The Impact of Working Capital Management on the Profitability of Construction Equipment Firms: Evidence from Listed Construction Equipment Firms in Abu Dhabi Stock Exchange

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The study objects for investigating whether the management of WC affects the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange. It takes into consideration the management of inventory, receivables, and payables. Data of all listed construction equipment firms in Abu Dhabi Securities Exchange over the period 2006-2013, had been used in the analysis. Rate of return on total assets had used as an efficient measure of profitability. Inventory management had been measured through number of days inventory outstanding, and receivables management had been measured through the collection period in days. Moreover, number of days payables are outstanding is used to measure payables management. Simple linear regression is the statistical method used in analyzing the individual impact of the three elements of WC, while multiple linear regression method is used to measure the overall impact of these three elements on profitability. The study finds a significant effect of WC capital Management on profitability of these firms. Moreover, the study finds that inventory management has a significant effect on profitability, whereas it finds neither individual significant effect of receivables management, nor payables management on profitability.

INTRODUCTION

Profit generation is the main purpose of investment, whatever the amount or nature of that investment. Therefore, investors will be satisfied when they feel that their invested amounts of money achieve enough amounts of profits or a satisfied rate of return. As a result, managements of corporate firms should make enough efforts to satisfy the shareholders of these firms. In general, the way that a firm is managed affects its profitability. Management of Working Capital (WC) of corporate firms needs special attention by managements, but when it is managed by qualified managers, it may improve the profitability of firms.

This study investigates the impact of the way the WC is managed on the profitability of listed construction equipment firms in Abu Dhabi Stock Exchange (ADSE). WC includes the items of both of current assets and current liabilities. So the study takes into account the most important items of WC, such as inventory, receivables, and payables. In other words, the study considers a material portion of firm's assets and liabilities. Nobody doubts that profitability can be increased when several policies and procedures are followed, and the management of WC is important in this aspect.

The problem of the study seems clear. Many firms encounter severe financial difficulties because no enough continuous profit is achieved, especially the profitability in the long-term. Therefore, some firms find several difficulties to pay its short and long-term financial obligations. In addition, several firms closed because of its lower profitability or continuous losses over several successive years. When a firm doesn't give enough attention to its WC, or fails to manage this WC well, it will face liquidity problems, and its profitability may decline. Therefore, WC management is important for the success of business organizations, especially construction equipment firms, where a high volume of inventory is maintained by these firms to ensure continuity in its process of production. The problem of the study can be better expressed through the following question; what is the expected impact of working capital management on the profitability of construction equipment firms? To answer this question, more and more investigation of several items in the balance sheet and income statement is needed.

The study is important for several reasons. The study highlights the importance of WC management, where it is possible that the improvement of WC management may enable firms to avoid several financial difficulties. Moreover, because profitability ensures the survival of firms, some firms will perceive that its profitability can be increased through the improvement of its WC management, and in this case, it can ensure its survival. When a firm exercises a good management over its WC, it will ensure good liquidity and it may improve its profitability. Therefore, the importance of the study increases because firms can avoid fail when the reason of its financial difficulties is the weak management of WC.

Several objectives that this study is developed to achieve. The main objective of the study is to investigate the impact of WC components management on the profitability of firms. To achieve this objective, other sub objectives the study achieves. One sub-objective is to examine the effect of inventory management on firm's profitability. This objective is of high importance, especially because inventory on hand is critical, and because holding more inventory increases its cost, while keeping low inventory may lead to stock out, and operations may stop. Receivables management also is of high importance as an important component of WC management. Therefore, the study objects for investigating the effect of receivables management on profitability, especially because bad management of receivables will lead to more bad debts and conservative credit sales will reduce the sales volume, and therefore profitability may decline. In occasion, receivables include both of accounts receivables and notes receivables. In addition, the study objects for determining whether payables management affects profitability, where payables include both of accounts payable and short-term notes payable. Other sub-objective of the study is that it adds more literature to the impact of WC management on firm's profitability.

The study differs from prior related researches in its methodology, objectives, industry, and situation. It focuses on investigating the impact of the WC components management on firm's profitability, while most of prior researches studied these components in an individual basis. The study takes into account an important aspect, where construction equipment firms had not been given the deserved attention by academics and researchers. The study also differs in its place, time period, and methodology.

