,005 firm year observation which contributes 25.03% of the total sample percentage. Consumer products followed, with a total of 192 firms or 960 firm-year observations that represents 23.91% out of 803 firms' sample. The lowest sample for the industry is construction sectors with a total of 108 firms and 540 firm-year observations that contributes 13.45% out of 803 firm and 4015 firm-year observations sample.

Table 4.1: Distribution of Sample Based on Sectors

Sectors	Total	Observation	Percentage (%)
Trading/ Services	201	1005	25.03%
Consumer products	192	960	23.91%
Industrial Products	180	900	22.42%
Technology	122	610	15.19%
Construction	108	540	13.45%
TOTAL	803	4015	100%

Table 4.2 presents descriptive statistics. The average Tobin Q and ROA is 74% and 77% respectively. The sample of Malaysian public listed firms collected from their account receivable after an average of 126 days and took 115 days to sell their inventory. It took an average of 89 days to pay the account payable. The sample of Malaysian public listed firms took a longer period to collect from their account receivable (DSO) because most of the samples gave a generous trade credit facility that may result to higher volume of sales. Trade credit may boost sales in light of the fact that it permits customers to evaluate product quality before they pay for the item. Thus, they are dealt with slow type of account receivable turnover. As indicated by the CCC, the sample of Malaysian public listed firms took an average of 146 days to convert their inventory into cash. It can be seen that Malaysian public listed firms are quite fast in selling their inventory as compared to other countries such as in Jordan, where Sabri (2012), found that an average day

taken to sell their inventory was 262 days compared to Malaysia that is faster where it only takes 115 days to sell the inventories. Malaysia is closely similar to Singapore as shown by Mansoori and Muhammad (2012) as they took 110 days' average to sell its inventory. Malaysians are slow as compared to Jordan and Singapore in collecting the debt where Malaysian firms took 126 days versus Jordan and Singapore with only 112 days and 103 days respectively. In payment of the debt, Malaysian firms took an average of 89 days (Singapore took 79 days) while; Jordan takes longer days i.e. 156 days to pay the suppliers.

Table 4.2: Descriptive Statistics

Label	Description	Mean	Std. Dev.	Obs.
TQ	Tobin Q	0.74	1.19	4015
ROA	Return on Assets	0.77	0.60	4015
DSI	Number of sales inventory days	115.11	318.34	4015
DSO	Number of account receivable days	126.43	390.77	4015
DPO	Number of account payable days	89.05	1601.78	4015
CCC	Cash Conversion Cycle	146.65	1617.09	4015
CR	Current ratio	3.45	8.67	4015
DTE	Debt to equity ratio	0.49	1.79	4015
SIZE	Size of the company	11.72	2.69	4015

Table 4.3 presents Pearson correlation coefficients for all variables examined in this study. There is a negative correlation between Tobin Q and DSI, DSO and CCC and positive correlation between Tobin Q and DPO. Negative association is reported between ROA and all variables in this study that are DSI, DSO, DPO and CCC. According to Hair et al., (2006) a multicollinearity problem occurs if the correlation among independent variables exceeds than 0.90. The CCC and DPO are highly correlated with coefficient of -0.97, which will cause multicollinearity problems if both are included in the same regression model. Based on the simple correlation, when DSI, DSO and CCC have shorter number of days but DPO has longer number of days, Tobin Q will have a high value. Meanwhile, ROA is higher when the number of DSI, DSO, DPO and CCC is shorter. It implies that when the inventory is selling fast, the receivable can be collected fast, and result in lower value of cash conversion cycle, which causing ROA and Tobin Q to increase. However, delay payment to supplier is associated with higher Tobin Q but lower the ROA.

Table 4.3: Correlation Matrix

	TQ	*ROA*	*DSI*	*DSO*	*DPO*	*CCC*	*CR*	*SIZE*	*DTE*
TQ	1								
ROA	0.1438	1							
DSI	-0.0168	-0.1263	1						
DSO	-0.0148	-0.1145	0.0645	1					
DPO	0.0015	-0.0201	0.0177	0.0803	1				
CCC	-0.0074	-0.0283	0.0505	0.1341	-0.9702	1			

