Research Paper

THE EFFECTS OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF PLANTATION AND PETROLEUM SECTOR IN MALAYSIA

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Abstract

This study seeks to establish the influence of Working Capital Management (WCM) towards the profitability of Malaysia's Plantation & Petroleum firms. This research was done on 50 companies registered in Kuala Lumpur Stock Exchange (KLSE), which covered the period of 2010 – 2014 with a total observation of 250 firms/years. The independent variables to measure working capital management include working capital turnover ratio (WCTR), current ratio (CR), cash conversion cycle (CCC), inventory days (ID), receivables days (ARD) and payables days (APD) while, the dependent variable used are Return on Asset (ROA) and Return on Capital Employed (ROCE). This study adopted explanatory research design. The sample of 50 companies for a time interval of 5 years was selected using simple probability sampling. The collected data was analyzed using descriptive means, Pearson correlation and multiple linear regressions via E-Views. Regression analysis was used in this research to examine the effect of working capital management on the profitability of the firms. Thus, the findings show insignificant relationship between Inventory Days (ID), Current Ratio (CR) and Payable Days (CP) on Return on Asset (ROA). However, the only significant relationship was found between Working Capital Turnover Ratio (WCTR) and Receivable Days (RD). Although this study included only 50 companies, future studies may include larger sample by conducting more organizations and sectors that might reconsider a better result of significant relationship between Inventory Turnover Ratio, Working Capital Turnover Ratio (WCTR) and Collection Period (CP) on Return on Asset (ROA).
Key Terms: Working Capital Management, Profitability, Cash Conversion Cycle, Inventory Days, Receivables Days, Payables Days, Revenue, Cash, Plantation, Petroleum, Malaysia

1. Introduction

The key issue of this study is to investigate whether the determinants of WCM influence the profitability of a firm. Many problems have arisen in the WCM studies in the past due to the global financial crisis that has been pressing the firms (Forbes, 2014). Consequently, mismanagement of a WC will lead to voluminous causes of business failure. Therefore, in order to maintain a stable profitability in the long run, WCM needs to be managed in an effectual way (Ozbayrak & Akgun, 2006).

One of the main issues that cause the downturn of a firm is the overtrading occurred on SMEs and rapidly expanding business. Overtrading not only place series negative effects on a company, but it could also damage the reputation of the business due to a drop in the quality of its output or an inability to fulfill an agreement (Aldermore, 2015). In the case of Seylan Bank Plc (2010), the tremendous pressure on the limited amount of capital due to an aggressive expansion of business volumes and physical infrastructure leads to a 29 times shot up of gearing ratio (GR) of bank’s funding within 5 years. Hence, in this case, it is concluded that overexpansion carries a price that affect the WC of a company.

Overtrading not only affect the reputation, it could also be caused by a rapid turnover (The Start Up Donut, 2014). This is because the funding was not put in place for the necessary associated investment in non-current asset (NCA) and current assets (CA) on a successful marketing campaign. Many organizations believe that overtrading is a beneficial concern but eventually, it is not. Therefore, the key to a healthy business is to get a good balance between under-trading and overtrading (Ric, 2009).

Apart from overtrading, the creditor debtor squeezes also cause a pressing issue of WC as banks tighten up on credit during the global financial crisis in the year ending of 2008. Based on Ralf and Daniel (2008), reporters reported that the car manufacturers in German are being pushed to the brink of bankruptcy as the country’s banks withdraw or tighten up their credit terms (Ralf & Daniel, 2008). Most European companies and particularly SMEs suffer a cash flow squeeze from direct debts under Single Euro Payment Area (SEPA) (Dean, 2014). According to European Central Bank data, only 41% of companies were direct debit compliant as the end of December 2013, in contrast to 74% for credit transfers, despite the fact that SEPA has been six years in the making. In addition, there were ongoing arguments regarding large companies that have underestimated the work of SEPA on the cash-flow squeeze, which is one of the issues that need further attention in managing the WC in a firm.

In today's context, firm has been experiencing many challenges in WC (Wolf, 2015). To put in words, many companies lack real-time data and metrics in evaluating the effectiveness of their WC strategy. Due to the limited access of information, businesses tend to run out of cash easily (Makovsksky, 2012). Moreover, abundance of stakeholders not only make it difficult to enhance WC, they are also likely to have different perspective. Therefore, the knowledge on the effect of WCM on profitability is crucial for every firm.

The research aim of this study is to criticize and evaluate the effect of working capital management on the profitability of plantation and petroleum industry in Malaysia. Hence, below are list of specific objectives that are going to be examined:

- To examine the effect of revenue on profitability
- To examine the effect of cash on profitability
- To examine the effect of inventory days on profitability
- To examine the effect of receivables days on profitability
- To examine the effect of payables days on profitability

2. Literature Review
This part analyses the past empirical studies undertaken by researchers in the topic of study. These will cut across different economies in order to get a comparative view of the findings, and hence locate the areas that need further studies.

