Evaluate the Corporate Profitability in the Light of the Efficiency of Working Capital Management:  
A Study of Petrochemical Industry Sector- KSA

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Abstract

This study aims to evaluated the corporate profitability in the light of the efficiency of working capital management based on the data of 15 Saudi firms listed in the Petrochemical industry sector in the Saudi Stock Exchange (Tadawul) for a period of five years from 2009 – 2013. Data collected from the financial statements of the firms and analyzed by Correlation and Linear Regression to reach the conclusion. Working capital Turnover (WCT) as a financial indicator that reflect the efficiency of working capital management as the independent variable. Profit Margin Average (PMA), Return on Sales (ROS), Return on Investment (ROI) financial indicators that assist to evaluate the corporate profitability as the dependent variables. The analysis’ results that there is no significant impact of efficiency of working capital management on profitability of corporate in the listed Petrochemical industry sector in the Saudi Stock Exchange.

Key Words: Corporate Profitability, Efficiency of working capital management, KSA, Petrochemical industry sector.

JEL Classification: C12, G32, M41
1. Introduction

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities. Working capital management is important due to many reasons. For one thing, the current assets of a typical manufacturing firm accounts for over half of its total assets. For a distribution company, they account for even more. Excessive levels of current assets can easily result in a firm’s realizing a substandard return on investment. However, firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Raheman and Nasr, 2007).

Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). Many surveys have indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-lived investments that continually being convert into other asset types (Rao 1989). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the ongoing firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). Taken together, decisions on the level of different working capital components become frequent, repetitive, and time consuming. Working Capital Management is a very sensitive area in the field of financial management (Joshi, 1994). It involves the decision of the amount and composition of current assets and the financing of these assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period time, ordinarily within a year and such temporary investment as be readily converted into cash upon need. The Working Capital Management of a firm in part affects its profitability. The ultimate objective of any firm is to maximize the profit. However, preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Therefore, there must be a tradeoff between these two objectives of the firms. One objective should not be at cost of the other because both have their importance. If we do not care about profit, we cannot survive for a longer period. On the other hand, if we do not care about liquidity, we may face the problem of insolvency or bankruptcy. For these reasons, working capital management, given proper consideration and will ultimately affect the profitability of the firm.

The main objective of working capital management is to maintain an optimal balance between each of the working capital components. Business success heavily depends on the financial executives' ability effectively manage receivables, inventory, and payables (Filbeck
and Krueger, 2005). Firms can reduce their financing costs and/or increase the funds available for expansion projects by minimizing the amount of investment tied up in current assets. Most of the financial managers' time and efforts allocated towards bringing non-optimal levels of current assets and liabilities back to optimal levels (Lamberson, 1995). An optimal level of working capital would be the one in which a balance is achieved between risk and efficiency. It requires continuous monitoring to maintain proper level in various components of working capital, i.e., cash receivables, inventory and payables, etc.

In KSA, the government has attached great importance to industrial development by providing all kinds of supports and facilities to the industrial sector. As a result, the Saudi industry has made significant progress that clearly manifested in the growth of industrial investment since the establishment of the Saudi Industrial Development Fund (SIDF). Given the industrial production indicators, including average Value-added per worker by major industrial sectors for 2013, we note that the chemical products sector comes into ranks first in terms of average value added per worker. Although the global slowdown affected the Saudi petrochemical sector severely. In 2008, demand for ethylene, the main building block for petrochemicals, fell dramatically (nearly 3%) as business and consumer confidence collapsed due to the economic crisis. Post October 2008, petrochemical companies faced months of de-stocking due to declining prices as the recessionary environment severely affected business activities in key end-markets. The sector is back on the recovery track since 2009. It reported a net profit of 7.9 Billion dollars on revenues of 62.8 Billion dollars in financial year 2010. In financial year 2009, net profit stood at 2.8 Billion dollars on revenues of 40.8 Billion dollars. The significant bottom-line performance led by increased product price realization and improved utilization rates. All Saudi players recorded growth in profitability, albeit at varying rates. The sector’s total revenues (aggregate of the 14 listed companies) surged 54% On an annual basis, in financial year 2010 while net income shot up 183% On an annual basis1.