The remaining of the study is structured to be as follows. Section 2 explores the literature review and the prior researches, while section 3 presents the hypotheses of the study. Section 4 shows the methodology followed for the completion of the study. Section 5 shows results and analysis, including the hypotheses testing and the decision regarding each of these hypotheses, whereas conclusions and findings are shown in section 6.

LITERATURE REVIEW AND PRIOR RESEARCHES

WC consists of current assets and current liabilities. Investigating the impact of WC management should focus on three components including inventory, receivables, and payables, because these three items are the most important components of WC, so managing these three items means that the WC is also managed well.

Several measures can be used for measuring profitability, of which, gross profit margin, operating profit margin, net profit margin, and return on total assets. In this study, return on total assets is used for measuring profitability. Return on total assets can be computed by dividing income from operations by

net total assets. Income from operations, (operating earnings) is computed through subtracting cost of goods sold and operating expenses from revenues. Operating expenses include selling expenses, general and administrative expenses, depreciation expenses, and other expenses. In other words, operating income consists of all expenses except interest expenses, and income tax expense.

Inventory is the stock that a firm keeps to insure continuity of operations and to satisfy customers' orders. It is actually the stock that firms keep, in order to generate profits. In construction equipment firms, investment in inventory is actually of high-volume, and the cost of maintaining this large volume of inventory involves high level of cost, because as higher level of inventory is kept on hand, as the cost of inventory increases. Therefore, when inventory is managed in an efficient form, the cost of inventory on hand will decline. Because of its high cost in construction equipment firms, some authors call inventory as "piles of money on the shelf". Inventory of construction equipment firms includes different types of equipment, and this inventory is needed mainly by construction firms. Inventory differs in its nature among firms. For instance, in industrial firms, it consists of raw materials, work-in process, and finished goods, but in merchandising firms, we find that inventory consists of large and different kinds, but in the same shape, so materials purchased is the same in its shape as of finished goods. For the firms of equipment construction, inventory forms a high proportion of the total assets of these firms, so when inventory of these firms is managed at best, profitability may increase.

The most effective measure for the efficient management of inventory is what it is called inventory turnover. Inventory turnover is actually a ratio shows how many times a firm sells its inventory and replaces it during the accounting period. Based on inventory turnover ratio, number of days inventory is on hand can be computed by dividing number of days a year, by inventory turnover ratio. Average number of days inventory is on hand, is used in this study as a measure for the efficiency and effectiveness of inventory management.

Receivables are actually financial assets and financial instruments. Receivables are defined as "claims held against customers and others for money, goods, or services" (Kieso, Weygandt, and Warfield, 2010). Receivables may be trade or nontrade receivables, where trade receivables may be accounts receivables or notes receivables. Good management of receivables may lead to an increase in profitability, especially when these receivables are granted for appropriate period, and when good collection procedures are followed. Receivables management can't be separated from credit policy that the firm adopts. In this location, a conservative policy of credit sales leads to a sharp reduction in sales volume, while a lenient credit policy may lead to more bad debts. Accounts receivables are oral promises of payment, while notes receivable are written promises of payment, and it is used where a customer is new, or no enough information available regarding that customer ability of payment, and reputation. Sometimes, accounts receivable may be replaced by notes receivable, when the owed customer can't pay on time, and likes to extend the payment day for longer period. In this case, the customer's accounts receivables is converted to notes receivables. These receivable can be recoded in gross or net as the main accounting methods for recording receivables (Kieso, Weygandt, and Warfield, 2009).

Several indicators can be used to measure how much receivables management is effective and efficient, but receivables turnover ratio is the best. This ratio is computed by only dividing credit sales by average receivables. Moreover, average collection period can be found by dividing number of days a year by receivables turnover ratio. Receivables turnover ratio is used in the current study as a measure for the efficiency and effectiveness of receivables management.