Saghir, Hashimi and Hussain (2011) investigate the relationship between profitability and WCM accordance with 60 textile companies listed in Karachi Stock Exchange (KSE) for a period of 2001 – 2006 testing onto the relationship between return on asset and cash conversion cycle with its component. Results show that there is a negative relationship between receivables and profitability. Besides that, inventory also shows that there is a negative relationship between profitability. However, in accordance to the regression of this study, it is found that there is a negative significant relationship between profitability, in terms of return on asset with cash conversion cycle (Saghir, Hashimi & Hussain, 2011). This shows that the framework that is used in this study is not effective in determining the relationship between profitability and WCM. Besides measuring only the components of CCC, this researcher could outline other measuring tools such as in accordance to Napompech (2012) as the only negative relationship found was on inventory and receivables.

Furthermore, Lazaridis and Tryfonidis (2006) studied the effect of CCC and payables days on the profitability of 131 companies listed in Athens Stock Exchange for a period of 2001 - 2004. Based on the regression analysis, it is found that there is a statistical significant relationship between profitability, in terms of gross operating profit with CCC. According to this study, it was observed that the ROA and payable days are negatively related. Therefore, in order to enhance profitability, both of the authors suggested cutting down on the CCC. Thus, this is supported by Deloof (2003), which solidly agreed that payable days are negatively significance to the profitability. The negative relation between payable days and profitability is consistent, which makes less profitable firms extend days to pay their bills. Hence, Deloof (2003) suggested speeding up the payments to suppliers in order to increase the profitability of the Belgian firms.

Moreover, 88 companies from New York were selected in Gill, Biger and Marthur (2010) research paper. A regression analysis is used to evaluate the variables. To conclude, there is a negative relationship between profitability and receivable days but in contrast, there seems to be a positive relationship between CCC and profitability. Hence, less profitable firms are suggested to reduce the cash gap in the CCC in order to pursue a decrease in the account receivables.

However, Qazi, Shah, Abbas and Nadeem (2011) chose two sectors as a sample size for a 5-year period. Based on their study, the correlation between working capital and profitability of firms is analyzed for the management of cash cycle management. Hence, when CCC is included, the working capital becomes WCM. The result shows that receivable and inventory days are positive but insignificant while other variables are negative and insignificant. Therefore, the empirical result of the paper shows a positive trend of working capital on profitability. This is supported by previous researches like Nazir and Azfa (2009) and Rahman (2007).

Agha (2014) continued to study empirically the impact of WCM on profitability. Therefore, he collected data from Glaxo Smith Kline pharmaceutical firm in Karachi Stock Exchange for the period of 15 years. The results appeared to be significance towards the WCM on profitability of company. In this case, the research shows that managers could enhance the profitability of the firm by minimizing the inventory turnover, account receivables by decreasing current ratio on profitability. Rahman (2011) supported this study on the positive impact of WCM on profitability, which brings to fore that WCM is relatable with profitability.

Particularly, Yeboah and Yeboah (2014) justified that the WCM of Ghanaian banks is associated with more profitability. The paper experiment on 5 periodic year of Ghanaian banks by using panel regression models. However, the result shows that CCC is inversely related to bank’s profitability marginal. Specifically, leverage of the banks displayed a significantly positive effect on the bank profitability. To support this research, G.R.M and Yogendararajah (2014) show
a great impact of WCM on the profitability of the Sri Lankan commercial banks. Accordingly, firms relating to banks need to control the level of optimal working capital position.

Based on the existing literature review, findings and after critically analyzing some of the key working management frameworks, this study proposes the conceptual framework illustrated below.

**Figure 1: Conceptual Framework**

**Revenue and Profitability**

As revenue is closely linked to utilizing the WC for a given level of sales, it is important for firms to indicate the efficiency in using both the short-term assets and liabilities. Working Capital Turnover Ratio is used to evaluate the relationship between the fund operations that the money uses and the sales that these operations generate (Chudson, 1945).

Past results have shown that firms, which have greater working capital ratio ensures high profitability that gives a positive significant influence to the research in maintaining the stability in adverse economic provision (Mandal & Mahavidyalaya, 2010). Moreover, Rahman (2011) strongly agree that firms with a low working capital turnover is due to a symptom of overtrading that might put the firm onto serious financial crisis. This is also supported by Ravin (2012) that the lower the ratio, the lower the utilization of funds invested. In accordance to this variable, a positive significant effect of revenue and profitability is expected.

\[ H1 \ (a): \text{There is a positive significant effect of revenue on the ROA} \]
\[ H1 \ (b): \text{There is a positive significant effect of revenue on the ROCE} \]
**Cash and Profitability**

Since cash have a solid relationship in assessing the amount of working capital in business, the need of measuring the liquidity ratios is important for this variable. Current Ratio makes up cash and assets that firms expects to turn into cash or sell or consume within twelve months of the balance date sheet (Stickney, Weil, Schipper & Francis, 2009)

Cash Conversion Cycle is a cash flow calculation that struggle to measure the time it takes for a firm to adapt its investment in inventory and other source into cash (Forbes, 2012). Based on Forbes (2012), CCC is a good way to examine the efficiency of managing cash in generating more sales.

