FACTORS INFLUENCING CORPORATE WORKING CAPITAL MANAGEMENT: EVIDENCE FROM AN EMERGING ECONOMY[*]

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ABSTRACT

The main purpose of this study is to explore factors that influence working capital management by non-financial companies listed on Abu Dhabi Securities Exchange. The cash conversion cycle is used to proxy working capital management where short cycle implies effective management. Six factors frequently employed in previous research were used to explain variations in cash conversion cycle. The factors included industry type, sales growth, operating cash flows, return on equity, leverage and size. The latest annual reports for all non-financial companies listed on Abu Dhabi Securities Exchange and operate in the UAE were used to achieve the purpose of the study. The result of the analysis revealed that the effectiveness of working capital management of the companies covered in the study are influenced by sales growth, size and the level of corporate leverage.

Keywords: Corporate; Working Capital Management; Sales; Growth; Operating Cash Flow; Return on Equity; Leverage; Size; UAE.

INTRODUCTION

Working capital is a financial measure used to assess corporate liquidity. Reasonable working capital should be available to any firm to ensure that it has sufficient funds to cover its short-term obligations and to pay for future operating expenses. This guarantees the continuity of the firm's operations. In fact, it is possible to see a profitable firm forced out of business due to inability to meet its short- term obligations when they fall due. It is therefore vital for any firm to manage its working capital successfully to ensure continuity. In the last few years, several studies have been undertaken to investigate factors affecting corporate working capital. Most of the studies examined the relationship between corporate working capital and profitability (see for example: Hayajneh and Yassine, 2011**;** Sabri, 2012; Gill et al., 2010; Dong and Su, 2010; Boisjoly, 2009; Falope and Ajilore, 2009; Mathuva, 2009; SEN and *ORUÇ*, 2009; Uyar, 2009**;** Samilogu and Demirgunes, 2008; Teruel and Solano,

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2007; Raheman and Nasr, 2007; Lazaridis and Tryfonidis, 2006; Padachi, 2006; Eljelly, 2004; Deloof, 2003; Shin and Soenen, 1998; Jose et al., 1996). Other studies, attempted to establish a relationship between the efficiency of working capital management and a number of corporate attributes. In this respect, Charlton et al. (2002) examined the relationship between the industry type and liquidity of the corporation and working capital management. Jeng-Ren et al. (2006) studied the relationship between working capital management and a number of firm's attributes such as size, industry type, leverage position and growth. Moss and Stine (1993) explored the relationship between firm's working capital management and its size. It is evident that the focus of most of previous studies undertaken to examine factors that influence working capital was on profitability with few studies employing corporate attributes such as size, growth, leverage and industry type to explain level of efficiency of working capital management. In the current study, an attempt will be made to test all these factors. So far, no attempt has been made to examine the relationship between working capital management and firm's attributes of companies listed on Abu Dhabi Securities Exchange (ADX). ADX was established in 15th November 2000 to trade shares of companies operating in the United Arab Emirates (UAE). Hence, ADX is considered to be one of the youngest stock exchanges in the region. At the end of 2011, the number of listed companies on the KSE reached 69. On 6 September 2011, market capitalization of the companies listed on the market reached AED 212.4 billion (USD $58.20 billion). Examining the relationship between working capital management and profitability of companies listed on ADX is, therefore, important and expected to add a new dimension to the literature, since most of the companies operating in UAE do not face liquidity problems. In previous research, the focus of working capital management was on how to secure enough liquidity to meet forms of short-term obligations. In a small country, like the UAE with large oil revenues, the focus of working capital management will be on how to make use of the surplus of liquidity.

The remainder of the paper is organized as follows. The following section will provide a brief explanation to working capital management. Section three reviews recent studies about the relationship between corporate working capital management and firm's attributes. Study methodology is explained in section four. The findings are discussed in section five, with the conclusion offered in the last section.

WORKING CAPITAL MANAGEMENT

Working capital is the difference between current assets and current liabilities. Working capital management involves managing cash, receivables, inventories and payables. In cash management, the firm ensures that cash is available to meet its running expenses and reduces the cost of cash holding. Receivables management involves adopting proper credit policy to the firm's customers. Proper credit policy is expected to attract customers and boost sales. Although such a policy would have a positive impact on profit and return on capital, it affects the firm's cash flows. Hence, corporate management needs to strike a balance between boosting sales and securing necessary cash flows. Inventories management is achieved by maintaining a certain level of inventory that allows the flow of production and reduces the cost of raw materials. This is expected to minimize ordering costs, lower time lead in production and work in progress, keep finished goods at the lowest level possible and avoid over production and storage costs. All of this would result in an increase in cash flow. On the other hand, firms manage payables though identifying a proper source of financing. Inventories are ideally financed by credit secured from suppliers. In some cases, the firm might need to secure a bank loan to pay for inventories by using overdrafts or by factoring receivables through converting them into cash.

RELATED STUDIES AND HYPOTHESES DEVELOPMENT

Different variables have been employed in the literature to explain the efficiency of working capital management. However, most of the studies attempted to establish a relationship between working capital management measured by cash conversion cycle (CCC) and profitability by using various measures. Other studies employed firm's attributes such as size, industry type, operating cash flow, sales growth, and debt ratio. Studies employed any of these variables will be reviewed.

