

Current assets management of small enterprises

Current assets
management

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Abstract

Purpose – The purpose of this paper is to investigate the relationship between a firm's net trade cycle, its size and liquidity.

Design/methodology/approach – The relation between the firm's net trade cycle and its liquidity is examined using Generalized Method of Moment Dynamic Panel-Data System Estimation with Robust Standard Errors for a sample of 5,802 US non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004 (87,030 firm-year observations). The analysis is applied at the levels of the full sample and divisions of the sample by size.

Findings – The results show negative and significant relationship between net trade cycle, as a comprehensive measure of efficiency in working capital management, and liquidity for small firms.

Originality/value – Most of the existing literature focusses on the large firm's experience of working capital management. Small firms generally face liquidity problems and have limited access to external capital, and studies on their efficiency in working capital management are scant. Thus the present study is useful in understanding the relation between the firm's net trade cycle and liquidity of small firms.

Keywords Liquidity, Inventory conversion period, Net trade cycle, Payable deferral period, Receivable collection period

Paper type Research paper

1. Introduction

Corporate finance literature traditionally focusses on long-term financial decisions and their influence on the profitability of firms. However in recent years working capital management has gained importance as managers and academicians recognize the importance of the efficient management of a firm's liquidity as vital in the survival of the firm, especially at a time of global financial turmoil (Uremadu *et al.*, 2012). It is also noted that the management of current assets and liabilities which are financed by the working capital takes a lot of managerial time and effort and thus assumes greater importance (Chang *et al.*, 1995).

Extensive research resources discuss working capital management and its effect on profitability (Emery, 1987; Blinder and Mancini, 1991; Deloof and Jegers, 1996; Ng *et al.*, 1999; Reheman and Nasr, 2007; Nobanee *et al.*, 2011). These researchers focussed on the relation between net trade cycle and profitability and stressed the importance of working capital management as an integral part of the overall corporate strategy to increase shareholder value. Managing a balance between the profitability and liquidity of the firm assume vital importance in working capital management (Nazir and Afza, 2009). Researchers point out that the heavy investments in inventory and trade credit yield lower profits (Garcia-Teruel and Martinez-Solano, 2007; Shin and Soenen, 1998). An excessive level of working capital may affect the return on assets negatively while an insufficient amount may lead to shortages and difficulties in managing day to day operations (Horne and Wachowitz, 1998). These studies advocated the need for an efficient working capital management system that ensures a balance between



profitability and risk. They also highlighted the fact that constant attention paid to the overall working capital management builds the financial flexibility to respond to unexpected changes in the economic environment and thus gain competitive advantage.

Working capital is the value of current assets and current liabilities. Current assets include cash, accounts receivables, raw materials, work-in-progress and finished goods inventories, while current liabilities include accounts payables, notes payables and accruals. Many corporate finance managers focus on the management of these individual components of the working capital to improve overall efficiency. However, an working capital management integrated approach yields better results as evidenced by the overall financial performance of the firm.

If firms follow an aggressive working capital policy, they may try to keep low levels of current assets such as cash, short-term investments, accounts receivables and stock inventory, or make late payments to creditors. Firms can reduce their financing costs or make more funds available for long-term investments by minimizing the investment in current assets. Thus most country-wise empirical studies support the belief that reducing working capital investment increases the profitability of the firms (Shin and Soenen, 1998; Deloof, 2003). However, there are a few studies which have reported a negative relationship between aggressive working capital policy and profitability. They support the view that lower current assets may lead to shortages, illiquidity and difficulties in managing day to day operations and will reduce the firm's profitability (Horne and Wachowitz, 1998). Lack of liquidity in extreme situations can lead to the firm's insolvency.

A conservative working capital policy would support maintaining high levels of current assets such as inventories. This reduces the risk of liquidity associated with the opportunity cost of funds that may have been invested in long-term assets. Also, high-inventory levels reduce the cost of interruptions in the production process, decrease supply cost and protect against price fluctuation and loss of business due to scarcity of product, thus improving the profitability of firms (Blinder and Mancini, 1991). Similarly, a generous trade credit policy, may increase sales in a low-demand period, such as an economic recession, and strengthen customer relations. However, several studies report that excessive investments in current assets lead the firm to low-risk low-profitability scenario, especially considering the cost of discounts for early payment (Peterson and Rajan, 1997; Shin and Soenen, 1998; Ng *et al.*, 1999; Garcia-Teruel and Martinez-Solano, 2007). These studies addressed working capital management issues in general, without segregating them based on size.