Past results have shown that firms, which have greater cash balances, have high profitability that gives a positive significant influence to the research (Hicks and Czyzenski, 1992). Moreover, Deloof (2003) strongly agree that cash have positive significant effect on the profitability if the cash conversion cycle is shorter. This is because, when the cash conversion cycle becomes shorter, profitability will increase (Deloof, 2003). In accordance to this variable, a positive significant effect of cash and profitability is expected.

\[ H2 \] (a) \( (i) \): There is a positive significant effect of CR on the ROA  
\[ H2 \] (b) \( (i) \): There is a positive significant effect of CCC on the ROCE  
\[ H2 \] (a) \( (ii) \): There is a positive significant effect of CR on the ROA  
\[ H2 \] (b) \( (ii) \): There is a positive significant effect of CCC on the ROCE

**Inventory and Profitability**

It is mentioned by Baker and Powell (2009) that holding too much inventory will have an opportunity cost and may give rise to obsolescence. Inventory Days indicates the average number of days a company takes to process and sell to inventory (Baker and Powell, 2009).

Napompech (2012) have showed that there is an inverse relationship between the profitability and inventory days on 255 companies listed on Stock Exchange of Thailand for a period of 3 years. Besides that, Raheman and Nasr (2007) also proved that there is a significant positive relationship between inventory days and profitability. This shows that inventory days are important in order to make-up of current assets. Therefore, in accordance to this variable, a positive significant effect of inventory days and profitability is expected.

\[ H3 \] (a): There is a positive significant effect of inventory days on the ROA  
\[ H3 \] (b): There is a positive significant effect of inventory days on the ROCE

**Receivables and Profitability**

Consequently, collecting the cash too early and not providing generous credit terms might restrict business sales in the long run as customers might turn to competitors to get their goods (IMF, 2003). However, as mentioned earlier, there might be a risk of engaging factors, as they might treat the credit customers harshly when they don't pay-up on time. This might harm trade relations with the company that gave on credit. (Brealey et al., 2006). Average Receivable Days measures the number of days required on the average to assemble an account receivable (Mayo, 2015).

According to Lazaridis and Tryfonidis (2006), there is a significant positive relationship between receivable days and profitability. Nonetheless, Singh and Pandey (2008) also agreed that receivable days give a positive significant impact on profitability. In contrast, Samiloglu and Demirgunes (2008) proved that there is a negatively significant effect of receivable days on the profitability. However, in accordance to this variable, a positive significant effect of receivable days and profitability is expected.
**H4 (a):** There is a positive significant effect of receivables days on the ROA  
**H4 (b):** There is a positive significant effect of receivables days on the ROCE

**Payables and Profitability**

When a company buys goods on credit, it becomes an account payable by the buying firm to the selling firm. Based on Niresh & Velnampy (2014), most companies, especially retail and manufacturing, buy goods on credit and record it as a liability that has to be paid. Average Payable Days signifies the amount of cash needed at one time to pay short-term creditors of the company. According to Fulford (2000), the short-term creditors is partly dependent on the length of time the company takes to pay its creditors (Fulford, 2000).

Nevertheless, recent researches clearly argued that there is a negatively significant relationship between payable days and profitability (Ali, 2011; Ahsen, Mehmood and Muhammad, 2011). However, distinctively, Vickneswaran and Balsundram (2013) disagreed which their result proves that there is no significant impact between payable days and profitability. Therefore, in accordance to this variable, a positive significant effect of payable days and profitability is expected.

**H5 (a):** There is a positive significant effect of payables days on the ROA  
**H5 (b):** There is a positive significant effect of payables days on the ROCE

### 3. Research Design and Methodology

Based on the total population of 812 public listed firms identified in KLSE, the target population of this research is the plantation and petroleum firms on the main markets. These two types of sectors are chosen due to the fact that Malaysia’s energy and plantation industry is one of the demanding sectors of growth for the economy (May, 2012). Originally, there are 44 companies of Oil and Gas (O&G), while plantation sectors are listed for 20 companies. Since 7 out of 44 companies in the O&G has deficiency data in the published annual reports, only 37 companies are chosen in the sector. Moreover, in the plantation sector, only 13 out of 20 companies are chosen due to the same cause. Thus, this makes the total of both sectors of 50 companies. Hence, the target population that is used in this research is **50 companies** for a time interval of **5 years** from 2010 to 2014

<table>
<thead>
<tr>
<th>No.</th>
<th>Sectors</th>
<th>Total companies</th>
<th>Selected companies</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Petroleum</td>
<td>44</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>2</td>
<td>Plantation</td>
<td>20</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>64</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Table 1: Sample Size*

The strength of relationship between multiple independent variables with a dependent variable can be analyzed using multiple regression analysis (Saunders, Lewis & Thornhill, 2009).