Accounts payable are obligations owed to suppliers for goods and other materials purchased, or for services received on account. These payables are trade in its nature, so it is known as trade accounts payables. Good management of accounts payable is expected to lead for higher profitability. Some people says that to achieve profits you are required to know how, when, and what price, you purchase. Purchasing with lower prices increases the profit margin, or increases the sales volume when the price of the final product kept fixed. Most purchases of business organizations are occurring these days on account. As a result of appropriate negotiations with suppliers of goods and serves providers, the firm can reach to lower prices of these purchases, or it can achieve easiest terms of payment.

Similar to receivables, payables includes both of accounts payable and notes payable. Accounts payable are oral promise of payment at a specified future date, whereas, notes payable are written promise for the payment of credit sales at a specified future date. Accounts payable turnover ratio is the most appropriate measure for the effectiveness and efficiency of payables management. It means how many times on average a firm can pay off its accounts payables balance during a specified period of time. Accounts payable turnover ratio can be computed by dividing purchases by average accounts payable.

In occasion, cash conversion cycle can be used to measures WC management, but it doesn't determine which of the WC components affecting profitability, and which not. The cash conversion cycle is the time is taken to convert cash into cash again starting from the time inventory is purchased till the time inventory is sold and bills are recovered (Muscettola, 2014). Therefore, cash conversion cycle is a comprehensive measure of WC management, but doesn't separate the individual effect of each component from the other.

Despite how much it is important the WC management for business organization, this issue had not been given the attention that it desires in the Middle East and Arab countries. Nevertheless, where the impact of WC on liquidity of firms had been studied carefully, few studies investigated its impact on profitability.

Kaur and Singh, (2013) carried out a study regarding the improvement the value of firms through WC. The objective of the study was to analyze the WC performance and its impact on the value of firms. The authors analyzed 164 Indian manufacturing companies over the period of 2000-2010. They used cash conversion efficiency, days operating cycle, and the days working capital in the calculations and analysis. The key finding of this study is that efficient management of WC significantly affects the profitability of firms. In more details, the study found that there is a wide opportunity to improve the efficiency and profitability of 145 firms among the total of 164, through the improvement of working capital management.

Dellof (2003), investigated whether WC management affects profitability of Belgian Firms. The author claims that the way the WC is managed, significantly affects its profitability position. He adds that, having an optimal level of WC will maximize the value of firms. The author focused on three components of WC including inventory, receivables, and payables. The cash conversion cycle had been used in the study as a measure of WC management, while gross operating income had been used as a measure for the profitability of firms. The most important finding of the study is that the way the WC is managed affects the profitability of a firm. The study found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories, and payables of Belgian firms.

Agha, Mba, and Mhil (2014), investigated the impact of WC management on profitability. The authors used data collected from Glaxo Smith Kline listed pharmaceutical company in Karachi Stock Exchange for the year 1996-2011. Return on assets ratio had been used for the measurement of profitability, while accounts receivable turnover, creditors turnover, inventory turnover, and current ratio for the measurement of working capital. The study found that the WC significantly affects firm's profitability, and profitability can be enhanced through minimizing inventory turnover, accounts receivable ratio, and through reducing creditors' turnover ratio. In addition, the study found that no significant effect of current ratio on the profitability of firms.

One study carried out by Madishetti and Kibona (2013), where the objective of the study was to investigate the impact of average collection period and average payment period SMEs profitability in Tanzania. The dependent variable of the study is gross operating profit as a measure of profitability, while both of average collection period and average payment period are the independent variables of the study. The study had based on 38 firms and covered the period of 2006-2011. Controlling variables including current ratio, size of the firm, and financial debt ratio, were used in the study. Linear regression method had been used in the data analysis and hypotheses testing. The study found an existence of a significant negative relationship between the measure of average collection period and profitability, whereas, a positive relationship had been found between average payment and gross operating profit.

Mihajloy (2014), carried out a study regarding the impact of accounts receivable on profitability during financial crisis. The study investigates how listed firms in at the regular market of Serbia manage

their accounts receivable. The author used the most successful 108 firms listed in the Prime and Standards Listing and in Multilateral Trading Platform of the Belgrade Stock Exchange, and the accounts receivables had been tested in the study during the financial crisis of 2008-2011. The study found that between accounts receivable and two dependent variables including return on total assets and operating profit margin, there was an insignificant positive relationship, which means that during financial crisis, the impact of receivables on profitability is changing.