However, there are a few studies in KSA on working capital management and firm profitability. For example, Almazari (2013) focused on the influence of working capital management on corporate profitability in the Saudi cement sector. Shahid and Alnefaee (2016) focused on the influence of working capital management on corporate profitability in the Agriculture and Food Industry sector. Based on that the petrochemical of Saudi Arabia has attracted the attention of the author to evaluate the profitability of petrochemical Industry by improving efficiency of managing their working capital. As indicated above, this study aims at evaluating the impact of the efficiency of working capital management on corporate profitability of the Petrochemical industry sector.

This study aims to examine the corporate profitability in the light of the efficiency of working capital management of selected the Petrochemical industry sector listed on the Saudi Stock Exchange (Tadawul), through assessing the impact of Working capital Turnover on Profitability of these firms.

The study's originality and value lies in suggesting that policy makers in the Saudi Stock Exchange need to motivate and encourage managers and shareholders to pay more attention to working capital through improving investors’ awareness and improving information transparency.

2. Literature Review

Various studies have analyzed the relationship between working capital management (WCM) and firm profitability in various markets. The results are quite mixed, but a majority of studies concludes a negative relationship between WCM and firm profitability. The studies reviewed have used various variables to analyze the relationship, with different methodology such as linear regression and panel data regression. This section presents the chronology of major studies related to this study in order to assess and identify the research gap.

In order to examine the relationship between efficient working capital management and a firm’s profitability Shin and Soenen (1998) they used the standard measure for working capital management is the cash conversion cycle (CCC). Cash conversion period reflects the time span between the disbursement and collection of cash. It measured by estimating the inventory conversion period and the receivable conversion period, less the payables conversion period. Shin and Sorensen used net-trade cycle (NTC) as a measure of working capital management. NTC is equal to the cash conversion cycle (CCC) where all three components expressed as a percentage of sales. NTC may be a proxy for additional working capital needs as a function of the projected sales growth. They examined this relationship by using correlation and regression analysis, by industry, and working capital intensity. Using a COMPUSTAT sample of 58,985 firm years covering the period 1975-1994, they found a strong negative relationship between the length of the firm's net-trade cycle and its profitability. Based on the findings, they suggest that one possible way to create shareholder value is to reduce firm’s NTC.

Deloof (2003) analyzed a sample of 1,009 large Belgian non-financial firms for the period 1992–96. He used trade credit policy and inventory policy as measured by number of day's accounts receivable, accounts payable and inventories, and the cash conversion cycle as a comprehensive measure of working capital management. The results of the study were as consistent as of Shin and Soenen (1998). Deloof found a significant negative relation between gross operating income and the number of day's accounts receivable, inventories and accounts.
payable. Thus, he suggests that managers can create value for their shareholders by reducing the number of day's accounts receivable and inventories to a reasonable minimum.

Lazaridis and Tryfonidis (2006) investigated the relationship of corporate profitability and working capital management of 131 companies listed in the Athens Stock Exchange (ASE) for the period 2001–2004. The purpose of this study was to establish a relationship that was statistically significant, between profitability, the cash conversion cycle and its components for listed firms in the ASE. The results of the research showed that there is a statistical significance between profitability, measured through gross operating profit and the cash conversion cycle. They observed that lower gross operating profit is associated with an increase in the number of day's accounts payables. Moreover, managers can create profits for their companies by correctly handling the cash conversion cycle and keeping each of the different component (accounts receivables, accounts payables and inventory) to an optimum level.

In the Pakistani context, Raheman and Nasr (2007) provide further evidence about the relationship of working capital management and profitability. Using variable and methodology as used by Deloof (2003) on a sample of 94 companies listed on the Karachi Stock Exchange (KSE) for the period 1999–2004, the results show that there is strong negative relationship between variables of WCM and profitability of the firms. It means that as the cash conversion cycle increases, it leads to decreasing profitability of the firm. Thus, managers can make the shareholders’ value positive by reducing CCC to the minimum possible level. The authors also found a positive relationship between the size of the firm and its profitability, and a significant negative relationship between debt and profitability.

In a related study, Afza and Nazir (2007) investigated the relationship between the aggressive and conservative working capital policies for 17 industrial groups and a large sample of 263 public limited companies listed on Karachi Stock Exchange (KSE) using cross-sectional data for the period 1998–2003. Using Analysis of Variance (ANOVA) and Least Significant Difference (LSD) test, the study found significant differences among their working capital investment and financing policies across different industries. Moreover, rank order correlation confirmed that these significant differences were remarkably stable over the six-year study period. Finally, ordinary least regression analysis found a negative relationship between the profitability measures of firms and the degree of aggressiveness of working capital investment and financing policies.