Furthermore, the degree of a good model fit is considered to predict a minimum of 60% of the variables in the multiple regressions that can be seen in the coefficient of determinants (R²), which is ranged from 0 to 1 (Zygmont & Smith, 2014). In addition, the F-statistic is used in the regression in order to test the significant relationship between dependent and independent variable (Shahbaba, 2011).
Accordingly, the significant of variables are determined using the F-statistic accordance to each independent variable in the regression analysis, in which the rule of thumb of significance is from 0.00 to 0.05 (Shahbaba, 2011). Moreover, the test statistic that is used to encounter the presence of autocorrelation on predicted errors are examined in the Durbin-Watson from the analysis of regression (Allard, 1975).

Hence, below shows the multiple regression equation that was developed in order to predict the dependent variables using independent variables:

\[
\text{ROA} = \text{CONSTANT} + \beta_1\text{WCTR} + \beta_2\text{CR} + \beta_3\text{CCC} + \beta_4\text{ID} + \beta_5\text{ARD} + \beta_6\text{APD}
\]

\[
\text{ROCE} = \text{CONSTANT} + \beta_1\text{WCTR} + \beta_2\text{CR} + \beta_3\text{CCC} + \beta_4\text{ID} + \beta_5\text{ARD} + \beta_6\text{APD}
\]

**Where:**

- ROA = Return on Asset
- ROCE = Return on Capital Employed
- WCTR = Working Capital Turnover Ratio
- CR = Current Ratio
- CCC = Cash Conversion Cycle
- ID = Inventory Days
- ARD = Average Receivables Days
- APD = Average Payables Days

The analysis that is used to run the data in this study is the E-Views statistical package, which is an efficient tool for a time series oriented econometric analysis as this is in accordance to Wang (2011). Therefore, E-Views software is more appropriate to be used due to the fact that this study is analyzing time series data for 5 years on 50 companies based on plantation and petroleum sectors of Malaysia. As E-Views deals with cross-sectional and time series data better than Statistical Package of Social Sciences (SPSS), as mentioned by Renfro (2009), it is hence suitable to be used in this study.

**4. Results and Discussion**

This section of the paper will provide summary of results of the descriptive, correlation and multiple regression analysis.

**4.1 Descriptive Analysis**

The descriptive data is presented under table 2 below, which shows the statistical mean and standard deviation for each WCM components in measurement construct.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>(%)</td>
<td>Statistics</td>
<td>(%)</td>
<td>Statistics</td>
<td>(%)</td>
<td>Statistics</td>
</tr>
<tr>
<td>WCTR</td>
<td>250</td>
<td>-92.17</td>
<td>11.3</td>
<td>0.38</td>
<td>8.5</td>
<td>-10.12</td>
<td>109.62</td>
</tr>
<tr>
<td>CR</td>
<td>250</td>
<td>0.04</td>
<td>46.37</td>
<td>3.41</td>
<td>6.15</td>
<td>4.69</td>
<td>27.26</td>
</tr>
<tr>
<td>CCC</td>
<td>250</td>
<td>-603.47</td>
<td>5893.59</td>
<td>84.03</td>
<td>382.6</td>
<td>14.07</td>
<td>214.42</td>
</tr>
<tr>
<td>ID</td>
<td>250</td>
<td>0.56</td>
<td>612.47</td>
<td>66.67</td>
<td>79.03</td>
<td>2.81</td>
<td>14.4</td>
</tr>
</tbody>
</table>
According to Table 2, the companies in plantation and petroleum sector can make average revenue of 38% (M=0.38) from their total assets and the standard deviation is 8.50. However, average liquidity displayed most of the plantation and petroleum firms are 3 times more (M=3.41) than its revenue with a standard deviation of 6.15.

Furthermore, statistics show that most of the firms are only able to receive payments (ARD) on average of 129 days (SD=466.61). Eventually, these firms will pay to its suppliers (APD) around 126 days (SD=362.37), and replacing the inventory (ID) within 67 days (SD=79.03). Henceforth, the average between paying cash to suppliers and receiving cash from credit suppliers (CCC) took an average of 84 days (SD=382.6).

### 4.2 Correlation Analysis

According to Table 3, the revenue is positively correlated with ROA and the strength of relationship between the two variables is R= 0.1353, which is a weak relationship. However, the revenue variable is significantly positive with a p-value of 0.0325 that is lower than 0.05. The revenue is also positively correlated with ROCE but with a weaker relationship than ROA of R= 0.0490. In addition to this, revenue is positively not significant with ROCE of 0.4402. This results similar findings by Mandal (2010), Raheman & Nasr (2007) and Wilmer (2000). Hence, this shows that Malaysia’s plantation and petroleum firms are efficiently using short-term funds for investment and business operation, which is suggested by transaction cost theory.