Profitability

As mentioned earlier, most of the studies used to explain the level of efficiency of working capital management focused on profitability as an important factor. It is argued that efficient working capital management results in low CCC and this would lead to speedy availability of cash flows and, hence, better profitability. In this respect, Jose et al. (1996) looked at the relationship between profitability and working capital management by using return on assets (ROA) and return on equity (ROE) as proxies of profitability and CCC as a proxy of working capital management. The researchers conducted the analysis according to the industry type of the corporations. They reported a negative relationship between CCC and ROA across all industries. That is to say, high profitability results in low cash conversion cycle. However, a negative relationship was reported between CCC and ROE only in the services and retail/ whole sale industries. The researchers indicated that other factors such as corporate competitive position, capital intensity, production process, product durability and marketing channels might determine the relationship between CCC and ROE.

Shin and Soenen (1998) tested the relationship between the firm's efficiency of working capital measured by the net trade cycle and profitability measured by ROA and return on sales (ROS). They found a negative significant relationship between the efficiency of working capital management and profitability.

Similarly, Yung-Jang (2002) collected data from Japan and Taiwan and employed CCC as an indicator on working capital management and ROA and ROE as measures of profitability (performance). He concluded that the relationship between CCC and each of ROA and ROE is commonly negative and sensitive to the type of the industry for Japanese and Taiwanese companies included in his study.

In the same way, Deloof (2003) examined the relationship between working capital management measured by CCC and profitability measured by gross operating income. He reported negative and significant relationships between the number of days of each of the components of the CCC (receivables, inventories and payable) and profitability. However, a negative but not significant relationship between CCC and profitability was identified in the sample companies. He, therefore, concluded that profitability can be improved by reducing the number of days of collecting receivables and number of days of holding inventories. In a similar line of research, Eljelly (2004) looked at the relationship between working capital management and profitability in a sample of Saudi companies operating in three sectors of the economy (agriculture, manufacturing and services). He used the current ratio and CCC as measures of liquidity and used net operating income plus depreciation divided by net sales as a measure of corporate profitability. He noticed variations in CCC among industries covered in the study. He also noticed that corporate size, represented by net sales and total assets, together with CCC affect the profitability of capital-intensive (agricultural and industrial companies) more than the profitability of labor-intensive (services companies). He concluded that shorter CCC is related to higher profitability. He also observed that the relationship between working capital management and profitability was stable over the period of study.

Lazaridis and Tryfonidis (2006) looked into the relationship between working capital management and profitability in a sample of companies listed on Athens Stock Exchange.

They related each of the CCC components with corporate profitability measured by gross operating profit [(sales - cost of sales)/ (total assets - financial assets)]. They noticed a negative significant relationship exists between corporate profitability and receivables, payables and CCC days. The relation was also negative with inventories days but insignificant. They explained the negative relation between the holding period for accounts payable and profitability on the grounds that less profitable firms may take advantage of credit period granted by suppliers and wait longer before paying their bills. They also reveal a positive relationship between corporate size measured by sales and profitability and corporate profitability decreases as the financial debt ratio increases. They concluded that managers are likely to improve their profit by efficiently handling their CCC through maintaining receivables, inventories and payables days at an optimal level.

Teruel and Solano (2007) also tested the relationship between corporate working capital management measured by number of days receivables, inventories, payables and CCC and profit measured by ROA in a sample of small and medium sized Spanish companies. They observed a negative significant relationship between profitability and each of the working capital management variables. They concluded that managers can create value by speeding up collection of receivables and reducing the days of holding inventories. They also concluded that shortening the cash conversion cycle improves corporate profitability.

Raheman and Naser (2007) conducted similar research on a sample of Pakistani companies. The working capital management variables used by Teruel and Solano (2007) were employed and they replaced ROA with net operating profit as a proxy of profitability. They reported a strong negative relationship between variables of the working capital management and corporate profitability and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a minimum level. They also reported a positive relationship between corporate size and its profitability and a significant negative relationship between corporate debt and its profitability.

Samilogu and Demirgunes (2008) investigated the effect of working capital management measured by CCC and its components and corporate profitability measured by ROA in a sample of companies listed on Istanbul Stock Exchange. They observed that while receivables period, inventories period, and leverage negatively affect corporate profitability, corporate growth measured by growth in sales positively affect profitability.

SEN and ORUÇ (2009) attempted to determine the relationship between the efficiency of corporate working capital management and profitability in a sample of companies listed on Istanbul Stock Exchange. The researcher employed several variables to proxy working capital management: CCC, net liquid balance, current ratio, receivables period and inventory periods. He used return on assets as a measure of profitability. He reported negative significant relationship between all variables used to proxy working capital management and profitability. The result was consistent among all companies included in the study and across sectors.

Uyar (2009) considered the relationship between corporate CCC and profitability measured by ROA and ROE in a sample of companies listed on Istanbul Stock Exchange. He found significant negative relation between the two variables.

Dong and Su (2010) studied the relationship between working capital management measured through CCC and its components and profitability measured by gross operating profit in a sample of companies listed on Vietnam Stock Exchange. They presented negative significant relationship between the two variables.

Gill et al. (2010) examined the relationship between working capital management measured by CCC and profitability measured by gross operating profit in a sample of American companies listed on New York Exchange. They concluded that management can create profit by correctly handling CCC and maintaining receivables at an optimal level.

Rimo and Panbunyuen (2010) looked into corporate characteristics that affect working capital management in a sample of companies listed on NASDAQ OMX Stockholm Exchange. They reported that corporate profitability is affected by CCC.

On the other hand, Rimo and Panbunyuen (2010) reported positive relationship between CCC and profitability measured by ROA in a sample of companies listed on NASDAQ OMX Stockholm Exchange. The researchers concluded that the surveyed companies have "*less effective working capital management*".