Falope and Ajilore (2009) examined the effects of working capital management on the profitability, used a sample of 50 Nigerian quoted non-financial firms for the period 1996 - 2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant
negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Gill, et al. (2010) analyzed the relationship between working capital management and profitability of 88 American firms listed on the New York Stock Exchange for a period of 3 years from 2005 to 2007 selected. The data were analyzed using Pearson Bivariate Correlation Analysis and Weighted Least Squares (WLS) Regression techniques. They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. It followed that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

Chatterjee (2010) studied the relationship between working capital management practices and the profitability of listed firms on the London Stock Exchange. Using a sample of 30 UK firms and employing, the Pearson correlation of data analysis technique, the study confirms a significantly negative association between profitability and working capital management variables. Specifically, the study observes a significantly negative relationship between profitability and liquidity, and significantly negative relationship between total debt and profitability. The study further finds a significantly positive association between profitability and firm size. The implication is that, profitability of firms increase when they improve upon their working capital management. Particularly, holding more liquid assets is important as it significantly enhances firms’ profitability. This is because assets can easily became sold off and the revenue re-invested in other relatively higher short-term assets and coupled with the fact that it also prevents court actions and its associated cost emanating from the firm’s inability to pay its short-term creditors. The findings further imply that a high level of debt use is unhealthy for the financial success of the firm whereas increases in sales encourage firm profitability.

Wajahat and Syed (2010) study of 37 listed on the OMX Stockholm Stock Exchange showed no significant relationship between profitability and working capital management policy when grouped as aggressive, defensive or conservative based on cash conversion cycle. The ratio of current asset to total assets of the observations in this study was another proxy variable for working capital management, but the data failed the tests of normality. Because of this limitation, dummy variables used instead to capture the effect of working capital management policy on profitability companies.
Mathuva (2010) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. He used Pearson and Spearman’s correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of this study were that: (1) There exists a highly significant negative relationship between the time and takes firms to collect cash from their customers (accounts collection period) and profitability. (2) There exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability. (3) There exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and profitability.

Al-Debi'e (2011) examined the relationship between profitability and working capital management measures for industrial companies listed on Amman Stock Exchange in Jordan during the period 2001-2010. Industrial companies in Jordan invest significantly in working capital. Therefore, efficient working capital management expected to enhance the profitability of these companies. The results show that less profitable companies wait longer to sell their products, to collect credit sales, and to pay their supplies of goods. Moreover, the results show that regardless of the level of profitability industrial companies in Jordan gain, but they pay their suppliers before collecting credit sales. The control variables (Size, Leverage, and GDP growth) included in all regression models were significant and have the expected signs. Profitability increases with Size and GDP growth and decreases with average.

In a study conducted to determine the effect of working capital management on profitability of Indian firms, Sharma and Kumar (2011) used a sample of 263 non-financial firms listed on the Bombay Stock Exchange during 2002 to 2008. Data analyzed using OLS multiple regression. The study found a positive relation between WCM and firm profitability, although the relationship between cash conversion cycle and ROA was not statistically significant. The study also found that account receivables also positively related to ROA and that account payables negatively related to ROA. The results assert that Indian firms can increase profitability by increasing cash collection cycle.

Ray (2012) studied assess of the relationship, through working capital management components. In addition, the profitability for the Indian manufacturing firms used a sample of 311, through the periods of 1996/1997 to 2009/2010. Moreover, have studied the effect of different variables of working capital management. including the average collection period, inventory turnover in days, average payment period, cash conversion cycle and current ratio, debt ratio, size of the firm and financial assets to total assets ratio on the net operating profitability of Indian firms. The result suggests a strong negative relationship between the measures of working capital management including the number of days accounts receivable
and cash conversion cycle, financial debt ratio with corporate profitability, and not found any statistically significant relationship between the average days of accounts payable and the corporate profitability.