However, the size of the firm is an important determinant in deciding the perceptions on working capital management. The financial profiles of smaller firms are significantly different from those of larger corporations. These differences get reflected in the management's attitudes, including the willingness to assume risk, and significantly impact small businesses.

The small firms are generally undercapitalized and hence dependent on owner-financing, trade credit and short-term bank loans. Further, the size makes these firms more vulnerable to working capital fluctuations (Padachi, 2006). Rafuse (1996) has pointed out the insufficiency of working capital as the major reason for the failure of small businesses in the developed as well as the developing countries. Small businesses generally maintain large amounts of current assets and show fluctuating cash flow and focus mostly on strategies to improve marginal returns indicating poor working capital management (Howorth and Westhead, 2003). These problems are relevant not only to

business start-ups or growing firms, but also to firms in more advanced stages of their life-cycle (Dodge *et al.*, 1994).

Studies in the USA and the UK highlight that weak financial management is a major cause of failure of small and medium-sized firms, compared to large firms (Peel and Wilson, 1996; Dunn and Cheatam, 1993). Thus, there is an increasing emphasis on efficient financial management (including working capital management) to reduce the probability of their closure. A similar study among listed manufacturing companies in Ghana indicated that small firms need to focus on critical areas such as managing the size of the working capital, improving the efficiency of working capital use and reducing the cost of operations to survive cash flow problems (Ebenezer and Asiedu, 2013).

Investigating the relationship between the profitability and working capital management of a large sample of firms, Deloof (2003) commented that managers can increase profitability by reducing the number of days of accounts receivables and inventories. He observed that the less profitable firms wait longer to pay their bills. In such an eventuality, the large firms can seek expensive external financing which is not usually available to small firms (Uyar, 2009). Thus, the optimal level of working capital will be lower for the financially constrained small firms than large firms (Fazzari and Peterson, 1993).

In this context, this paper aims at contributing to the knowledge of working capital management by extending the liquidity analysis using the net trade cycle with a focus on the size of the firms, an aspect which is not effectively addressed in the existing body of working capital management literature. The main object of the paper is to analyze the relationship between the firm's net trade cycle and liquidity of 5,802 US non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004 (87,030 firm-year observations).

The remainder of the paper is organized as follows: Section 2 presents the relevant literature. In Section 3 we discuss the data and the methodology. The main findings and their discussion are presented in Section 4. The conclusions are presented in Section 5. Finally, the implications for practice and future research are presented in Section 6.

2. Literature review

In this section, we review the existing literature on the link between working capital management. Traditionally, the current, acid-test and cash ratios measured the firm's ability to generate cash in a static environment. To overcome the limitation of these static ratios, on-going liquidity measures, such as the cash conversion cycle, were suggested by various researchers. A plethora of literature is available linking the cash conversion cycle (as a dynamic measure of working capital management) and the firm's profitability (Richards and Laughlin, 1980; Pinches, 1992; Schilling, 1996).

Gitman (1974) defined the cash conversion cycle as the number of days from the time the firm pays for its purchases of the most basic form of inventory to the time that the firm collects the payments for the sale of the finished product. Based on the accrual accounting principle, it analyzes the liquidity of the firm from the view point of an on-going concern (Moss and Stine, 1993). The longer the cash cycle, the larger will be the investment in working capital. Cash conversion cycle analysis can also lead the investigator to policy measures to reduce investments in current assets and thereby improve the liquidity of the firm.

Deloof (2003) showed a significant and negative relationship between the cash conversion cycle and the profitability of Belgian firms. He also analyzed the relationship

of the firm's profitability with the individual components of the cash conversion cycle, namely, inventory, accounts receivables and accounts payables periods. Shin and Soenen (1998) confirmed the significant negative relationship between the net trade cycle and the profitability of US firms. Karaduman *et al.* (2011) reported similar results by return on assets of companies listed on the Istanbul Stock Exchange. While confirming similar results for firms in Jordan, Al Shubiri (2011) argued that funds committed to working capital can be seen as hidden sources useful for improving the firm's profitability.

However, working capital management strategies in the firm can be affected by many external as well as internal factors. The sensitivity of working capital management to market imperfections such as asymmetric information, agency conflicts or financial distress was examined by Caballero *et al.* (2010). Their results showed that the working capital competes with investment in fixed assets for funds when the firm has financial constraints. The ability of the firm to find sufficient working capital depends on the bargaining power and other financial factors such as the availability of internal finance, cost of finance and access to capital markets. Uyar (2009) examined the relationship among the cash conversion cycle, size and profitability of the firms listed in the Istanbul Stock Exchange. The results showed a significant negative correlation between the cash conversion cycle and profitability and also between the cash conversion cycle and firm size. The results showed that a shorter cash conversion cycle exists for the retail/wholesale industry compared to that of the manufacturing industry.