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Probability</th>
<th>ROA</th>
<th>ROCE</th>
<th>WCTR</th>
<th>CR</th>
<th>CCC</th>
<th>ID</th>
<th>ARD</th>
<th>APD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ROCE</td>
<td>.0909</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.1520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WCTR</td>
<td>.1353</td>
<td>.0490</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.0325</td>
<td>.4402</td>
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</tbody>
</table>
The only positive coefficient value of cash conversion cycle (CCC) is between CCC and ROCE with a value of R= 0.0461, which is still a weak relationship. Moreover, the variable is positive insignificant of 0.4677. However, CCC reacted negatively on both the coefficients of dependent ROA (R= -0.1485). But on the bright side, ROA appeared with a positive significant p-value of 0.0188. This is relatable with the studies by Wang (2002), which shows indirect coefficient relationship between ROA and CCC.

The inventory variables are all insignificantly correlated on the dependent variables of ROA (R= 0.0421) and ROCE (R= -0.0357), which determine very weak relationship. The result also indicates insignificance levels of p-value of 0.5080 (ROA) and 0.5743 (ROCE), which are more than 0.05 significant levels.

The coefficient value of receivable days that demonstrate the weakest relationship is between ROA and ARD with a negative correlation of R= -0.1330. However, the p-value displayed positive significant at a value of 0 that falls between the appropriate ranges of less than 0.05. In addition, the outcome between ROCE and ARD demonstrate a weak positive relationship of R=0.0701 as the p-value is 0.2693 that is higher than 0.05 value.

The payable days variable also presented a weak positive relation on the dependent of ROA (R= 0.2962) and ROCE (R= 0.0103). Anyhow, the p-value that shows a positive significant are the ROA, which the value is 0 that stands below the range of 0.05. However, a negative significant is found on the p-value of 0.8716 in ROCE.

### 4.3 Regression Analysis (ROA as Dependent Variable)

Regression was carried out in this research to foresee the impact of WCM on profitability based on six independent factors. The first dependent factor that is measured for this study is Return on Asset (ROA).
Based on table 4, the dependent variable is ROA and independent variables include WCTR, CR, CCC, ID, ARD and APD. The table summarizes that R squared is 0.5976 that shows only 59.76% of the variables is relatively associate by return on asset, which is left with a remaining balance of 40.24% that are not fully considered in this study. In addition, the adjusted R-squared in this analysis is 0.4835, which shows 48.35% of variation of independents is assigned to ROA. According to Zygmont and Smith (2014), as a general rule of a thumb, a good fit is considered to forecast a minimum of 60% variation of dependent variable. Hence, this model is considered to be a poor fit. Nevertheless, the F-value indicates that there is a relationship between WCM components on ROA at a value of 5.2388. Similarly, the significant measure of F-statistic signals that the model is significant at a value of nil.

Table 5: Regression Coefficients Table

The equation of the multiple regressions was generated using standardized coefficient beta that predicts the dependent variable (ROA) using independent variables (WCTR, CR, CCC, ID, ARD, APD).

$$ROA = CONSTANT + \beta_1WCTR + \beta_2CR + \beta_3CCC + \beta_4ID + \beta_5ARD + \beta_6APD...$$MODEL 1

$$= 1.6750 + 0.3711WCTR + 0.3050CR - 0.0287CCC + 0.0205ID + 0.0265ARD - 0.0130APD...$$MODEL 1

Equation above shows that the revenue, liquidity, cash conversion cycle, inventory, receivables and payables are significant with ROA. However, one of the liquidity variable and inventory days is not significant with ROA. However, the equation also indicates that the ROA will be 1.6750 when the independent variables are not influencing it. Based on the equation, the revenue, CCC, receivables days and payable days have the most impact on ROA followed by inventory days and liquidity. Hence, below is the adjusted equation on the impact of WCM on ROA.

$$ROA = CONSTANT + \beta_1WCTR + \beta_3CCC + \beta_5ARD + \beta_6APD...$$MODEL 1

$$= 1.6750 + 0.3711WCTR - 0.0287CCC + 0.0265ARD - 0.0130APD...$$MODEL 1

The highest standardized beta-coefficient value is revenue of 0.3711 with significant value of 0.0000 that is less than 0.01 significant levels. The second highest beta value is liquidity (CR)
variable at 0.3050 but with insignificant value of 0.1567 that is more than 0.05. Then followed by receivable days (β =0.0265, p-value=0), inventory days (β=0.0205, p-value=0.0720), payable days (β=-0.0130, p-value=0.0000) and CCC (β=-0.0287, p-value=0.0000).

According to table 5, the revenue variable is found to be significant with ROA at a significant level of 0.0093, which is less than 0.05. Revenue is found positive significant relationship with ROA. Similar findings from the past research such as Azam and Haider (2011), Kumar (2014) and Bryceson (2006) also conclude that there is a positive relationship between revenue and ROA. Moreover, this signifies that firms are generating high revenue rather than using the internal funding to support the profitability of Malaysia’s petroleum and plantation firms. Thus, this demonstrates that the petroleum and plantation sectors listed in Bursa Malaysia have high revenue, which is good. However, there are certain findings that are not significant with ROA like Raheman & Nasr (2007). Based on the regression result, revenue is significant with ROA. Thus, H1(a) is accepted.