Hayajneh and Yassine (2011) investigated the relationship between working capital efficiency and profitability in a sample of 53 manufacturing companies listed on Amman Exchange Market. They reported a negative and significant relationship between profitability and each of average receivable collection period, average conversion inventory period and average payment period, and cash conversion cycle.

Al-Mwalla (2012) examined the impact of working capital management policies on the firms' profitability and value in a sample of 57 industrial companies on Amman Stocks Market for the period of 2001 to 2009. The researcher concluded a conservative investment policy has a positive impact on the sampled companies profitability. It is therefore hypothesized that:

Hypothesis 1. Working capital management is related to firm's profitability

Size

Few studies were undertaken to examine the relationship between corporate working capital management and corporate size. It is argued that corporate size influences corporate working capital management since large size companies have more bargaining power over customers (receivables) and suppliers (payables) than small size companies. A large company can negotiate with its supplier credit terms including large quantity discounts and long time payment terms. In addition, large firms are usually well established and have higher inventory turnover than small firms. In this respect, Moss and Stine (1993) studied the relationship between corporate size, measured by net sales and total assets, and CCC in a sample of retail companies. They noticed that large size companies tend to have shorter CCC than small size companies. They also noticed that small size companies have longer receivables, inventories and payable periods than small size companies. This led them to conclude that large size firms have better working capital management than small firms. They advised small size companies to improve their working capital management by handling their receivables and inventories. In a similar line of research, Jose et al. (1996) looked at the relationship between corporate working capital management measured by CCC and its size measured by sales. They reported negative relationship between the two variables in five out seven sectors covered in their study. However, Jeng-Ren et al. (2006) explored the relationship between net liquid balance and corporate size. They observed positive relationship between the two variables. The outcome of their study implied that large size companies tend to produce more net liquid balance than small size companies. Uyar (2010) examined the relationship between working capital management measured by CCC and corporate size in a sample of companies listed on Istanbul Stock Exchange. He observed a negative significant relation between working capital management and corporate size. Rimo and Panbunyuen (2010) explored the relationship between CCC and corporate size measured by total assets. They a reported negative relationship between the two variables. They concluded that working capital management is more effective with the large size companies surveyed in their study. It is therefore hypothesized that:

Hypothesis 2. Working capital management is related to firm's size

Industry

Companies operating in different sectors tend to have different capital structures, different operations, different products, different markets, different customers and different credit policies. All of these factors impact corporate working capital management. Therefore, it is fair to say that working capital management is influenced by industry type. This relation has been empirically tested by Jose et al. (1996) who compared the CCC among seven sectors and noticed that construction companies tend to have the highest CCC, while manufacturing companies reported the lowest CCC. Hyun-Han and Soenen (1998) examined the relationship between working capital management and industry type in a sample of companies operating in eight sectors. They found the agricultural companies to have short receivable periods and the oil and gas extraction, and communication companies to have a short inventory periods due to low levels of inventory that they maintain over the time. Lancaster and Stevens (1999) looked into the relationship between earnings and cash flows under different industries. They concluded that industry impacts the relationship between cash flows. Charlton et al. (2002) noticed high investment sensitivity to cash flows in three out of seven industries covered in the study (construction, natural resources and retail/ whole sales industries). Yung-Jang (2002) explored variations in the CCC of Japanese and Taiwanese companies among different industries. He observed that while Japanese companies operating in food industry have on average the shortest CCC, services companies showed the longest CCC. On the Taiwanese side, transportation companies achieved in average the shortest CCC, while construction companies have the longest CCC. In the same token, Teruel and Solano (2007) classified small and medium sized companies into eight industries and examined their CCC. They showed that the services companies have the shortest CCC, while the manufacturing and agricultural companies have the longest CCC. Rimo and Panbunyuen (2010) revealed significant positive relationship between CCC and industry type in four out of the eight industries covered in their survey. It is therefore hypothesized that:

Hypothesis 3. Working capital management is related to the industry type of the firm

Operating Cash Flows

A limited number of studies investigated the relationship between cash flows and working capital management. Operating cash flows give indication about corporate ability to generate working capital through management policies in handling receivables, inventories and payables. Since short CCC is expected to result in positive operating cash flows, this gives indication about working capital management. In this regards, Moss and Stein (1993) reported negative relationship between CCC and cash flows measured by cash flows/ total assets. This indicates that companies with short CCC tend to have more cash flows than companies with long CCC. Jeng-Ren et al. (2006) studied the relationship between working capital management measured by net liquid balance and operating cash flow and found significant relationship between them. This implies that companies reporting high operating cash flows have high net liquid balance. This can be viewed as indication on working capital management. Rimo and Panbunyuen (2010) examined the relationship between CCC and operating cash flow in a sample of Swedish companies. They observed inverse relationship between the two variables indicating efficient working capital management of the surveyed companies. It is therefore hypothesized that:

Hypothesis 4. Working capital management is related to firm's cash flows

Sales Growth

Sales growth is the percentage change in sales from one year to another. Companies experiencing high sales growth rate need to have efficient working capital management to

finance such growth. In this context, Kim et al. (1998) showed positive significant relationship between corporate growth rate and liquidity in a sample of American industrial companies. They concluded that companies with potential future growth tend to produce and maintain a certain level of liquidity. Likewise, Opler et al. (1999) demonstrated that companies experiencing growth opportunities and have risky cash flows tend to maintain high cash holdings (cash/ non-cash asset). On the other hand, Jeng-Ren et al. (2006) studies the relationship between corporate age, as a proxy of corporate growth, and net liquid balance and pointed to a positive significant relationship between them. They explained their results on the grounds that well established companies with moderate growth opportunities tend to generate more working capital than newly established companies. Rimo and Panbunyuen (2010) tested the relationship between CCC and sales growth in a sample of Swedish companies. They noticed a negative relationship between the two variables. They concluded that the surveyed companies are efficient in managing their working capital. It is therefore hypothesized that:

Hypothesis 5. Working capital management is related to the firm's sales growth

Leverage/ Gearing
     The leverage/gearing ratio reflects the percentage of corporate assets financed by liabilities. Low leverage ratio may indicate that the company generates high cash flows to finance future expansion (expansion can be also financed by additional shares issues). Contrary to this, a company reporting high leverage ratio may indicate that this companies generates low cash flows to finance its expansion. Hence, it relies on outside borrowings. In this frame, Jeng-Ren et al. (2006) reported a negative significant relationship between debt ratio and working capital management measured by net liquid balance. The result implies that when a company has low net working capital, it looks for external sources of funds to finance its activities. This would result in high leverage ratio. Rimo and Panbunyuen (2010) looked into the relationship between CCC and debt ratio. The result of their analysis pointed to a positive relationship between CCC and debt ratio. The result indicates that increase in CCC period results in increase in the debt ratio. It is therefore hypothesized that:

Hypothesis 6. Working capital management is negatively related to firm's level of leverage

DATA COLLECTION AND STUDY APPROACH
     To provide testing for the hypotheses developed above, the annual reports of companies listed on Abu Dhabi Securities Exchange were used. The website of ADX contains detailed information about all listed companies. On 31 December 2011, 69 companies were listed on ADX. By excluding two non-national companies, Qatar Telecom and Sudan Telecommunication Co. Ltd., number of companies will be reduced to 67. These companies are divided into the following sectors: Insurance- 17, Banks- 14, manufacturing- 13, services- 7, consumer staples- 5, Investment and financial services- 6, real estate- 4, energy- 2, and telecommunications- 1. Since it was difficult to identify working capital components of companies operating in the banking, insurance and investment and financial services sectors, these sectors were excluded from the current study. Details of sectors and companies covered in the current study are summarized in table 1. The annual reports for the fiscal years 2010- 2011 of all these companies were used in the current study[‡]. List of the

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[‡] Data covered the fiscal year 2011. Sales growth was calculated between the fiscal years 2010 and 2011 except for Eshraq properties Co. where income statement data were not available for 2011. Hence, 2010 data were used.

companies' names, symbol, industry type, incorporation and listing dates are given in Table 2. The data were entered into an SPSS file in order to identify the relationship between working capital management represented by the cash conversion cycle and firms profitability, size, industry, cash flows, sales growth and leverage. The relationship between working capital management and firm's attributes are presented in the following regression model.

$$CCC_x = a_0 + a_1 PROF + a_2 SIZE + a_3 INDS + a_4 OCFL + a_5 SGRW + a_6 LEVE + e$$

Where:

CCC_x	=	Cash Conversion Cycle = Inventory days + Accounts Receivables days – Accounts Payable days
a_0	=	Intercept
$PROF$	=	profit measured by return on equity (Net profit/ Equity)
$SIZE$	=	Size measure by total assets
$INDS$	=	Industry type: 1 Services, 2 Manufacturing, 3 Consumer Stables, 4 Real Estates, 5 Energy, 6 Communication.
$OCFL$	=	Operating cash flows and operating cash flows to total assets ratio
$SGRW$	=	Sales growth = $Sales_{(x)} - Sales_{(x-1)}/ Sales_{(x-1)}$
$LEVE$	=	Leverage = [Total Liabilities- Accounts Payable]/ Total Assets
e	=	Standard Error
$a_1 - a_6$	=	Parameters of the model

<div style="text-align:center">Insert Table 1 and 2 about here</div>

FINDINGS

Descriptive Statistics

As discussed in the regression model, six explanatory variables heavily documented in the literature were used to explain working capital management in all non-financial companies listed on Abu Dhabi Securities Exchange. Table 3 provides descriptive statistics about the independent and explanatory variables employed in the current study.

<div style="text-align:center">Insert Table 3 about here</div>

It can be observed from table 3 that the cash conversion cycle of the companies covered in the study varies among companies. This is reflected by the mean, standard deviation and the minimum and maximum amounts. Similarly, sales growth varied from being negative in few cases to become more than double in other cases. The standard deviation of the sales growth variable points to great variation across the companies. The same thing can be clearly seen in the return on equity variable. This indicates that companies' performance varied between positive and negative. As for the companies' size measured by total assets, the table showed the size varied from as small as AED 257 million to exceed AED 11 billion. The highly reported standard deviation of the total assets implies that there is big difference in the size of the companies covered in the current study. In this study two operating cash flows variables were used. While, in the first one, the total operating cash flows was used, in the second the total operating cash flows was compared to total assets. Once again, both variables pointed to large difference in the amount of operating cash flows and the ratio of cash flows to total assets of the companies covered in the study. Several companies reported negative operating cash flow, whereas others reported high positive figures. The highly reported standard deviation reflects variations in the reported amount

among the companies. An important point to notice in table 3 is that the companies covered in the current study are not heavily leveraged as represented by the mean and the median.
To have a close look at the effect of the industry type on the variables covered in the current study, descriptive statistics were calculated and reported in table 4.