Boisjoly (2009) examined the effect of working capital policy on financial ratios and found that cash flow per share and productivity significantly improved due to aggressive management of the working capital. A similar study by Lazaridis and Tryfonidis (2006) on the firms listed in the Athens Stock Exchange added that the proper and optimal handling of the components of the working capital by executives can improve the profitability of their firms.

Most of the existing working capital management papers examine the relationship between working capital management and the profitability of large firms applying regression or correlation techniques. Though working capital management is crucial for all firms, small firms are more vulnerable given their capital-starved nature and limited access to external capital. Commenting on the poor standards of credit management among small firms in the UK, Howorth and Wilson (1999) pointed out that long-term financial stability and ability to plan cash flow based on expected payments was important to tide over financial problems. Johns *et al.* (1989) found out that small firms hold less market power and less expert control over trade debtors compared to large firms and are forced to reduce the net trade credit which, in turn, affects the financial structure of the small firms.

Working capital management decisions are of particular importance to small business firms due to their heavy dependence on owner finances, trade credit and short-term bank loans. When coupled with inadequate long-term financing, poor working capital management can lead to the failure of small business firms.

Further, several researchers made in-depth critique of the impact of trade credit on the sustainability of small firms. Most of these works summarized the role of trade credit in financial disintermediation, price discrimination and reduction of asymmetric information. Schwartz (1974) and Emery (1984) stressed on the role of trade credit in financial disintermediation and identified that the relationship with the creditors help the small firms in obtaining funds other than institutional credit. Also, with immediate payment, the firms get discounts and it can act as a price discrimination device in the

market (Mian and Smith, 1992; Peterson and Rajan, 1994). In addition to this, trade credit smoothenes the asymmetric information between firms and its financial sources, also the firm and its suppliers. This is empirically evidenced by Deloof and Jegers (1996), Peterson and Rajan (1997) and Ng *et al.* (1999). Further, Cunat (2002) linked firms' liquidation and bankruptcy, explained the supplier dependency of small firms. Rodriguez-Rodriguez (2006) proved that the smallest firms mostly seek short-term finances through suppliers using panel data from Canary Island firms from 1990 to 1996.

Padachi (2006) analyzed the working capital management efficiency of a sample of 58 small manufacturing firms in Mauritius. The study concluded that the owner managers could increase their profits by shortening the working capital cycle. To respond to the changes in working capital needs over time, it is important to synchronize the assets and liabilities using the best management practices in the sector. This study stressed the importance of the adoption of relevant improved financial management practices in small firms (Peel *et al.*, 2000; Deloof, 2003). Sunday (2011) analyzed the effectiveness of working capital management in small and medium firms in Nigeria using standard working capital ratios and observed that the selected firms show signs of overtrading and illiquidity, low debt recovery and credit payment. The study stressed the need for a standard credit policy to ensure continuity, growth and solvency. Several industry-specific, country specific studies have also been made to feature the link between size and dependence on different components of short-term finances.

It is in this context that the present study focusses on the effect of working capital management measured by the net trade cycle and liquidity of small US firms using dynamic panel-data analysis.

3. Data and methodology

The data set in this study has been obtained from the DataStream. The sample includes 5,802 non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and the Over the Counter Market for the period of 1990-2004. The data includes all non-financial firms of all size levels listed in the above markets to compare the liquidity and the length of net trade cycle between different size levels. While the 1990-2004 periods are adequately long enough for the analysis, periods of 2005-2007 would be unlikely to cause significant differences to the results of this study. Periods of 2008-2013 may possibly be quite different, due to the latest global financial crisis. However, in this case, if this period were included in the analysis, we might probably have considered them as outlier periods and excluded them from our study sample or separated them from the rest of the data.

Following Shin and Soenen (1998), we employ the net trade cycle in this study as a comprehensive measure of working capital management. The net trade cycle is similar to the cash conversion cycle as it is an additive function that is equal to the account receivable period plus the inventory period minus the account payable period. However, it is easy to understand and to apply compared to the cash conversion cycle. The components of the net trade cycle are expressed in a day's sales the firm has to finance its current assets and current liabilities (Shin and Soenen, 1998).