A study carried out by Duru, Ewe, and Okpe (2014), to investigate the impact of receivable management of Nigerian food and beverage manufacturing firms on the profitability of these firms. Three variables had been taken into consideration of this study including, accounts receivables, debt, and sales growth. The study shows that accounts receivable has a non-significant negative relationship with profitability, whereas it shows a non-significant positive relationship of each of debt and sales with profitability.

Nzioki and others (2013), investigated the impact of WC management on the profitability of industrial listed firms on Nairobi Securities Exchange. They claim that the efficient management of WC is a vital issue for firms' survival and profitability. The study analyzed 9 manufacturing listed firms in Nairobi Securities Exchange, using correlation and multiple regression methods. The study shows that the gross operating profit is positively correlated with both of average collection period and average payment period. The study also found a negative correlation between gross operating profit and cash conversion cycle. The study did not show a significant correlation between gross operating profit and inventory turnover in days.

Many and Ike (2013), carried out a study to investigate whether return on assets is affected by accounts receivables. The authors claim that WC plays an important role in the performance of selected Nigerian firms over the period 2000-2009. Data analysis and hypotheses testing revealed the existence of a significant negative relationship between accounts receivables and return on assets. This conclusion means that profitability increases as average collection period of receivables from customer's decreases. This is because collected amounts can be reinvested somewhere in the firm.

Muscettola, (2014), investigated the importance of cash conversion cycle on firm's profitability. The author's aim of the study was to verify the impact of all components of cash conversion cycle on profitability of Italian firms. The sample of the study consisted of 4,226 Italian manufacturing firms. The study takes Earnings Before Interest, Tax, Depreciation, and Amortization (EBITDA) on net sales as a good measure of profitability. Results of the study showed that average receivables period has a significant positive association with profitability of firms. Moreover, the study showed that it is not necessary that lesser cash conversion cycle means greater profitability to measure the dependent variable of the study.

STUDY HYPOTHESES

Based on the revision of some related studies regarding the impact of WC management on profitability of firms, and of the related literature of WC components and profitability, several hypotheses had been developed.

Most business organization keep high volume of inventory, especially manufacturing firms, where these firms keep raw materials, work in-process, and finished goods inventory. In its proportional relation to total assets, inventory is considered of high volume. When a company keeps a high volume of inventory on hand, it will incur high costs of inventory, especially when we perceive the amounts of money invested in inventory, or what is called, opportunity cost, where these amounts are frozen. In opposite, when a firm maintains lower volume of inventory, its operating activities may not be insured to continue, because of probable inventory shortage. When operations stop, this means that the firm will not been able to meet its customers' orders on a timely basis, so some customers will search for another seller. Therefore, inventory management is also critical and important, and should make a balance in volume only to avoid stop in operations, without keeping extra volume. Therefore, qualified managers should be responsible for inventory. Because inventory management is critical and important, it can affect firm's

profitability, especially in merchandising and manufacturing firms. As a result, the first hypothesis of the study is developed to be as follows:

Ho1: Inventory management affects the profitability of listed construction equipment firms in Abu Dhabi Stock Exchange.

The finding of some prior researches showed that accounts receivable management affects the working capital of firms. Receivables consists of both of accounts receivables and notes receivable. Credit sales lead to the existence of both accounts receivables and short term notes receivables. As of inventory, the management of accounts receivables is critical and important. A firm follows a conservative policy in credit sales, will suffer from low volume of sales. In opposite, a firm that follows generous policy regarding credit sales will sell more, but amounts of bad debt expense will increase. Because of that, managing receivables is not easy issue, and may affect the profitability of firms. Based on this brief illustration to receivables and its critical management, the second hypotheses had been developed to be as follows:

Ho2: Receivables management affects the profitability of listed construction equipment firms in Abu Dhabi Stock Exchange.

In addition to receivables and inventory, several prior researches showed that management of payables affects firm's profitability. Payables means amounts the company owed for suppliers of raw materials and other needs for production, so these amounts are required to be settled or paid within a short period of time. As of receivables, payables consist of accounts payables and short-term notes payables. While receivable collection period is better to be as short as possible, the average of collection period is better to be as long as possible. Therefore, good management of payables attempts to let the payables settlement period as long as its reputation is not affected. As a result, the third hypothesis of the current study is developed to be as follows:

Ho3: The way the payables of firms listed construction equipment firms in Abu Dhabi Stock exchange are managed affects the profitability of these firms.