Liquidity (CR) is found positive relationship but insignificant with ROA, which the p-value is 0.1567 that falls more than 0.05. Thus, the insignificant of the independent variable shows that liquidity in terms of the component of current ratio is not a factor that determines the WCM. However, the standardized coefficient beta value is 0.3050, which indicates that there is a positive relationship of liquidity. The positive relationship shows that the liquidity position a company increases with increase in ROA. Thus, this is relevant to the Cash Conversion Cycle Theory. Similar findings from the past research such as Mandal, Mahidyalaya & Gosmawi (2010), Makori & Jagongo (2013) and Usama (2012) have found the same results. Thus H2(a)(i) is rejected.

However, the other component of liquidity (CCC) shows that there is a negative significant relationship with ROA. CCC is found to be significant with ROA at a significant level of 0.0000, which is less than 0.05. Hence, the significant of the independent variable shows that liquidity in terms of the component of CCC is a factor that determines the WCM. Thus, the standardized coefficient beta value is -0.0287, which indicates that there is a negative relationship in terms of the liquidity in the plantation and petroleum sectors in Malaysia. The negative relationship indicates that the firms amongst plantation and petroleum sectors took longer CCC that leads to a negative relationship (Malik & Anser, 2013) and this is relevance to the Cash Conversion Cycle Theory. Moreover, there are similar findings from the past research in accordance to this study such as Shin & Soenen, (1998), Ahmadabadi, Mehrabi & Yazdi, (2007) and Garcia, Juan, Solano & Pedro, (2007). Based on the regression result, liquidity is with ROA. Thus, H2(a)(ii) is accepted.

The inventory variable is found positive relationship between ROA but insignificant with a value of 0.0720 which is more than 0.05. The insignificant of the independent variable determine that inventory days are not a factor that determines the WCM. However, the positive relationship shows that firms reduce their cost of possible risk in production by maintaining high inventory (Makori, 2013) and relevant accordance to Economic Order Theory. The result shows an insignificant because the sample sizes are not appropriate for this study. Similar findings from the past research such as Karaduman et. al (2010), Pathirawasam & Wickeremasinghe (2012) and Mathuva (2010) also concluded that inventory is insignificant with ROA. Based on the regression result, inventory days are insignificant with ROA. Thus, H3(a) is rejected.

Based on table 5, receivables days are found to be significant with ROA, at a significant level of nil, which is less than 0.05. Moreover, receivables are found to have positive relationship with ROA. Similar findings from the past research such as Levy (2010), Ali (2011) and Calegari (2005) also conclude that there is a positive relationship between receivables and ROA. Moreover, this signifies that firms are obtaining funds at a low credit to firms facing higher financing cost (Schwartz, 1974) and is relevant to transaction cost theory. This is agreed by Emery (1984), which sees the trade credit policy as a more profitable short-term investment rather than marketable securities. However, there are certain findings that receivables are not
significant with ROA like Deloof (2003) and Mansoori & Muhammad (2012). Based on the regression result, receivables days are significant with ROA. Thus, H4(a) is accepted.

Payables are found negative relationship but significant with ROA, which the p-value is nil that is less than 0.05. Thus, the significance of the independent variable shows that payables are a factor that determines WCM. However, the standardized coefficient beta value is -0.0130, which indicates that there is a negative relationship of payables. The negative relationship shows firms that are less profitable waits longer for paying the expenses as mentioned by Deloof (2003). Nobanee (2011) also derived that the longer the number of days in payables, the higher the risk of damaging the firm’s profitability. Hence, it is mentioned that payables need to be increase by speeding up payments (Deloof, 2003). Similar findings from the past research such as Muntaz & Rehan (2011), Deloof (2003) and Ali (2011) also concluded that there is negative relationship between payables and ROA. However, this is accordance to the Cash Conversion Cycle Theory. However, there are certain findings that are not significant with ROA like Javid (2014) and Chu (2014). Based on the regression result, payables days are significant with ROA. Thus, H5(a) is accepted.

4.4 Regression Analysis (ROCE as Dependent Variable)

The second dependent factor that is measured for this study is Return on Capital Employed.

Table 6: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>F-Statistic</th>
<th>Prob. (F-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.7174</td>
<td>0.6373</td>
<td>8.9534</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

- **Dependent Variable**: ROCE
- **Predictors**: (Constant), WCTR, CR, CCC, ID, ARD, APD

Based on table 6, the dependent variable is, ROCE and independent variables include WCTR, CR, CCC, ID, ARD and APD. The table summarizes that R squared is 0.7174 that shows only 71.74% of the variables is relatively associate by return on capital employed, which is left with a remaining balance of 28.26% that are not fully considered in this study. In addition, the adjusted R-squared in this analysis is 0.6373, which shows 63.73% of variation of independents are assigned to ROCE.