Insert Table 4 about here

Table 4 showed that the manufacturing companies report the longest cash conversion cycle, whereas the lowest cash conversion cycle is achieved by the telecommunication and the real estate companies. This result is utterly justified since the manufacturing companies go through a long process of ordering materials and converting it into finished goods. The table also showed that all companies operating in the services, real estate, energy and communication sectors achieved positive sales growth. This result is also justified on the grounds that these companies are limited in number and the UAE economy is a fast growing one. The fast growing demand for services, real estate, energy and telecommunication makes sales growth inevitable. This has also affected the profitability of the companies operating in these sectors. It is evident from the table that none of the companies operating in these sectors reported negative return on equity as documented by the minimum and maximum value of return on equity for each industry. Similarly, the table revealed that the largest companies measured by their total assets belong to sectors such as communication, energy, real estate and services. The table further showed that, on average, only companies operating in the energy sector were heavily leveraged. The leverage ratio of most of the companies belong to other sectors was around 25%. This reflects the religious nature of the UAE society that avoids dealing with interest. Interest is prohibited by the Islamic Sharia'h principles. Another important point noticeable in table 4 is all companies operating in the communication, energy, and real estate industries reported positive operating cash flows.

Correlation
To identify the level of association between the explanatory variables used to estimate the regression model, Pearson coefficient of correlations was executed and reported in table 5. High level of correlation may suggest a collinearity problem.

Insert Table 5 about here

Table 5 contained a negative and significant association between the dependent variable (cash conversion cycle) and explanatory variables such as industry type and sales growth. As for the association between the independent variables, the table pointed to positive and significant association between industry type and each of the variables cash flows and firm's size. Positive and significant association was also found between the variable sales growth and each of the variables operating cash flows and leverage. Operating cash flows also showed positive and significant association with each of the variables leverage and total assets. An additional positive and significant association found between leverage and total assets.
Significant association between independent variables may suggest collinearity problem. It is, however, difficult to identify the severity of the collinearity problem from only relying on the correlation results. To cope with this, the Variance Inflation Factor (VIF) for each of the independent variables was calculated. The VIF is a widely used measure of the degree of multi-collinearity of an independent variable with the other independent variables in a regression model. It quantifies the severity of multi-collinearity in the regression analysis. It measures the variance of an estimated regression coefficient is increased as a

result of collinearity. VIF was undertaken and reported in tables 6a and 6b. As a rule of thumb, VIF   10 is viewed as a sign of severe multi-collinearity. When VIF is   10 collinearity can be reduced by eliminating one or more variables from the regression analysis. In all cases, all the VIFs appeared in tables 6a and 6b are less than 10. Hence, collinearity does not seem to be a problem in the regression models.

Regression Results

Two regression models were estimated in the current study. The main difference between the two models is the use of operating cash flows. While in the first model operating cash flows was used, the ratio of operating cash flows to total assets was used in the second. Relating operating cash flows to total assets takes into account the reported cash flows to the size of the company. In addition, using small ratios instead of large values of cash flows minimizes skewness.

In the current study, backward regression was undertaken. Under the backward regression, many regression analyses are undertaken. It starts with explanatory variables used to estimate the model. The regression is followed by many steps. In each step, the explanatory variable that is least significant is removed from the model and the model is refitted. In each subsequent step an insignificant explanatory variable is removed from the model until the most significant explanatory variables that estimate the regression model are obtained. The result of the two regression analyses is summarized in tables 6a and 6b.

Insert Table 6 about here

It is evident from the estimated model 1 in table 6a that cash conversion cycle of companies listed on Abu Dhabi Securities Exchange is negatively related to industry type, sales growth, profitability and size. However, positive association appeared between the cash conversion cycle and the level of leverage and operating cash flows. Yet, model 1 showed that the relationship was statistically significant only between the cash conversion cycle and each of the sales growth and leverage. In model 2, operating cash flows removed as being a weak determinant of cash conversion cycle. In model 3 industry type was removed. In the last model, return on equity removed. Hence, model 4 contained the most significant explanatory variables that explain variation in the cash conversion cycle. The model showed that cash conversion cycle of the companies listed on Abu Dhabi Securities Exchange are negatively and significantly influenced by sales growth and size measured by total assets. The model also showed positive and significant association between the cash conversion cycle and the level of corporate leverage.

An additional backward regression analysis was executed by replacing operating cash flows as an explanatory variable by the ratio of operating cash flows to total assets. This step relates the reported cash flows with corporate size and avoids the skewness problem. The result of this analysis is reported in table 6b. This regression reduced VIF values for total assets and operating cash flows. In addition, operating cash flows to total assets ratio appeared in the second and third model and a determinant of cash conversion cycle, whereas this variable removed from the regression process after running the first regression. Furthermore, unlike the previous regression model, where operating cash flows showed positive association with the cash conversion cycle, the operating cash flows to total assets ratio in this second regression model appeared to be negatively associated with the dependent variable. Yet, the two regressions were consistent on that sales growth, corporate size and level of leverage of companies listed on Abu Dhabi Securities Exchange are the most significant factors that influence their cash conversion cycle.

The negative and significant relationship between sales growth and corporate cash conversion cycle of the companies listed on Abu Dhabi Securities Exchange is consistent with Rimo and Panbunyuen (2010). This implies that the cash conversion cycle reduces when sales growth increases. This is a sign of effective working capital management. Companies with high sales growth are expected to have fast cash conversion cycle to finance such growth. Such companies are also expected to maintain a certain level of liquidity and cash holding.