To investigate the overall effect of inventory, receivables, and payables management, as a whole, the fourth hypothesis had developed to test the collective effect of these three elements as a whole, on firm's profitability. Some prior researches used cash conversion cycle to investigate the collective effect of the elements of WC, but because I doubt that this ratio is appropriate, it had not been used in this study. Instead, the collective effect of these three elements had been tested though the 4th hypothesis. The 4th hypothesis of the study is developed to be as follows.

Ho4: Working capital management of listed construction equipment firms in Abu Dhabi Securities Exchange affects the profitability of those firms.

RESEARCH METHODOLOGY

The population of the study includes all of the listed construction equipment firms in Abu Dhabi Securities Exchange. Total number of listed firms in Abu Dhabi Securities Exchange is 70 firms by the end of 2014, among these 11 firms are classified as construction equipment firms. The study takes into consideration all of the construction equipment listed firms in this exchange, so no construction equipment firm had been excluded. All of these firms meet the term that the firm was listing over the period 2006-2013. In occasion, most listed firms in Abu Dhabi Securities Exchange are commercial banks and insurance firms. Firms of construction equipment were selected because these firms maintain

inventory, where this inventory is unavailable neither in commercial banks nor in financial and insurance firms.

The data required for the accomplishment of the study is secondary in its nature, so it had been collected from textbooks, journals, periodicals, net websites, and the announced financial data of listed construction equipment firms in Abu Dhabi Securities Exchange.

Profitability is the dependent variable of the study, while three independent variables the study takes into consideration in order to investigate the effect of these variables on firm's profitability. These independent variables include inventory management, receivables management, and the management of payables. Inventory management is measured through average number of days inventory is outstanding, whereas receivables management is measured through average number of days receivables are outstanding, or what is called average collection period. In addition, payables are measured in this study through average number of days payables are outstanding. Profitability, as the unique dependent variable of the study, is measured through the operating profit ratio, by dividing earnings before interests and tax by net sales.

Simple linear regression method had been used in testing the first three hypotheses of the study, based on t-value, at 95% level of confidence, whereas the multiple linear regression method is used in testing the 4th hypothesis, based on f-test, and also at 95% confidence level. For more illustration, t-test is used under 95 percent level of confidence or 0.05 coefficient of significance, while multiple linear regression method is used for testing the effect of the three independent factors as a whole on profitability, using f-test, and at 95 percent level of confidence, or 0.05 coefficient of significance. A comparison between the computed and tabulated t-values had been used as a decision base for the acceptance or rejection of the null hypotheses regarding the simple linear regression, where a null hypothesis is accepted when the computed t-value is lower than the corresponding tabulated one. In opposite, a null hypothesis is rejected when the computed t-value is greater than the tabulated corresponding one. Regarding the multiple linear regression, a comparison between the computed and tabulated f-values is used as rule criterion for accepting or rejecting the null hypotheses, where the null hypothesis is accepted when the computed f-value is lower than its corresponding tabulated one. In addition to the comparison between the computed and tabulated t-values, or between the computed and the tabulated f-values, as a decision criterion for the acceptance or rejection of the null hypotheses, a comparison between the predetermined coefficient of significance, which equals 0.05, and the computed one is used. In occasion, both methods of decision criterion lead to the same decision, because when the computed t-value or f-value is lower than the tabulating corresponding values, the coefficient of significance will be higher than the predetermined one. In opposite, when the computed t-value and f-value is higher than the corresponding tabulated values, the coefficient of significance will be lower than the predetermined one, which equals 0.05.

RESULTS AND ANALYSIS

Profitability

As Mentioned above, the rate of return on total assets is used as a good measure for profitability that a firm achieves within the accounting period. To compute the rate of return on total assets, operating profit is divided by net total assets.