CR	0.0753	-0.0993	-0.0071	0.0323	-0.0093	0.0150	1		
SIZE	0.0396	0.3796	-0.0687	-0.0359	-0.0188	0.0020	-0.1261	1	
DTE	-0.0580	-0.0164	0.0017	-0.0110	-0.0156	0.0131	-0.0511	0.0995	1

*TQ= Market value of equity + total leverage/total asset; ROA= Net profit/Total Assets; DSI= Inventory*365/Cost of Sales; DSO= Accounts receivables*365/Sales; DPO= Accounts Payables*365/Cost of Sales; CCC= DSI+DSO-DPO; CR= Current assets/Current liability; DTE= Total debt/Total equity; SIZE= Natural of logarithm of sales*

4.2 Regression results

Regression results in Table 4.4 and 4.5 are estimated with Fixed Effect Model (FEM). Six panel regressions were run in correspond to equation (1) to (6). The working capital measurements are alternately included in the regression model as shown in column (1) to (4). Column (5) and (6) are full models inclusive of all working capital measures, but CCC was omitted from column (5) and DPO was omitted from column (6). The CCC and DPO cannot be included in the same model as they have multicollinearity problem. According to Tabachnick and Fidell (2005) and Hair et al., (2006), a multicollinearity problem existed if the correlation between independent variables exceeds 0.9. Moreover, other than the correlation values, the test on the variance inflation factor (VIF) is performed since multicollinearity cannot necessarily be ruled out or detected by examining the matrix of the correlations between variables (Hamilton, 2009). Variance inflation factor is an indicator of the effect that the other independent variables have on the standard error of a regression coefficient. VIF that exceeds 10 suggests collinearity problems. The VIF test ran on the independent variables showed that the highest VIF was 96.33 for CCC and 95.07 for DPO. The above correlation and VIF values suggest that there is a multicollinearity problem between the independent variables; hence those variables cannot be fitted into single regression model. The results in Table 4.4 show that none of the working capital variables significantly influence the Tobin Q of the firm.

Table 4.4: Panel Data Regression Model on Tobin Q

Column	***1***	***2***	***3***	***4***	***5***	***6***
WCM Included	***DSI***	***DSO***	***DPO***	***CCC***	***Full model (CCC omitted)***	***Full model (DPO omitted)***
Explanatory Variables:						
Constant	0.8169***	0.8162***	0.8175***	0.8174***	0.8156***	0.8155***
	(7.97)	(7.96)	(7.98)	(7.98)	(7.95)	(7.95)
DSI	0.0000				0.0000	0.0000
	(0.14)				(0.15)	(0.14)
DSO		0.000			0.0000	0.0000
		(0.29)			(0.29)	(0.29)
DPO			-0.0000		-0.0000	*omitted*
			(-0.04)		(-0.05)	
CCC				0.0000	*omitted*	0.0000
				(0.09)		(0.07)

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SIZE	-0.0063	-0.0063	-0.0063	-0.0063	-0.0063	-0.0063
	(-0.73)	(-0.73)	(-0.72)	(-0.73)	(-0.73)	(-0.73)
CR	0.0001	0.0007	0.0007	0.0007	0.0007	0.0007
	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)
DTE	-0.0080	-0.0080	-0080	-0.0080	-0.0080	-0.0080
	(-0.88)	(-0.87)	(-0.88)	(-0.88)	(-0.87)	(-0.87)
Panel estimation				FEM		
R-Squared within	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
N	4015	4015	4015	4015	4015	4015

*TQ= Market value of equity + total leverage/total asset; ROA= Net profit/Total Assets; DSI= Inventory*365/Cost of Sales; DSO= Accounts receivables*365/Sales; DPO= Accounts Payables*365/Cost of Sales; CCC= DSI+DSO- DPO; CR= Current assets/Current liability; DTE= Total debt/Total equity; SIZE= Natural of logarithm of sales*