Size measured by total assets appeared also to be negatively and significantly associated with the cash conversion cycle of companies listed on Abu Dhabi Securities Exchange. In other words, large companies tend to have shorter cash conversion cycles than small companies. This result lends support to previous research undertaken by Moss and Stine (1993), Jose et al. (1996), Uyar (2010), Panbunyuen (2010). Large companies usually have higher turnover than small companies. In addition, large companies' influence on their customers (receivables) and suppliers (payable) is more than small companies. Hence, they can shorten the average collection period and extend credit terms with their suppliers. Credit terms with suppliers can include big discounts and long time term payment.

Unlike sales growth and size variables that showed negative and significant association with the cash conversion cycle of companies listed on Abu Dhabi Securities Exchange, the level of leverage of these companies showed positive and significant association with the cash conversion cycle. This indicates that companies with leverage ratio tend to have long cash conversion cycle than companies with low leverage ratio. This result is line with Rimo and Panbunyuen (2010). Large leverage level implies that the company does not have enough liquidity and used external sources of funding to finance its activities. It is, therefore, predictable to see companies with long cash conversion cycle to have high levels of leverage.

CONCLUSION

The attempt is made in the current study to examine the relationship between cash conversion cycle as a proxy of working capital management and a number of corporate attributes of non-financial companies listed on Abu Dhabi Securities Exchange. All non-financial companies listed on the exchange and operating in the UAE are covered in the current study. Financial companies were excluded due to the fact that the components of their working capital are different than that of the non-financial companies. While non-financial companies report inventory in their working capital, financial companies do not have this item. Six corporate attributes were used to explain variation in cash conversion cycle of the companies covered in the study: industry type, sales growth, operating cash flows, return on equity, leverage and size measured. The choice of these variables was mainly because they were frequently employed in previous research. Non-financial companies listed on Abu Dhabi Securities Exchange are classified into six industries: services, manufacturing, Consumers staples, real estate, energy and communications. The main features of the industries that they have a small number of companies; i.e. only one company is classified under the telecommunications industry and only two companies belong to the energy industry. The largest number of companies (13) were belong to the manufacturing industry.

The latest annual reports reported by all non-financial companies published on the website of the Abu Dhabi Securities Exchange were used to extract data about the companies cash conversion cycle and their attributes. 2011 Annual reports for all companies were available on the site except for Eshraq properties Co. Although this company published the income statement and the balance sheet for the year 2011, some items in the income statement left blank.

Initial analyses of the non-financial companies covered in the current study revealed that large companies mainly belong to the telecommunications, energy and real estate industries. The analyses also revealed that the cash conversion cycle of companies belong to these industries is significantly shorter than the cycle of companies belong to other industries. In addition, sales growth, together with return on equity of companies, belong to three mentioned industries were relatively better than companies belong to the remaining industries. A further point noticed in the initial analysis is that the leverage ratios of the three mentioned industries were relatively lower than other companies. It is, therefore, fair to say that large companies listed on Abu Dhabi Securities Exchange are experiencing higher levels of growth than small companies. As a consequence, they achieved higher return on equity and made them rely on internal sources of funding. Hence, they reported low levels of leverage. Combining all these factors together resulted in low cash conversion cycle.

As mentioned earlier, six factors frequently employed in previous research to explain variation in cash conversion cycle were employed in the current study. Out of the six factors, three appeared to significantly associated with the cash conversion cycle. While two of the factors (sales growth and total assets) showed negative and significant association with the cash conversion cycle, the third factor showed positive and significant association. Large companies have better negotiation power over their customers as well as their suppliers. They, therefore, can shorten their cash conversion cycle. In addition, their size puts them in a position to increase their sales and attain sales growth better than small companies. After all, they can afford to reduce their prices more than small companies. High levels of sales growth are very likely to positively influence profitability and liquidity. Hence, resulting in short cash conversion cycle.

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TABLE 1
Number of Companies Covered in the Current Study According to Industry Type

N = 30	Frequency	Percent	Valid Percent	Cumulative Percent
Services	6	20.0	20.0	20.0
Manufacturing	13	43.3	43.3	63.3
Consumer Staples	5	16.7	16.7	80.0
Real Estates	3	10.0	10.0	90.0
Energy	2	6.7	6.7	96.7
Telecommunications	1	3.3	3.3	100.0
Total	30	100.0	100.0	