Abuzayed (2012) the purpose of the study is to examine the effect of working capital management on firms’ performance for a sample of firms listed on a small emerging market, namely Amman Stock Exchange. The study includes a conceptual as well as empirical analysis, in which data from a sample of listed firms for the period from 2000 to 2008 analyzed to examine if more efficient working capital management improves firms’ accounting profitability and firms’ value. Cash conversion cycles as well as its components used as measures of working capital management skills. In this study, two performance measures used one accounting and one market measure, believing that wealth maximization is shareholders’ main concern. To bring must robust results, this study used more than one estimation technique, including panel data analysis, fixed and random effects, and generalized methods of moments. The study found that profitability affected positively with the cash conversion cycle. This indicates that must of profitable firms are less motivated to manage their working capital. In addition, financial markets failed to penalize managers for inefficient working capital management in emerging markets.

Kaddumi and Ramadan (2012) aims to assess the effect of working capital management (WCM) on the performance. Utilizing unbalanced data for a sample of 49 Jordanian Industrial corporations listed at Amman Stock Exchange - 2005 to 2009. Using two alternative measures of profitability as proxy for the performance and five proxies for the Working Capital Management, estimation of twenty models panel data cross-sectional time series have been tested employing two regression models; the Fixed-Effects Model and the Ordinary Least Squares Model. The findings of our study found to be significantly consistent with the view of the traditional working capital theory. The results suggest that working capital management and performance are positively correlated. The regression results also concluded that the Jordanian industrial firms follow a conservative investing policy and less aggressive financing policy in the working capital, and a well-efficient managing of the working capital can add value to the shareholders wealth.

Almazari (2013) investigated the relationship between the working capital management (WCM) and the firms’ profitability for the Saudi cement manufacturing companies. The sample included 8 Saudi cement manufacturing companies listed in the Saudi Stock Exchange for the period of 5 years from 2008-2012. Pearson Bivariate correlation and regression analysis used. The study results showed that Saudi cement industry’s current ratio was the most important liquidity measure which effected profitability, therefore, the cement firms must set a trade-off between these two objectives so that, neither the liquidity nor profitability
suffers. It also found, as the size of a firm increases, profitability increased. Besides, when the debt financing increased, profitability declined. Linear regression tests confirmed a high degree of association between the working capital management and profitability.

Anojan et al. (2013) examined the impact of working capital management on profitability, using a sample of nine companies listed on food and tobacco sector in the Colombo Stock Exchange - Sri Lanka for the period 2008-2012. The results show that Debtor’s, Creditor’s and Inventory Conversion Period have a negative relationship with return on assets. Regression analysis results revealed that there is no significant impact of working capital management on the profitability.

Akoto, Awunyo et al. (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from 2005-2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between Profitability and Accounts Receivable Days. However, the firms’ Cash Conversion Cycle, Current Asset Ratio, Size, and Current Asset Turnover significantly positively influence profitability. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivable to 30 days. It further recommended that, enactments of local laws that protect indigenous firms and restrict the activities of importers are eminent to promote increased demand for locally manufactured goods both in the short and long runs in Ghana.

Adolphus (2014) intended to analyze the relationship between working capital management policy and corporate profitability in Nigerian quoted companies based on the data of 107 quoted companies spread across 23 sectors for the period 2003-2007. Averages and product-moment correlation coefficients computed based on measures of net current assets ratio (NCAR), return on assets (ROA) and net profit margin (NPM). The results show strong positive correlation between NCAR and selected measures of profitability. It recommended that companies would maximize profitability and add value by adopting the conservative working capital management strategy (i.e. investing more in current assets) provided the operating environment and money markets are robust.

Ponsian et al. (2014) examined the effect of working capital management on company profitability. The study aims at examining the statistical significance between company’s working capital management and profitability. In light of this objective, the study adopts quantitative approaches to test a series of research hypotheses. A sample of three (3) manufacturing companies listed on the Dar es Salaam Stock Exchange (DSE) used for a period of ten years (2002-2012) with the total 30 observations. Data analyzed on quantitative basis using Pearson’s correlation and Regression analysis (Ordinary Least Square). The key
findings from the study are; firstly, there exists a positive relationship between cash conversion cycle and profitability of the firm. This means that the cash conversion cycle increases. It will lead to increase in profitability of the firm. Moreover, managers can create a positive value for the shareholders by increasing the cash conversion cycle, to a reasonable level; secondly, there is a negative relationship between liquidity and profitability showing that as liquidity decreases. The profitability also increases; thirdly, there exists a highly significant negative relationship between average collection period and profitability indicating that a decrease in the number of days a firm receives payment from sales affects the profitability of the firm positively; fourthly, there is a highly significant positive relationship between average payment period and profitability. This implies that the longer a firm takes to pay its creditors, the more profitable it is.; and Fifthly, there exists a highly significant negative relationship between inventory turnover in days and profitability hinting that firms which maintain sufficiently low inventory levels reduce the cost of storing the inventory which results to higher profitability.