The Generalized Method of Moment Dynamic Panel-Data System Estimation with Robust Standard Errors is used in this study. Most of linear dynamic panel estimations include number of lags of the dependent variable that could include unobserved panel-level effects could be fixed or random. By construction, the unobserved panel level could be correlated with the lagged dependent variables; this could lead to inconsistent slandered estimators (StataCorp., 2011). Arellano and Bond (1991) derived

a consistent generalized method of moments estimator for this model. Based on the work of Arellano and Bover (1995) and Blundell and Bond (1998) developed a new system estimator that uses additional moment conditions with robust standard errors. We applied this estimation in this study because our dependent variables are likely to be measured using annual data, and it seemed desirable to use a dynamic specification to allow for it. Moreover, some of our independent variables could be jointly determined with the dependent variable in our model. Finally, there is a possibility of unobserved province specific effects correlated with our regressors, and it seemed desirable to control for such effects (Nobanee *et al.*, 2011).

This estimation approach leads to the following estimation equation:

$$cata_{it} = \alpha + \beta_1cata_{it-1} + \beta_2ltde_{it} + \beta_3sg_{it} + \beta_{46}ntc_{it} + \varepsilon_{it} \tag{1}$$

where (*cata_{it}*) is the first deference of current assets to total assets. The exploratory variables in the model include the differenced lagged dependent variable; (*cata_{t-1}*) is the differenced lagged dependent variable of current assets to total assets. The exploratory variables in the model also include (*ntc_{it}*) which is the first difference of net trade cycle which is simply calculated as [(Receivable + Inventory – Payable)/sales] × 365 (see Shin and Soenen, 1998). The regressors in the two models also include some control variables such as (*sg_{it}*) which represents sales growth [(this year’s sales – previous year’s sales)/previous year’s sales] and long-term debt to equity ratio (*ltde_{it}*) (see Shin and Soenen, 1998; Deloof, 2003).

The hypothesis of the study is that small firms have a shorter net trade cycle associated with higher liquidity compared with large firms.

4. Results

In this section we present the results concerning the relationship of the length of the net trade cycle with corporate liquidity for the full sample and for divisions of the sample by size. This section discusses the empirical findings on the effects of the efficiency of working capital management on the company’s liquidity measured by the current assets to total assets. Total assets are used as a measure of company size.

A descriptive analysis was done for the full sample and also for different size groups. Table I reports the summary statistics of the current assets to total assets, long-term debt to equity, sales growth and net trade cycle for 5,802 US non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004. The mean of the net trade cycle for all companies is 66.71 days. This indicates that the average period of time between the payments of materials and the collection of receivables associated

Variable	All companies		Small companies		Medium companies		Large companies	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CATA	0.5469107	0.8490137	0.6371402	1.432059	0.5376187	0.2406008	0.4517465	0.2140683
LTDE	0.361444	41.03226	-0.1950524	51.63347	0.7579248	51.58792	0.4392059	3.889319
SG	1.617106	87.33182	4.420639	156.5727	0.5045598	11.75761	0.2125974	3.372736
NTC	66.71181	211.9935	59.58018	406.6647	76.98134	58.06573	61.9218	45.57018
OITA	-0.9350499	111.6497	-2.818533	189.6932	0.041795	0.1836604	0.0879997	0.1311745

Table I.
Descriptive statistics

Notes: CATA, Current assets to total assets; LTDE, Long-term debt to equity; SG, Sale growth; NTD, Net trade cycle; OITA, Operating income to total assets. Table I reports mean and standard deviation of the study variables

with manufacturing these materials for the US companies is 66.71 days. It is observed that the net trade cycle varies with companies of different size levels. This finding supports the view about the effect of size on the company's working capital management. Thus, the largest net trade cycle mean is found in medium-sized companies (76.98 days). In contrast, small companies (59.58 days) have the smallest net trade cycle. The large companies have a net trade cycle mean of 61.92 days. Some of the exciting literature reported a net trade cycle of 76.53 days for Finnish companies and 85 days for Swedish companies (Rehn, 2012). Other studies reported a cash conversion cycle of 44.48 for Belgium companies (Deloof, 2003) and 100 days for Malaysian companies (Zariyawati *et al.*, 2009). The descriptive results also show that small firms have the highest sales growth (4.42 times) and the lowest long-term debt to equity ratio (−19.5 percent). The negative long-term debt to equity ratio could occur when the value of the company's assets falls lower than the value of the outstanding debt when the company is in financial distress, which could be the case with most small businesses. The descriptive results also show that the shorter net trade cycle is associated with higher liquidity measured by current assets to total assets. Small firms have the shortest net trade cycle (59.58 days) and the highest liquidity measured by current assets to total assets (063.7 percent). These results support our view that most small firms do not have access to external financing compared with larger firms, and they shorten their net trade and, therefore, increase their liquidity. However, the descriptive statistics reported in Table I show that small companies have the highest standard deviation of most of the study variables. This high standard deviation associated with the small firms group suggests quite a high level of difference. Fluctuations of the NTC and other study variables could be heavily influenced by the company's financial policies toward its customers, inventories policies, credit policies, payable policies and other financial and economic parameters. The descriptive statistics reported in Table I also show that small firms have the lowest mean of operating income to total assets. This indicates that small enterprises in the USA are underperforming compared with compared with large and medium enterprises.

