

## EFFICIENCY OF WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF UAE CONSTRUCTION COMPANIES: SIZE AND CRISIS EFFECTS

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**Abstract:** This paper aims to examine the relationship between the efficiency of working capital management and profitability of construction firms listed in the United Arab Emirates stock markets. The results show a negative and significant relationship between net trade cycle for all construction firms and large construction firms. The coefficient of small firms is positive and insignificant, this indicates that small construction firms do not manage their working capital efficiently. The results also show a negative and significant relationship between the net trade cycle and profitability of construction firms during crisis periods. This indicates that UAE construction companies are more efficient in managing their working capital during the crisis periods.

**Keywords:** Working Capital Management, Net Trade Cycle, Profitability, Small Firms, Financial Crisis.

DOI: 10.17512/pjms.2018.18.2.17

Article's history:

*Received* August 21, 2018; *Revised* October 12, 2018; *Accepted* November 02, 2018

### Introduction

Efficient management of working capital is critical for a construction firm's ability to cope with weak financial conditions and increased economic uncertainty, especially during crises periods (Mun and Jang, 2015). Firm's performance can be enhanced not only through long-term financial decisions of capital budgeting, capital structure, and efficient operations, but also through efficient management of working capital management (Mun and Jang, 2015). Primarily, efficient management of working capital is an essential part of the overall firm's strategy (Padachi, 2006) and it is anticipated to participate positively in the firm's value creation (Nazir and Afza, 2009). In firms of all sizes, an essential point of administration bookkeeping schedules is to control key ranges, screen, and assuredly enhance, execution. Little firms need to especially control and screen their working capital. This is on account that they are in largely connected with a higher extent of current possessions in respect to extensive firms, less liquidity, unpredictable money streams, and a dependence on a fleeting obligation (Peel et al., 2000). Proof proposes that moderately few little firms use essential working capital administration schedules and they demonstrate a more noteworthy pervasiveness of specially appointed or subjective working capital choice making. An absence of formalization does not so much infer that a little firm is inadequately

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controlled (Perren and Grant, 2000). Notwithstanding, Peel and Wilson (1996) state that more diminutive firms ought to embrace formal working capital administration schedules so as to diminish the likelihood of business conclusion, and also to improve business execution.

Several studies done previously focus on the working capital management of larger firms or non-financial firms (Mun and Jang, 2015; Padachi, 2006; and Nazir and Afza, 2009), existing literature on working capital management in the UAE context are rare particularly on construction firms and small firms (Nasruddin, 2006). The firm's size is an important factor in deciding the perceptions of working capital management (Nobanee and Abraham, 2014). Moreover, the size makes small firms more vulnerable to working capital fluctuations (Padachi, 2006). Rafuse (1996) also argued that the insufficiency of working capital is one of the major reasons for the bankruptcy of small firms in the developed as well as the developing countries. Working capital management practices are essential during crisis periods as most of the firms reduce their capital expenditure, cash, and inventory levels. During the crisis periods, creditworthiness of firms has become more important because of the shortage of credit availability (Vikash et al., 2014). During the economic crisis, companies optimize their assets and increase the efficiency of financing through active management of working capital management.

Construction is a sector where final consequence too rarely meets quality expectations of investors (Czajkowska and Kadłubek, 2015). The health of the construction sector in the UAE is highly important to the UAE economy, consequently, it's essential to examine the efficiency of working capital management of small and large companies in the UAE in both crises and non-crises periods. Almost in all countries, area of small firms constitutes an important source of economic growth. Instantaneously, these entities are most sensitive to changes in market factors (Pietrasieński and Ślusarczyk, 2015). Managing operations and processes of working capital management constitute an inseparable element of the technical, social or organizational system. They are essential in showing the dynamics of the organizations in all sizes and they are subordinated to its goals (Kościelniak, 2014). The high amount of administrative and operational barriers, which hinder the establishment of new enterprises and development of the existing small firms are reflected in the world rankings and influenced the efficiency of managing small firms' resources (Dziadkiewicz and Całus, 2011). Thus, the purpose of this study is designed to examine whether working capital influences construction firms' profitability. More specifically, the objectives of this paper are, (1) to investigate the impact of the efficacy of working capital management measured using the Net Trade Cycle (NTC) on construction firms' profitability measured by the Return on Assets (ROA) (2) to measure the length of NTC for all, large and small construction firms and to test the impact of the length of the NTC on firms profitability for all size levels (3) to examine the impact of the efficacy of working capital management measured using the Net Trade Cycle (NTC) on construction firms' profitability measured by the Return on Assets

(ROA) during crises and crisis periods. By fulfilling the above objectives, this paper will contribute to the working capital management body knowledge by providing a better understanding of the relation between the efficiency of working capital management and profitability of UAE construction companies. It should also be noted that, to the best of my knowledge, this study is the first paper that attempts to provide a better understanding of working capital management and profitability for UAE construction companies.