According to Zygmont and Smith (2014), as a general rule of a thumb, a good fit is considered to forecast a minimum of 60% variation of dependent variable. Hence, this model is considered to be a good fit. Nevertheless, the F-value indicates that there is a relationship between WCM components on ROCE at a value of 8.9534. Similarly, the significant measure of F-statistic signals that the model is significant at a value of nil.

Table 7: Beta Coefficients
The equation of the multiple regressions was generated using standardized coefficient beta that predicts the dependent variable (ROCE) using independent variables (WCTR, CR, CCC, ID, ARD, APD).

\[
ROCE = CONSTANT + \beta_1 WCTR + \beta_2 CR + \beta_3 CCC + \beta_4 ID + \beta_5 ARD + \beta_6 APD
\]

Equation above shows that the revenue, liquidity, cash conversion cycle, inventory, receivables and payables are significant with ROCE. However, inventory days and payable days are not significant with ROCE. However, the equation also indicates that the ROCE will be 36.0567 when the independent variables are not influencing it. Based on the equation, the revenue, CR, CCC and receivables days have the most impact on ROCE followed by inventory and payable days. Hence, below is the adjusted equation on the impact of WCM on ROCE.

\[
ROCE = CONSTANT + \beta_1 WCTR + \beta_2 CR + \beta_3 CCC + \beta_5 ARD
\]

The highest standardized beta-coefficient value is revenue of 0.3711 with significant value of 0.0000 that is equal to 0.00 significant levels. The second highest beta value is liquidity (CR) variable at 0.3050 but with insignificant value of 0.1567 that is more than 0.05. Then followed by receivable days (\(\beta =0.0265\), \(p\)-value=0), inventory days (\(\beta=0.0205\), \(p\)-value=0.0720), payable days (\(\beta=0.0130\), \(p\)-value=0) and CCC (\(\beta=-0.0287\), \(p\)-value=0.0000).

According to table 7, the revenue variable is found to be significant with ROCE at a significant level of 0.0000, which is less than 0.05. Revenue is found positive significant relationship with ROCE. Similar findings from the past research such as Mandal, Mahavidyalaya and Burdwan (2010) and Rani (2013) also conclude that there is a positive relationship between revenue and ROCE. Moreover, this signifies that firms are generating high revenue rather than using the internal funding to support the profitability of Malaysia’s petroleum and plantation firms. Thus, this demonstrates that the petroleum and plantation sectors listed in Bursa Malaysia have high revenue, which is good. Based on the regression result, revenue is significant with ROCE. Thus, H1(b) is accepted.

Liquidity (CR) is found negative relationship and significant with ROCE compared to ROA, which the \(p\)-value is 0.000 that falls within the range of 0.00 to 0.05. Thus, the significant of the independent variable shows that liquidity in terms current ratio is a factor that determines the WCM. However, the standardized coefficient beta value is -7.7659, which indicates that there is a negative relationship of liquidity. The negative relationship shows that...
firms are not efficiently managing their current asset and this is relevant to Cash Conversion Cycle Theory. Based on the regression result, CR is significant with ROCE. Thus, H2(b)(i) is accepted.

However, the other component of liquidity (CCC) also shows that there is a negative significant relationship with ROCE. CCC is found to be significant with ROCE at a significant level of 0.0000, which is less than 0.05. Hence, the significant of the independent variable shows that liquidity in terms of the component of CCC is a factor that determines the WCM. Thus, the standardized coefficient beta value is -0.0364, which indicates that there is a negative relationship in terms of the liquidity in the plantation and petroleum sectors in Malaysia. The negative relationship indicates that the firms amongst plantation and petroleum sectors took longer CCC that leads to a negative relationship Malik & Anser (2013) and this is relevance to the Cash Conversion Cycle Theory. However, there are similar findings from the past research in accordance to this study such as Ruyken, Wagner and Jonke (2011). Based on the regression result, CCC is significant with ROCE. Thus, H2(b)(ii) is accepted.

The inventory variable is found positive relationship between ROCE but insignificant with a value of 0.0756 which is more than 0.05. The insignificant of the independent variable determine that inventory days are not a factor that determines the WCM. However, the positive relationship shows that firms reduce their cost of possible risk in production by maintaining high inventory (Makori, 2013) and relevant accordance to Economic Order Theory. Similar findings from the past research such as Tonogi (2013) and Birge (2011) also concluded that inventory is insignificant with ROCE. Based on the regression result, inventory days are insignificant with ROCE. Thus, H3(b) is rejected.

Based on table 7, receivables days are found to be significant with ROCE, at a significant level of 0.0001, which is less than 0.05. Moreover, receivables are found to have positive relationship with ROCE. Similar findings from the past research such as Ramana (2013) and Wang (2013) also conclude that there is a positive relationship between receivables and ROCE. Moreover, this signifies that firms are obtaining funds at a low credit to firms facing higher financing cost (Schwartz, 1974) and is relevant to transaction cost theory. This is agreed by Emery (1984), which sees the trade credit policy as a more profitable short-term investment rather than marketable securities. Based on the regression result, receivables are significant with ROCE. Thus, H4(b) is accepted.