Table (1) shows the total net sales, operating income, and operating income ratio of the 11 listed construction equipment firms as a whole over the period 2006-2013. The term shows that the highest rate of return on total assets equals 0.09, which occurred in year 2008, whereas the lowest one equals -0.003 which had been recorded in year 2011. The table also shows that, in general, profitability was declining from year to year despite the slight improvement in years 2012 and 2013.

TABLE 1
SALES, INCOME FROM OPERATIONS, AND OPERATING PROFIT MARGIN

Year	Total Assets	Operating Income	Return on Total Assets
2006	15,202,579,212	1,260,276,117	0.082
2007	17,027,344,542	1,468,214,691	0.086
2008	18,038,037,563	1,640,207,577	0.090
2009	17,805,466, 941	817,269,905	0.045
2010	18,167,552,308	284,069,778	0.015
2011	18,319,507,181	(60,149,744)	-0.003
2012	18,396,411,950	213,814,885	0.011
2013	19,715,585,974	373,189,910	0.019

Inventory

Firms of construction equipment maintain a high volume of inventory on hand, in proportion to its total asset, because of the nature of its work. Inventory is important for such firms to protect themselves from any possible shortage of operations, and to benefit from all received orders. In addition, firms of good reputations attempt to satisfy its customers, where inability to meet orders because of inventory shortage, leads for losing some customers. Therefore, it is notable, that most firms are strongly interested with maintaining a large volume of inventory.

The total annual inventory for all included firms in the study as a whole, over the period of the study, is available in table (2), in addition to inventory turnover, cost of goods sold, and average number of days inventory outstanding.

Considering table (2), it is clear that, in general, inventory turnover is low and average number of days inventory is outstanding is high. The highest inventory turnover ratio is 2.99, and attributed to year 2008, where the number of days inventory is outstanding for that year is 122 days. In opposite, the lowest ratio of inventory turnover equals 2.2, and attributed to year 2013, where the average number of days inventory is outstanding at that year equals 165 days. It is clearly notable, that inventory turnover is low, and average number of days inventory is outstanding, is high.

TABLE 2
AVERAGE INVENTORY, COST OF GOODS SOLD, AND INVENTORY TURNOVER

Year	Average Inventory	Cost of Goods Sold	Inventory Turnover	Ave. No. of Days Inventory is Outstanding
2006	1,535,380,390	4,034,749,281	2.62	139
2007	2,008,687,090	5,891,696,780	2.93	124
2008	2,719,159,025	8,143,687,621	2.99	122
2009	2,845,511,410	6,971,775,774	2.45	149
2010	2,417,411,980	5,555,412,445	2.29	159
2011	2,657,588,733	6,136,003,036	2.30	159
2012	2,482,739,712	5,767,387,844	2.32	157
2013	2,611,697,336	5,821,065,832	2.2	165

Testing the First Hypothesis

The first hypothesis had been designed to test the impact of inventory on profitability of firms. The hypothesis is again presented as follows.

As mentioned above, inventory is measured through the average number of days inventory is outstanding. Table (3) shows the resulting statistics regarding hypothesis number 1. The table reveals that the computed t-value is -6.484, and the computed coefficient of significance is 0.001. When the computed t-value is compared with the corresponding tabulated one, which equals 1.96, and the computed coefficient of significance is compared with the predetermined one, which equals 0.05, it is apparent that the computed t-value is higher than the tabulated one, and the computed coefficient of significance is lower than the predetermined one. Because the computed t-value is higher than the tabulated, and the computed coefficient of significance is lower than the predetermined, the null hypothesis is rejected, and the alternative one is accepted. This result means that there is a significant impact of inventory management of listed construction equipment firms in Abu Dhabi Securities Exchange on the profitability of these firms. In more details, the results shows that there is a negative effect of average number of days inventory is outstanding on operating profit margin. For more illustration, this means that as a firm maintains inventory on hand for longer number of days, as its profitability declines.

TABLE 3
RELATED STATISTICS TO HYPOTHESIS NUMBER 1

Hypothesis	R^2	T-Value	Degrees of Freedom	Sig-value
Ho_3	0.875	-6.484	7	0.001

Receivables

Receivables management is not a simple issue as some people believe. More credit sales leads to higher sales volume, while lower credit sales may reduce the total sales volume. Despite that following a lenient credit sales increases sales volume, but it leads to more bad debt expense. In opposite, a conservative credit sale reduces credit sales, but results on lower bad debts. Therefore, as of inventory management, receivables management is also critical, and needs for qualified managers.