TABLE 2
Details of the Companies Covered in the Current Study

No.	Name	Symbol	Industry	Incorporation Date	Listing Date
1	Abu Dhabi Aviation Co.	ADAVIATION	Services	01/01/1982	15/12/2000
2	Abu Dhabi National Hotels	ADNH	Services	01/01/1975	15/11/2000
3	Emirates Driving Company	DRIVE	Services	24/10/2005	01/04/2008
4	Gulf Medical Projects Company	GMPC	Services	02/08/1979	31/07/2005
5	National Corp for Tourism & Hotels	NCTH	Services	01/01/1996	15/11/2000
6	National Marine Dredging Co.	NMDC	Services	01/01/1979	15/11/2000
7	Abu Dhabi Ship Building Co.	ADSB	Manufacturing	01/01/1996	24/03/2003
8	Arkan Building Materials Co.	ARKAN	Manufacturing	15/01/2006	08/01/2007
9	Abu Dhabi National Co. for B and M	BILDCO	Manufacturing	01/01/1974	15/11/2000
10	Fujairah Building Industries P.S.C.	FBI	Manufacturing	01/11/1978	11/01/2007
11	Fujairah Cement Industries	FCI	Manufacturing	01/01/1979	18/07/2005
12	Gulf Cement Co.	GCEM	Manufacturing	01/01/1977	26/02/2002
13	Gulf Pharmaceutical Industries	JULPHAR	Manufacturing	01/01/1980	20/10/2002
14	Umm Al-Qaiwain Cement Industries Co.	QCEM	Manufacturing	11/02/1982	17/07/2005
15	Ras Al Khaimah Cement Company	RAKCC	Manufacturing	27/05/1995	16/03/2004
16	Ras Al Khaimah Ceramic Co.	RAKCEC	Manufacturing	12/03/1989	13/10/2003
17	Ras Al Khaimah White Cement	RAKWCT	Manufacturing	10/09/1980	26/08/2002
18	Sharjah Cement & Industrial Development Co	SCIDC	Manufacturing	12/05/1976	27/07/2005
19	Union Cement Co.	UCC	Manufacturing	01/01/1972	02/07/2002
20	Agthia Group PJSC	AGTHIA	Consumer Staples	10/05/2005	10/05/2005
21	International Fish Farming Holding Co. PJSC	ASMAK	Consumer Staples	22/05/1999	04/10/2005
22	FOODCO Holding P.J.S.C	FOODCO	Consumer Staples	01/01/1979	15/11/2000
23	Gulf Livestock Company	GLS	Consumer Staples	15/02/1982	28/10/2009
24	Ras AlKhaimah Poultry & Feeding Co.	RAPCO	Consumer Staples	15/12/1976	11/09/2002
25	ALDAR Properties PJSC	ALDAR	Real Estate	23/02/2005	05/04/2005
26	Eshraq properties Co.*	ESHRAQ	Real Estate	26/07/2011	15/09/2011
27	Sorouh Real Estate Company PJSC	SOROUH	Real Estate	26/07/2005	20/12/2005
28	Dana Gas PJSC	DANA	Energy	20/11/2005	06/12/2005
29	Abu Dhabi National Energy Company	TAQA	Energy	06/07/2005	10/09/2005
30	Etisalat	ETISALAT	Telecommunication	01/01/1976	24/06/2002

* While income statement data were not available for 2011, balance sheet data were available.

TABLE 3

Descriptive Statistics about all Variables Used in the Current Study

N = 30	Cash Conversion Cycle (CCC)	Sales Growth (SG)	Operating Cash Flows (Million AED) (OCF)	Operating Cash Flows to Total Assets	Return on Equity (ROE)	Leverage (LV)	Total Assets (Million AED) (TA)
Mean	55.27	.2014	781.5316	.0280	.0173	.2580	10063.1849
Median	82.00	.1000	64.4646	.0299	.0400	.2125	1561.5694
Std. Deviation	170.636	.65001	2193.36460	.10466	.23117	.20802	24628.35134
Minimum	-326	-.46	-296.13	-.29-	-1.14	.00	257.41
Maximum	301	2.76	7480.82	.23	.22	.83	114693.00

TABLE 4
Descriptive Statistics about all Variables used in the Current Study according to Industry

Sector		Cash Conversion Cycle (CCC)	Sales Growth (SG)	Operating Cash Flows (Million AED) (OCF)	Operating Cash Flows to Total Assets	Return on Equity (ROE)	Leverage (LV)	Total Assets (Million AED) (TA)
Services N = 6	Mean	-5.17	.1400	175.1704	.0795	.1033	.2540	3447.4601
	Median	-14.50	.1000	150.2082	.0976	.1200	.2594	2514.3404
	Std. Deviation	176.893	.16285	226.40126	.06810	.0736	.19732	3552.98491
	Minimum	-281-	.01	-154.61	-.04-	.00	.03	393.83
	Maximum	234	.46	463.53	.15	.18	.46	10136.63
Manufacturing N = 13	Mean	164.92	-.0085	27.2961	.0178	-.067	.2256	1781.4964
	Median	185.00	.0200	9.8784	.0074	.0200	.1666	1341.4292
	Std. Deviation	111.183	.22438	105.85277	.05674	.3269	.19703	1416.28377
	Minimum	-41	-.46	-189.38	-.08-	-1.14	.00	417.53
	Maximum	301	.24	203.95	.13	.11	.57	5725.61
Consumer Staples N = 5	Mean	73.80	-.0514	-64.5865	-.0974-	.0220	.2302	746.4082
	Median	66.00	-.0170	-41.4919	-.0856-	.0200	.2382	484.6771
	Std. Deviation	108.624	.18794	144.30296	.15015	.0867	.11854	554.39413
	Minimum	-54	-.28	-296.13	-.29-	-.10	.10	257.41
	Maximum	223	.14	94.70	.09	.14	.40	1582.08
Real Estates N = 3	Mean	-199.00	1.6167	2535.7308	.1416	.1233	.2771	18204.5505
	Median	-204.00	2.1400	232.7950	.1819	.0900	.1938	14149.6410
	Std. Deviation	129.572	1.4762	4123.2779	.11062	.0850	.30234	20193.5901
	Minimum	-326	-.05-	78.35	.02	.06	.03	346.10
	Maximum	-67	2.76	7296.05	.23	.22	.61	40117.91
Energy N = 2	Mean	-1.00	.3550	3637.5000	.0451	.0950	.5597	63407.0000
	Median	-1.00	.3550	3637.5000	.0451	.0950	.5597	63407.0000
	Std. Deviation	5.657	.09192	4629.4281	.02137	.0495	.38573	72529.3567
	Minimum	-5	.29	364.00	.03	.06	.29	12121.00
	Maximum	3	.42	6911.00	.06	.13	.83	114693.00
Communications N = 1	Mean	-225.00	.0100	7480.8160	.1026	.1100	.1817	72891.6420
	Median	-225.00	.0100	7480.8160	.1026	.1100	.1817	72891.6420