***p<0.01; **p<0.05; * p<0.10

Results in Table 4.5 show that DPO and CCC have no significant effect on Return on Assets (ROA). The DSI in column (1), (5) and (6) however, has a significant negative association with ROA at 1% significant level. Also, DSO in column (2), (5) and (6) also has a significant negative association with ROA at 1% significant level. The finding implies that a reduced number of sales inventory days and account receivable are associated with higher ROA. This study supports hypothesis H1 and H2 for ROA regression model. The findings on DSI are consistent with those of Deloof (2003), Mohamad and Saad (2010), Afeef (2011), Almazari (2014) and Rezaei and Pourali (2015) that stated when lower time taken to convert the inventory, the profitability increases. The findings on DSO are consistent with those of Deloof (2003), Raheman et al., (2011), Ahmadpour et al., (2012), Akoto et al., (2013) and Rezaei and Pourali (2015) which believed that a reduction in the number of accounts receivable days increases the profitability. The findings further show that among the three control variables of size, current ratio (CR) and debt to equity ratio (DTE), size has a strong positive correlation on ROA at 1% significant level. Meanwhile, CR has a strong negative correlation on firms' profit at 1% significant level. On the other hand, DTE has negative correlations on firms' profit at 5% significant level.

Table 4.5 :Panel Data Regression Model on Return on Assets (ROA)

Column	***1***	***2***	***3***	***4***	***5***	***6***
WCM Included	**DSI**	**DSO**	**DPO**	**CCC**	***Full model (CCC omitted)***	***Full model (DPO omitted)***
Explanatory Variables:						
Constant	-0.0426	-0.0425	-0.0463	-0.0461	-0.0385	-0.0384
	(-1.49)	(-1.49)	(-1.62)	(-1.61)	(-1.35)	(-1.35)
DSI	**-0.0001*** **				**-0.0001*** **	**-0.0001*** **
	(-3.38)				(-3.48)	(-3.37)
DSO		**-0.0000*** **			**-0.0000*** **	**-0.0000*** **
		(-3.05)			(-3.15)	(-3.12)
DPO			-0.0000		0.0000	*Omitted*
			(-0.03)		(0.28)	
CCC				-0.0000	*omitted*	-0.0000

				(-1.36)		(-0.98)
SIZE	0.0704***	0.0703***	0.0702***	0.0703***	0.0705***	0.0705***
	(29.10)	(29.04)	(28.98)	(29)	(29.16)	(29.17)
CR	-0.0015***	-0.0016***	-0.0016***	-0.0016***	-0.0015***	-0.0015***
	(-2.62)	(-2.71)	(-2.71)	(-2.70)	(-2.62)	(-2.62)
DTE	-0.0066**	-0.0067***	-0.0066**	-0.0066**	-0.0067***	-0.0067***
	(-2.59)	(-2.63)	(-2.59)	(-2.59)	(-2.63)	(-2.63)
Panel estimation			FEM			
R-Squared within	0.2108	0.2103	0.2080	0.2085	0.2133	0.2135
N	4015	4015	4015	4015	4015	4015

*TQ= Market value of equity + total leverage/total asset; ROA= Net profit/Total Assets; DSI= Inventory*365/Cost of Sales; DSO= Accounts receivables*365/Sales; DPO= Accounts Payables*365/Cost of Sales; CCC= DSI+DSO-DPO; CR= Current assets/Current liability; DTE= Total debt/Total equity; SIZE= Natural of logarithm of sales*

***p<0.01; **p<0.05; * p<0.10

The overall result suggests that WCM has no significant effect on the market valuation of the companies. Plausibly internal factors are not as strong as external factor to affect the company's market value have led to this finding. The results of ROA however, show that the faster the company sell its inventory and collect debt from its customers, the higher is its ROA. The findings of this study also indicate that the speed of payment made to supplier does not matter to company's profitability. As long as company pays within reasonable time that do not adversely affect customer-supplier relationship and the suppliers are willing to continue to do business with the company, it may have no impact on its financial performance. Companies should focus more on its sales part to drive better financial performance.

4. Conclusion

Planning and controlling the current assets and current liabilities is necessary for effective cash management in many companies. When companies prefer to stay liquid, they can miss the profitable investment chances. When focus on investment and profitability is placed at the forefront, it may confront with liquidity crisis. Thus, companies need to strategize to ensure they will not neglect both liquidity and profitability. The purpose of this study is to identify whether WCM has influence on the Malaysian firm's profitability, measured by Tobin Q and ROA. The result indicates that none of the working capital measure has impact on Tobin Q. Nevertheless, lower DSI and DSO are associated with higher ROA and how fast companies pay to its supplier does not matter to their profitability. The results from this study suggests that if firms need to increase its ROA, they should be efficient and sell fast its inventory and speed up collection of debt from the customers. However, caution is needed to generalized the findings from this study due to shorter period under study and limited sample.

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