Table (4) presents the annual overall average receivables, receivables turnover, and average collection period in days, over the period 2006-2013. Considering receivables turnover, it is apparent that it is, in general, low. The highest receivables turnover ratio equals 3.41, and recorded in 2008, where the average collection period in days for that year equals 107 days. On the other hand, the lowest recoded receivables turnover equals 2.73, and recorded in both 2006 and 2010, where the average collection period in days for those two years equals 134 days. Regarding average collection period, it seems that it is longer than the normal, because as the average collection period is longer as the management of these receivables is weak.

TABLE 4
ANNUAL SALES, RECEIVABLES, AND AVERAGE COLLECTION

Year	Average Receivables	Net Sales	Receivables Turnover	Average Collection Period
2006	2,118,610,148	5,781,811,581	2.73	134
2007	2,719,590, 502	7,733,877,834	2.84	129
2008	3,135,904,028	10,691,191,697	3.41	107
2009	3,030,813,065	8,961,383,153	2,96	123
2010	2,602,278,783	7,101,736,044	2.73	134
2011	2,464,744,513	7,109,180, 160	2.88	127
2012	2,390,366,452	7,056,234,130	2.95	124
2013	2,269,418,292	7,234,830,852	3.18	115

Testing the Second Hypothesis

The second hypothesis had developed to tests the effect of receivables management on profitability of construction equipment firms. The hypothesis is again presented as follows.

Ho2: Receivables management affects the profitability of listed construction equipment firms in Abu Dhabi Stock Exchange.

As mentioned above, receivables management is measured through the average collection period in days, whereas profitability is measured through the rate of return on total assets ratio. The outputs resulting from the analysis of receivables on profitability of firms are shown in table number 5. The table shows that that the computed t-value is -0.397, and the coefficient of significance equals 0.705. When the computed t-value is compared with the corresponding tabulated one, which equals 1.96, and the computed coefficient of significance is compared with the predetermined one, which equals 0.05, it is apparent that the computed t-value is lower than the tabulated one, and the computed coefficient of significance is higher than the predetermined. Because the computed t-value is lower than the corresponding tabulated one, and because the computed coefficient of significance is higher than the predetermined one, the null hypothesis is accepted, while the alternative one is rejected. In other words, the test finds no significant effect of receivables management on profitability of listed construction equipment firms in Abu Dhabi Securities Exchange.

TABLE 5
RELATED STATISTICS TO HYPOTHESIS NUMBER 2

Hypothesis	R^2	T-Value	Degrees of Freedom	Sig-value
Ho$_3$	0.026	-0.397	7	0.705

Payables Turnover

Payables turnover ratio is computed by dividing credit purchases by average payables. The financial statements normally do not present purchases directly. As a result, annual purchases are computed in this study based on the equation of cost of goods sold, where cost of goods sold is computed using the following equation.

$$Cost\ of\ Goods\ Sold\ =\ Beginning\ Inventory\ +\ Net\ Purchases - Ending\ Inventory \quad (1)$$

Because cost of goods sold and other inputs of its equation are known, except for purchases, where it is actually unknown, the equation is changed to be as follows.

$$Net\ Purchases = Cost\ of\ Goods\ Sold + Ending\ Inventory - Beginning\ Inventory \quad (2)$$

Because no information regarding credit purchases is available, it had been replaced by net purchases. Table (6) shows the annual average accounts payable, annual purchases, payables turnover, and average number of days accounts payable are outstanding. The table shows that the highest accounts payables turnover was 5.2, in year 2007, while the lowest one is 3.2, and attributed to year 2012. Therefore, the shortest number of days payables are outstanding was 70 days in year 2007, whereas the longest one was 172 days, in year 2006.