TABLE 5
Correlations among all Variable Employed in the Current Study

N = 30		CCC	Industry	SG	OCF	OCFR	ROE	LV	TA
CCC	Pearson Correlation	1.000							
	Sig. (2-tailed)	0.000							
Industry	Pearson Correlation	-.391*	1.000						
	Sig. (2-tailed)	.033	0.000						
SG	Pearson Correlation	-.399*	.315	1.000					
	Sig. (2-tailed)	.029	.090	0.000					
OCF	Pearson Correlation	-.329	.648**	.442*	1.000				
	Sig. (2-tailed)	.075	.000	.015	0.000				
OCFR	Pearson Correlation	-.310	.037	.236		1.000			
	Sig. (2-tailed)	0.095	.846	.209		0.000			
ROE	Pearson Correlation	-.312	.112	.123	.145	.153	1.000		
	Sig. (2-tailed)	.094	.556	.518	.444	30	0.000		
LV	Pearson Correlation	-.034	.287	.446*	.546**	.088	-.043	1.000	
	Sig. (2-tailed)	.857	.124	.014	.002	.643	.823	0.000	
TA	Pearson Correlation	-.304	.657**	.265	.899**	.201	.151	.550**	1.000
	Sig. (2-tailed)	.102	.000	.157	.000	.288	.426	.002	0.000

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 6a
Backward Regression

Model		$R^2 = .412$	Adjusted $R^2 = .258$	F = 2.684	Sig. = .040
1	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.744	.465	
	Industry	-.156	-.699-	.491	1.955
	Sales Growth	-.385	-1.974	.060	1.490
	Return on Equity (ROE)	-.168	-1.013	.322	1.082
	Total Assets (Million AED)	-.407	-.958	.348	7.057
	Leverage*	.410	2.099	.047	1.493
	PCFS (000 AED)	.146	.347	.731	6.893
2		$R^2 = .409$	Adjusted $R^2 = .286$	F = 3.318	Sig. = .020
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.726	.475	
	Industry	-.150	-.685	.500	1.941
	Sales Growth	-.354	-2.083	.048	1.174
	Return on Equity (ROE)	-.170	-1.042	.308	1.081
	Total Assets (Million AED)	-.287	-1.176	.251	2.424
	Leverage	.409	2.131	.044	1.492
3		$R^2 = .397$	Adjusted $R^2 = .301$	F = 4.118	Sig. = .011
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.278	.783	
	Sales Growth	-.381	-2.329	.028	1.111
	Return on Equity (ROE)	-.164	-1.019	.318	1.078
	Total Assets (Million AED)	-.395	-2.134	.043	1.420
	Leverage	.440	2.390	.025	1.406
4		$R^2 = .372$	Adjusted $R^2 = .300$	F = 5.136	Sig. = .006
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.124	.902	
	Sales Growth	-.401	-2.463	.021	1.096
	Total Assets (Million AED)	-.434	-2.395	.024	1.360
	Leverage	.479	2.659	.013	1.345

* Leverage = [Total Liabilities – Accounts Payable]/ Total Assets

TABLE 6b
Backward Regression

Model		$R^2 = .437$	Adjusted $R^2 = .290$	F = 2.973	Sig. = .027
1	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.927	.364	
	Industry	-.193-	-.869-	.394	2.007
	Sales Growth	-.315-	-1.813-	.083	1.230
	Return on Equity (ROE)	-.130-	-.778-	.445	1.139
	Total Assets (Million AED)	-.236-	-.949-	.353	2.519
	Leverage*	.401	2.099	.047	1.494
	PCFS (OCFs/ Total Assets)	-.182-	-1.070-	.296	1.184
2		$R^2 = .422$	Adjusted $R^2 = .290$	F = 3.504	Sig. = .016
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.879	.388	
	Industry	-.191-	-.869-	.393	2.006
	Sales Growth	-.324-	-1.889-	.071	1.223
	Total Assets (Million AED)	-.262-	-1.076-	.293	2.471
	Leverage	.431	2.321	.029	1.433
	PCFS (OCFs/ Total Assets)	-.212-	-1.289-	.210	1.124
3		$R^2 = .404$	Adjusted $R^2 = .308$	F = 4.232	Sig. = .009
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.266	.792	
	Sales Growth	-.363-	-2.203-	.037	1.140
	Total Assets (Million AED)	-.403-	-2.211-	.036	1.391
	Leverage	.471	2.628	.014	1.347
	PCFS (OCFs/ Total Assets)	-.185-	-1.152-	.260	1.084
4		$R^2 = .372$	Adjusted $R^2 = .300$	F = 5.136	Sig. = .006
	Variables	*Beta*	*T*	*Sig.*	*VIF*
	Constant		.124	.902	
	Sales Growth	-.401-	-2.463-	.021	1.096
	Total Assets (Million AED)	-.434-	-2.395-	.024	1.360
	Leverage	.479	2.659	.013	1.345

* Leverage = [Total Liabilities – Accounts Payable]/ Total Assets