The remainder of this paper is organized as follows: Sections 2 discuss data and methodology to be estimated. The empirical results are presented in Section 3 and Section 4 concludes the research.

### Data and Methodology

The data was collected from the annual reports of all construction companies listed on both Abu Dhabi Stock Exchange and Dubai Financial Market for the years 2003-2013. Our final sample includes 122 year-firm observations.

In this study, the author hypothesizes a negative and significant relationship between the efficiency of working capital management measured by the net trade cycle and firms profitability measured by return on assets for all construction companies listed on the UAE markets and for small and large construction companies before and after the 2008 subprime mortgage crisis. The net trade cycle is an additive function and equal to the days sales in receivables plus days sales in inventory minus the payables period (Shin and Soenen, 1998).

The author has employed a Generalized Method of Moment Dynamic Panel-Data System Estimation with Robust Standard Errors in this study. The study has used this estimation because some of the independent variables may be jointly correlated with the dependent variable and there can be a possibility of unobserved province specific effects correlated with the independent variables, and it is necessary to control for such unobserved province specific effects (Nobanee et al., 2011). The robust estimation does not require any quality measures.

This estimation leads to the following equation:

$$roa_{it} = \alpha + \beta_1 roa_{it-1} + \beta_2 ntc_{it} + \varepsilon_{it} \quad (1)$$

Where ( $roa_{it}$ ) is the first difference of return on assets. The independent variables in the model include the differenced lagged dependent variable and ( $roa_{t-1}$ ) is the differenced lagged dependent variable of return on assets, ( $ntc_{it}$ ) is the first difference of net trade cycle and calculated as [(Receivable + Inventory – Payable) / sales]\* 365 (Shin and Soenen).

The author has run this model for all construction companies listed in UAE markets as well as at the divisions' levels of the sample by crisis and non-crisis periods, and by size.

## Results and Discussion

Table 1 reports the average length of the net trade cycle of all, small, and large UAE listed construction firms during the period 2003-2013. It also reports the average length of the net trade of UAE listed construction firms during the crisis and non-crises periods. The average length of the net trade cycle reflects the efficiency of managing the firm's working capital and it's the average length of time between paying cash for the raw materials and collecting cash from receivables (Shin and Soenen, 1998; Nobanee and Abraham, 2014). Short net trade cycle indicates less working capital tied in the operations and faster processing of materials and faster collection cash from receivables and this leads to high efficiency and performance (Nobanee et al., 2011). The results reported in Table 1 show that the average length of the net trade cycle of all UAE construction firms is 773.49 days and 1486.31 days for small construction firms and 440.84 for large UAE construction firms. This indicates that large construction firms are more efficient in managing their working capital comparing with small construction firms. The results also show that UAE construction firms are more efficient in managing their working capital during crises periods as the average length of the net trade cycle is 700.47 days comparing with 884.05 days during the non-crisis period.

The length of the Cash Conversion Cycle (and the Net Trade Cycle) is varying across industries, manufacturing firms have longer CCC and NTC comparing with retails firms (Shin and Soenen, 1998). The reason is that manufacturing firms spend more time in manufacturing and processing inventories comparing with retail firms. Costa and Ferreira (2014) compared the length of the CCC cycle of a sample of multinational companies between fast-moving consumer goods and airline companies for the period 2009-2012, the results show that CCC for the fast-moving consumer goods industry is negative, minus 24 days, while CCC of airline companies was (positive) 10 days. Nobanee and Ellili (2015) estimated the length of the NTC of construction companies listed on the Kuwait Stock Exchange for the period 2001-2013, the length of the NTC for all companies was 2895 after removing outliers from the sample. The length of the NTC of Kuwait construction companies can be used as a benchmark for this study. This indicates that UAE construction companies are more efficient in managing their working capital management while comparing with Kuwait construction companies as the NTC of UAE construction companies (positive 773 days) is lower than the NTC of Kuwait construction companies (positive 2895 days).

**Table 1. Length of the Net Trade Cycle for the Full Sample and Sub-samples**

Sample/Variables	All	Small	Large	Crisis	Non-Crisis
NTC	773.49	1486.31	440.84	700.47	884.05

Table 1 reports the means of the Net Trade Cycle (NTC) for the full sample and all sub-samples that includes small firms, large firms, crisis period and non-crisis period for a sample of 122 year-firm observations of listed UAE construction firms, for the period 2003-2013.

**Table 2. Results of Dynamic Panel-Data Two-Steps Robust System Estimation**

Sample/Variables	All	Small	Large	Crisis	Non-Crisis
NTC	-0.00055**	0.00024	-0.00005*	-0.00065**	0.00004**
Lag-ROA	-2.2356700	1.43876	0.68543	-0.460920	0.100960*

Table 2 reports the results of the dynamic panel-data two-steps robust system estimation for the relationship between the net trade cycle and firm's profitability for a sample of 122 firm-year observation of U.A.E. construction firms listed on the Abu Dhabi Stock Exchange and Dubai Stock Exchange, for the period 2003-2013. Dependent and independent variables are in the form of the first difference. (ROA) is the return on investment, (NTC) is the net trade cycle, (Lag-ROA) is the lagged dependent variable. This robust estimation does not require any quality measures.  
\* Significant at 95% confidence level, \*\*significant at 99% confidence level.