TABLE 6
PURCHASES, AVERAGE ACCOUNT PAYABLES, PAYABLES TURNOVER, AND AVERAGE NUMBER OF DAYS THAT PAYABLES ARE OUTSTANDING

Year	Net Purchases	Average Payables	Payables Turnover	Days Payables Outstanding
2006	4,359,471,425	855,538,354	2.12	172
2007	6,131,609,645	1,178,341,549	5.20	70
2008	8,612,383,017	1,614,990,174	5.33	68
2009	6,095,852,148	1705,071,183	3.57	102
2010	5,575,147,208	1,775,038,874	3.14	116
2011	6,299,343,989	1,965,538,823	3.20	114
2012	5,751,634,694	1,833,328,064	3.13	117
2013	5,897,401,195	1,816,904,668	3.24	113

Testing the Third Hypothesis

The third hypothesis had developed to test the impact of accounts payable management on profitability of firms. As of other hypotheses of the study, return on total assets is used as an appropriate measure of profitability. The management's efficiency and effectiveness of accounts payable is measured by the average number of days accounts payable are outstanding. Table (7) shows the resulting statistics of the third hypothesis analysis. It shows that the computed t-value equals -0.024, and the computed coefficient of significance equals 0.982. When the computed t-value is compared with the tabulated one, which equals 1.96, and the computed coefficient of significance is compared with the tabulated one, which equals (0.05), it is found that the computed t-value is lower than the tabulated, and the computed coefficient of significance is greater than the predetermined. Because the computed t-value is lower than the tabulated, and the computed coefficient of significance is greater than the predetermined, the null hypothesis is accepted, and the alternative one is rejected. In other words, the test finds no significant impact of payables management on the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange.

TABLE 7
RELATED STATISTICS TO HYPOTHESIS NUMBER 3

Hypothesis	R^2	T-Value	Degrees of Freedom	Sig-value
Ho$_3$	0.000	-.024	7	0.982

Working Capital

It was previously stated that WC management consists of three important elements, including the management of inventory, receivables, and payables. The fourth and last hypothesis had developed to test the overall effect of these three elements as a whole on profitability of listed construction equipment firms in Abu Dhabi Securities Exchange. The multiple linear regression method had been used in testing this hypothesis based on f-value and the coefficient of significance. The forth hypothesis is again presented as follows.

Ho4: Working capital management of listed construction equipment firms in Abu Dhabi Securities Exchange affects the profitability of those firms.

Table (8) shows the statistics related to the fourth hypothesis. The table shows that the computed f-value equals 18.514, and the computed coefficient of variation is 0.008. When the computed f-value is compared with the tabulated one which equals 4.8183, it is clear that the computed one is higher than the tabulated. Moreover, when the computed coefficient of significance is compared with the predetermined one, which equals 0.05 (0.95 confidence level), it is apparent that the computed one is lower than the predetermined. Because the computed f-value is higher than the corresponding tabulated one, and because the computed coefficient of significance is lower than the predetermined corresponding one, the null hypothesis is rejected, where the alternative one is accepted. This result means that the management of WC capital significantly affects the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange.

TABLE 8
RELATED STATISTICS TO HYPOTHESIS NUMBER 3

Hypothesis	R^2	F-Value	Degrees of Freedom	Sig-value
Ho$_4$	0.933	18.514		0.008

CONCLUSIONS

The study investigates the impact of WC management on the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange. Three elements of WC including inventory turnover, receivables turnover, and payables turnover were investigated individually, and in total, were taken in consideration by the study. Based on the results and analysis, the study finds the following 4 conclusions.

1. The study finds that inventory management significantly affects the profitability of listed construction equipment firms. This study is in agreement with the findings of prior related researchers. Based on this finding, more attention of inventory management is recommended for these firms in an attempt to increase profitability.

2. This study doesn't find a significant effect of receivables management on the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange. This conclusion is not in agreement with the conclusion of some prior researches. The disagreement between this conclusion and the conclusions of some prior similar researches may be attributed to the nature of the construction equipment firms, and to the values of the society, where selling on account are made to selected good customers.

3. The study finds that payables management has no significant effect on profitability of listed construction firms in Abu Dhabi Securities Exchange. This conclusion is not in agreement with prior related researches. This disagreement may be attributed to the credit policy, where only few business organizations deal with credit sales.

4. The study finds a strong significant effect of working capital management on the profitability of listed construction equipment firms in Abu Dhabi Securities Exchange. This finding is in agreement with the findings of prior related researches.

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