Konak and Güner (2016) researched the relationship between working capital management and firm performance of twenty-nine of thirty-three companies listed on the BIST SME Industrial Index from 2011 to 2014. To achieve this purpose, pooled OLS test and cross sectional time series analysis technique. Found statistically significant negative relationship between Net Margin and, Short Term Debt Turnover and Cash Conversion Cycle. It noted that although positive relationships exist for ROE, they were not significant at any levels. The analysis of relationships by using cross sectional time series demonstrates negative relationship between Net Margin and, Short Term Debt Turnover Days and Cash Conversion Cycle at 5% and 1% significance level respectively by selecting random effects. That means there is a relationship between working capital and firm performance.

Shahid and Alnefaee (2016) examined the statistical significance of the impact of working capital management on profitability of the selected listed agriculture and food companies of Saudi Arabia and researched the relationship between the components of working capital management and the profitability of firms. A sample of three firms engaged in agriculture and food services listed on the stock exchange (Tadawul) used for a period of 6 years (2009-2014). Data extracted from the annual reports and financial statements of the companies. Correlation and Regression Analysis used to draw the conclusion of the study. Gross Operating Profit as dependent variable and Average Collection Period, Average Payment Period, Inventory Turnover in Days, Cash Conversion Cycle as independent variables used. The regression analysis revealed that there is no significant impact on working capital management on profitability of the selected listed agriculture and food companies of Saudi.
In the light of the literature, survey and discussed above. We found that there is still ambiguity relationship between working capital management and profitability. Researchers Shin and Soenen (1998), Deloof (2003), Raheman and Nasr (2007), Falope and Ajilore (2009), Chatterjee (2010), Al-Debi’e (2011), Ray (2012), and Almazari (2013), found a negative relationship between working capital management and profitability. The results also concluded that the firms follow Unreserved and aggressive financing policy in the working capital.

Researchers, (Lazaridis and Tryfonidis (2006), Gill, et al. (2010), Akoto, Awunyo et al. (2013), Adolphus (2014), Ponsian et al. (2014), and Konak and Güner (2016)), found a positive relationship between working capital management and profitability. The results also, concluded that firms follow a conservative investing policy and less aggressive financing policy in the working capital, and a well-efficient managing of the working capital can add value to the shareholders wealth.

Few empirical studies found there is no significant relationship between working capital management and profitability.

All the above studies provide a solid base and give us idea regarding working capital management and its components. They also give us the results and conclusions of those researches already conducted on the different countries and environments from different aspects. On basis of these researches done in different countries.

The present study attempt to fill the gap existed in the previous literature. In addition, an endeavor to investigate the relationship between working capital management and profitability of a sample of Saudi firms listed, on Petrochemical industry. In this context, the objective of the current study is to provide empirical evidences about the effect of working capital management on profitability for a sample of 15 Saudi firms listed on the Petrochemical industry sector in the Saudi Stock Exchange (Tadawul), during the period 2009 – 2013.

3. Methodology

The purpose of this research is to contribute towards a very important aspect of financial management known as working capital management with reference to KSA. Here we will see the relationship between efficiency working capital management and corporate profitability of 15 Saudi firms listed on the Petrochemical industry sector in the Saudi Stock Exchange (Tadawul) for a period of five years from 2009 – 2013. This section of the study discusses the firms and variables included in the study, the distribution patterns of data and applied statistical techniques in investigating the relationship between working capital and profitability.
3.1 Data Set

The data used in this study acquired from Saudi Stock Exchange (Tadawul), internet and websites of different firms. Data of firms listed on the Tadawul for the most recent five years formed the basis of the calculations. The period covered by the study extends to five years starting from 2009 to 2013.

3.2 Sample of the Study

The sample used in this study based on the financial statements of 15 Saudi firms listed on the Petrochemical industry sector listed in the Saudi Stock Exchange (Tadawul).