The results reported in Table 2 confirms the results reported in Table 1. The coefficients of the relationship between the net trade cycle and profitability for all and large construction firms are significant and negative and it is insignificant and positive for the small firms. This means large firms are more efficient in managing their working capital while comparing to small firms. Small firms have always been particularly vulnerable to changes in the business cycle and economic conditions. Small firms are generally less efficient than their larger firms; the author would expect small firms to be significantly affected by changes in the business environment. It's commonly known in most of the microeconomics literature that firm's efficiency is influenced by its size; this means large companies are usually more efficient than small companies because they can gain more from economies of scale.

The results also show that the coefficient of crises periods is significant and negative while the coefficient of the non-crisis period is significant and positive. This means the shorter the net trading cycle associated with higher performance, and companies are more efficiently managing their working capital during crisis periods. Santana et al., (2017) argue that construction companies that use their limited resources (including their working capital) more efficiently, have more chances to survive when compared with construction companies that use their resources inefficiently (Zammuto and Cameron, 1985). Such companies can survive during crises periods. Most of the companies reduce costs and improve their operational efficiency and the efficiency of managing their working capital during the financial and economic crisis.

During non-crises period, the results indicate that longer net trade cycle is associated with higher performance during non-crises periods, this can be interpreted by government support during these periods. In addition, the coefficients of the lagged dependent variable (Lag-ROA) indicates that values of ROA in the previous periods have a significant and positive effect on the current values of ROA during non-crisis periods.

### Summary

The relationship between the efficiency of working capital management and profitability of construction firms listed in the United Arab Emirates stock markets

is investigated in this study. This relation is examined by using dynamic panel data two-steps robust system estimation for the period 2003-2013. The analysis is applied at the levels of the full sample and divisions of the sample by crisis and non-crisis periods, and by size. The results show a negative and significant relationship between net trade cycle as a comprehensive measure of the efficiency in working capital management and profitability for the full sample. The result of the relationship between net trade cycle and profitability for small firms is positive and insignificant, this indicates that small UAE construction companies do not manage their working capital efficiently. However, large companies are more efficient in managing their working capital; the coefficient is negative and significant. The results also show a positive and significant relationship between net trade cycle and profitability of UAE construction firms during non-crisis periods and negative and significant relation during crisis periods. This indicates that UAE construction companies are more efficient in managing their working capital during the crisis period. The results of this study are expected to guide the managers of UAE construction companies in applying the necessary working capital management techniques that guarantee a proper balance between current assets and current liabilities and support them in managing their working capital more efficiently in a way that improves liquidity, efficiency, profitability and increase value of their firms during crises and non-crises periods (Nobanee and Ellili, 2015). One of the limitations of this study is the focus on construction companies, the author suggests to amend the analysis for future research to include all listed non-financial companies.

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#### SKUTECZNOŚĆ ZARZĄDZANIA KAPITAŁEM OBROTOWYM ORAZ RENTOWNOŚĆ FIRM BUDOWLANYCH ZEA: WIELKOŚĆ I EFEKTY KRYZYSOWE

**Streszczenie:** Niniejszy artykuł ma na celu zbadanie zależności między efektywnością zarządzania kapitałem obrotowym a rentownością firm budowlanych notowanych na giełdach w Zjednoczonych Emiratach Arabskich. Wyniki pokazują ujemną i istotną zależność między cyklem handlowym netto dla wszystkich firm budowlanych i dużych firm budowlanych. Współczynnik małych firm jest dodatni i nieistotny, co wskazuje, że małe firmy budowlane niesprawnie zarządzają kapitałem obrotowym. Wyniki pokazują również ujemną i istotną zależność między cyklem handlowym netto a rentownością firm budowlanych w okresach kryzysowych. Wskazuje to, że firmy budowlane ZEA są bardziej skuteczne w zarządzaniu kapitałem obrotowym w okresach kryzysowych.

**Słowa kluczowe:** zarządzanie kapitałem obrotowym, cykl handlu netto, rentowność, małe firmy, kryzys finansowy

#### 阿联酋建筑公司的工作资本管理和盈利能力的效率:规模和危机影响

**摘要:** 本文旨在研究阿联酋股市上市的建筑公司营运资金管理效率与盈利能力之间的关系。结果显示, 所有建筑公司和大型建筑公司的净贸易周期之间存在负相关关系。小企业的系数是积极的, 微不足道的, 这表明小型建筑公司没有有效管理其营运资金。结果还显示, 在危机期间, 净贸易周期与建筑公司的盈利能力之间存在负相关关系。这表明阿联酋建筑公司在危机期间更有效地管理其营运资金

**关键词:** 营运资本管理, 净贸易周期, 盈利能力, 小企业, 金融危机。