Payables are found positive relationship but insignificant with ROCE, which the p-value is 0.6501. Thus, the significance of the independent variable shows that payables are a factor that determines WCM. However, the standardized coefficient beta value is 0.0025, which indicates that there is a positive relationship of payables. The positive relationship shows that firms that are more profitable did not wait long in paying expenses as mentioned by Deloof (2003) and this is relevant to Cash Conversion Cycle Theory. Similar findings from the past research such as Vaidya (2011), and Moodley (2015) also conclude that there is positive relationship between payables and ROCE. Based on the regression result, payables days are insignificant with ROCE. Thus, H5(b) is rejected.

4.5 Durbin Watson Analysis

As can be seen from this data, the Durbin-Watson analysis on both dependent variables falls between the range of 1.5 and 2.5, which is acceptable (Allard, 1975). The highest score is ROA with the value of 2.2768. It is then followed by ROCE with a score of 2.1179. Hence, all the data that have been analyze in this research has no auto correlation problem. Accordingly, the measures selected for assessing dependent variables in this research does not reach the level indicate of multiple linear regressions.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Durbin-Watson stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>2.2768</td>
</tr>
<tr>
<td>ROCE</td>
<td>2.1179</td>
</tr>
</tbody>
</table>

### 4.6 Summary of Hypotheses Test

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>β-Coefficient</th>
<th>Significant Level (P &lt; 0.05)</th>
<th>Result</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_1(a)$: There is a positive significant effect of revenue on the return on asset (ROA)</td>
<td>0.3711</td>
<td>0.0093 (significant)</td>
<td>ACCEPTED</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>$H_1(b)$: There is a positive significant effect of revenue on the return capital employed (ROCE)</td>
<td>1.2271</td>
<td>0.0000 (significant)</td>
<td>ACCEPTED</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>$H_2(a)$: There is a positive significant effect of cash on the return on asset (ROA)</td>
<td>(i) CR: 0.3050</td>
<td>0.1567 (insignificant)</td>
<td>REJECTED</td>
<td>POSITIVE</td>
</tr>
<tr>
<td></td>
<td>(ii) CCC: -0.0287</td>
<td>0.0000 (significant)</td>
<td>ACCEPTED</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>$H_2(b)$: There is a positive significant effect of cash on the return on capital employed (ROCE)</td>
<td>(i) CR: -7.7659</td>
<td>0.0000 (significant)</td>
<td>ACCEPTED</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td>(ii) CCC: -0.0364</td>
<td>0.0002 (significant)</td>
<td>ACCEPTED</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>$H_3(a)$: There is a positive significant effect of inventory days on the return on asset (ROA)</td>
<td>0.0205</td>
<td>0.0720 (insignificant)</td>
<td>REJECTED</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>$H_3(b)$: There is a positive significant effect of inventory days on the return on capital employed (ROCE)</td>
<td>0.0407</td>
<td>0.0756 (insignificant)</td>
<td>REJECTED</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>$H_4(a)$: There is a positive significant effect of receivables days on the return on asset (ROA)</td>
<td>0.0265</td>
<td>0.0000 (significant)</td>
<td>ACCEPTED</td>
<td>POSITIVE</td>
</tr>
</tbody>
</table>
**5. Conclusion**

This study is conducted in order to examine the effect of Working Capital Management (revenue, cash, inventory, receivables, and payables) on Profitability (Return on Asset and Return on Capital Employed) in the companies registered in Kuala Lumpur Stock Exchange. The research done was based on 50 companies registered in plantation and petroleum sectors. Multiple linear regressions are implied in this research in order to analyze the significance between working capital management on profitability. The independent variables used are WCTR, CR, CCC, ID, ARD and APD and the dependent variables are the ROA and ROCE. Every independent variable are found significant and had influence the profitability except for inventory days on ROA and ROCE and payable days on ROCE. Hence, the insignificant relationship between both variables is concluded that these variables are not a factor in determining the effect of working capital management onto the plantation and petroleum sector in Malaysia.

Future researchers are recommended to imply other variables, which are not used in this study such as size of firms, quick ratio and other dependent measures. These factors can be explored in order to find different circumstances that give impact on the profitability of the listed firms registered under Bursa Malaysia. Since the inventory days and receivables days are found to be insignificant, future researchers could also increase the sample size, since this research only uses 50 companies of petroleum and plantation for 5 years.

The implications encountered in this research vary in many ways. Although this study have been research for many years and are rich in literature, the studies often conflicts with the same results across different types of economies. The main aim for this research is to identify other new aspects in determining the effect of Working Capital Management on Profitability. The research findings determine that revenue, receivables days and CCC, are significant with the Profitability ratios. Companies listed under Bursa Malaysia, which in this case, rely on short-term investment rather than long-term.

**Reference**