3.3 Variables

The study aims to examine evaluate the corporate profitability in the light of the efficiency of working capital management of selected the Petrochemical industry sector listed on the Saudi Stock Exchange (Tadawul). To achieve this aim will be calculated Working capital Turnover (WCT) as a financial indicator that reflect the efficiency of working capital management of the Petrochemical industry sector- KSA.

On the other hand will be calculated financial indicators that assist to evaluate the corporate profitability of the petrochemical industry sector- KSA, as dependent variables they are as follows:
- Profit Margin Average (PMA).
- Return On Sales (ROS).
- Return On Investment (ROI).

3.4 Hypotheses

The aim of study examine the relationship between the efficiency of working capital management, and profitability of corporate in the Petrochemical industry sector listed on the Saudi Stock Exchange (Tadawul). The relationship between variables examined by employing the following hypotheses:

H1: Working capital Turnover has significant impact on Profit Margin Average.
H2: Working capital Turnover has significant impact on Return on Sales.
H3: Working capital Turnover has significant impact on Return on Investment.

3.5 Statistical Tools

Firstly, the study used statistical tools to descriptive statistics (Mean, Standard Deviation, Minimum and Maximum).

Secondly, used Matrix Correlations and linear Regression analysis to test the hypotheses in order to reach conclusions.

- Matrix Correlations used to study the correlations between all pairs of data sets, when there is more than one independent variable, the collection of all pair wise correlations succinctly represented in a correlation form.
Linear regression is an approach for modeling the relationship between a scalar dependent variable y and one or more explanatory variables (or independent variables).

4. Results and Discussion

Descriptive statistics (Mean, Standard Deviation, Minimum and Maximum) of dependent and independent variables of 14 Petrochemical industry sector on the Saudi Stock Exchange (Tadawul) for a period of 5 years from 2009 to 2013 exposure in table 1.

The table shows that the average value of (WCT) is 4.00 and the standard deviation is 2.88 suggesting a wide variation in (WCT) across the listed Petrochemical industry sector on the Saudi Stock Exchange (Tadawul) over the period under investigation. This mean that the value of (WCT) can increase or decrease by 2.88 from the average. The Working capital Turnover (WCT) of these firms lies between 1.11 to 11.8 %.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
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</thead>
<tbody>
<tr>
<td>WCT</td>
<td>14</td>
<td>1.11</td>
<td>11.80</td>
<td>4.0004</td>
<td>2.88586</td>
</tr>
<tr>
<td>PMA</td>
<td>14</td>
<td>.02</td>
<td>.85</td>
<td>.2801</td>
<td>.23160</td>
</tr>
<tr>
<td>ROS</td>
<td>14</td>
<td>.01</td>
<td>.67</td>
<td>.2065</td>
<td>.16785</td>
</tr>
<tr>
<td>ROI</td>
<td>14</td>
<td>.01</td>
<td>7.24</td>
<td>.5869</td>
<td>1.91648</td>
</tr>
</tbody>
</table>

The Average value of a Profit Margin Average (PMA) is 0.2801 and the standard deviation is 0.2316, suggesting a variation in (PMA) across the listed Petrochemical industry sector on the Saudi Stock Exchange (Tadawul) over the period under investigation. This implies that the value of (PMA) can increase or decrease by 0.2316 from its average. Profit Margin Average (PMA) of these firms lies 0.02 to 0.85.

The Average value of Return on Sales (ROS) is 0.2065 and the standard deviation is 0.16785, suggesting a variation in (ROS) across the listed Petrochemical industry sector on the Saudi Stock Exchange (Tadawul) over the period under investigation. This implies that the value of (PMA) can increase or decrease by 0.16785 from its average, Return on Sales (ROS) of these firms lies between 0.01 % to 0.67.

The Average value of Return on Investment (ROI) is 0.5869 and the standard deviation is 1.916, suggesting a variation in (ROI) across the listed Petrochemical industry sector on the Saudi Stock Exchange (Tadawul) over the period under investigation. This implies that the value of (PMA) can increase or decrease by 1.916 from its average, Return on Investment (ROI) of these firms lies 0.01 to 7.24.
The study used Pearson’s Correlation analysis to examine the relationship between the efficiency of working capital management, and corporate profitability. Table 2 depicts how variables related to one another.

Table 2: Matrix Correlations

<table>
<thead>
<tr>
<th></th>
<th>WCT</th>
<th>PMA</th>
<th>ROS</th>
<th>ROI</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCT</td>
<td>1</td>
<td>-.247-</td>
<td>-.366-</td>
<td>-.089-</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.395</td>
<td>.198</td>
<td>.763</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>PMA</td>
<td>-.247-</td>
<td>1</td>
<td>.685**</td>
<td>-.036-</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.395</td>
<td>.007</td>
<td>.902</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>ROS</td>
<td>-.366-</td>
<td>.685**</td>
<td>1</td>
<td>-.125-</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.198</td>
<td>.007</td>
<td>.670</td>
<td></td>
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<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>ROI</td>
<td>-.089-</td>
<td>-.036-</td>
<td>-.125-</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.763</td>
<td>.902</td>
<td>.670</td>
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<td>14</td>
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</table>

**. Correlation is significant at the 0.05 level (2 tailed).

From matrix correlation of the previously defined variables. At the first look, it is obvious the correlations between Working capital Turnover (WCT) as the independent variable and other dependent variables, Profit Margin Average (PMA), Return On Sales (ROS), Return On Investment (ROI) was not significant, and the signs of the relevant correlation coefficients are unexpected, and not explain the relationship between the variables. This finding supports Afza and Nasir (2007), Wajahat and Syed (2010), Anojan et al. (2013). Who indicated that there was no significant relationship between Working capital management and corporate profitability?

Regression analysis assists to find out the significant impact of Working Capital Management on Profitability of firms. The result of regression analysis pertaining Working capital Turnover and Profitability showing in table 3.

The Adjusted R2 of the model is 8.3% and the value for R2 in the model is 0.295, which indicates that the model explains 29.5 % of the variation in the dependent variable consequently 70.5 % variation in the dependent variable remains unexplained by the independent variables of the study.
Table 3: Regression Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t-stat</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>5.879</td>
<td>1.301</td>
<td>4.519</td>
<td>.001</td>
</tr>
<tr>
<td>PMA</td>
<td>1.762</td>
<td>4.552</td>
<td>.387</td>
<td>.707</td>
</tr>
<tr>
<td>ROS</td>
<td>-10.761</td>
<td>6.326</td>
<td>-1.701</td>
<td>.120</td>
</tr>
<tr>
<td>ROI</td>
<td>-2.256</td>
<td>.404</td>
<td>-.633</td>
<td>.541</td>
</tr>
<tr>
<td>R2</td>
<td>.295</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>.083</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Value</td>
<td>1.392</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Regression Results table three can be seen that (P-Value). Profit Margin Average 0.707 and (P-Value) Return On Sales is 0.120 and P-Value of Return On Investment 0.541 which is statistically insignificant (P > 0.05) and it implies that increase or decrease in Working capital Turnover will not affect the Profitability of firms in the listed Petrochemical industry sector in Saudi Arabia.

It is therefore the first, second and third hypotheses (H1, H2 and H3) rejected. The results showing there is no significant impact of efficiency of working capital management on profitability of corporate.

5. Conclusion

Working capital management is an important area of financial management, plays a vital role in companies’ financial decisions. The purpose of this study is to evaluate the corporate profitability in the light of the efficiency of working capital management for a sample of firms listed on Petrochemical industry sector- KSA. In fact effect of the working capital management is varying from company to company the effect of working capital cannot be generalized.

The study found, there is no significant impact of efficiency of working capital management on corporate profitability. There is no relationship between Working capital Turnover as an independent variable and three dependent variables, namely; Profit Margin Average, Return on Sales, Return On Investment. Of the selected listed Petrochemical industry sector listed on the Saudi Stock Exchange (Tadawul).

Based on results and conclusions, the study recommends, that firms follow a conservative investing policy and less aggressive financing policy in the working capital. In addition, a well-efficient managing of the working capital, can add value to the shareholders wealth. Moreover, through it minimize the average length of time required to convert receivables and inventory into cash. In order to have proper cash balance, increase the time to convert the receivables into cash, will increase the profitability, quick conversion of raw materials into finished goods. Also, sell this to the customers without any delay and speedy delivery of goods and faster collection of cash from receivables in order to have a short cash conversion cycle for increasing the profitability.
The study recommends researchers conducted studies on the same topic with more sectors on the Saudi Stock Exchange.

The findings of the study interpreted keeping in view the sample size of the study. Further research conducted on the same topic with more companies and extended years of sample. Besides, also extend the scope of research with the inclusion of short-term investment securities for further research.

References


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