Table II shows the results from the regression of current assets to total assets using the Generalized Method of Moment Dynamic Panel-Data System Estimation with

Dependent variables	Independent variables	All companies	Small companies	Medium companies	Large companies
CATA	LD	0.5812506**	0.5837488**	0.6174587**	0.5500954**
	LTDE	−0.0000149*	−0.0006145	−0.0000115**	−0.0002703
	SG	0.0000118	7.01e − 06	−0.0002587*	0.001293
	NTC	0.0000184	0.000033**	−5.39e − 06	0.0001806
	CONS	0.2029276**	0.2429247**	0.1983147**	0.1805185**
	OBS	25,744	6,040	8,917	10,787

Notes: CATA, Current assets to total assets; LD, Lagged dependent variable; LTDE, Long-term debt to equity; SG, Sale growth; NTD, Net trade cycle; CONS, Constant; OBS, Number of observations. Table II reports the results of Arellano-Bover/Blundell-Bond GMM system dynamic panel-data estimation with robust standard errors of the relationship between the net trade cycle and firm's liquidity for an unbalanced sample of 5,802 US non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004. Dependent variable and independent variables are in the form of first difference. *, **Significant at 95 and 99 percent confidence level, respectively

Table II.
Arellano-Bover/
Blundell-Bond GMM
system dynamic
panel-data estimation
with robust standard
errors of the effect of
working capital
management on
firm's liquidity

Robust Standard Errors for the full sample and for different size levels. The results of the lagged independent variables (LD) in the model show that the firm's liquidity in the previous period has a strong positive effect on the firm's liquidity in the current period for all study samples, where the coefficient of the lagged dependent variables is positive and significant. We also observe that the sales growth does not have a significant effect on the firm's liquidity for all the study periods except for medium companies where the coefficient is significant and positive. The results also show that long-term debt to equity, which represents the firm's capital structure, is significantly related to liquidity for all companies and medium companies.

Our results also show that the coefficient of the net trade cycle is significant and negative for small-sized companies and insignificant for all others in the study sample. Similar to the finding of the descriptive statistics presented in Table I, and as we also hypothesized and expected, we find that shortening the net trade cycle improves the liquidity positions of small firms. We have also run our model using other liquidity measures such as the current ratio and the quick ratio. The results (not reported) are similar to the results reported in Table II.

The balance between liquidity and profitability is one of the most prominent decisions in financial management. More attention to increase profitability by firms could harm their liquidity position. Firms that are unable to meet their obligations on time are likely to become insolvent. In this study we also test the liquidity-profitability tradeoff for all companies and for different size levels. The results reported on Table III show a tradeoff between liquidity and profitability exists for small firms where the coefficient is negative and significant.

5. Conclusion

This study aims to investigate the relationship between the length of the net trade cycle and liquidity for small firms. Using the Generalized Method of Moment System Estimation with Robust Standard Errors applied to dynamic panel-data analysis based on a large sample of non-financial US companies listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004 with 87,030 firm-year observations, it has been estimated that a significant negative relationship exists between the net trade cycle and the liquidity of small firms. The firm's size is measured in this study using total assets. The findings of this study are consistent with the findings of Afza and Nazir that

Dependent variables	Independent variables	All companies	Small companies	Medium companies	Large companies
OITA	LD	0.3945591	0.6329883	0.0006669	0.2849614**
	CATA	-7.177778	-14.61075*	0.3712689**	0.1683972**
	CONS	3.613647	8.616054	-0.172407**	-0.0069646
	OBS	41,738	12,919	15,289	13,530

Table III.
Arellano-Bover/
Blundell-Bond GMM
system dynamic
panel-data estimation
with robust standard
errors of the
liquidity-profitability
tradeoff

Notes: CATA, Current assets to total assets; LD, Lagged dependent variable; OITA, Operating income to total assets; CONS, Constant; OBS, Number of observations. Table III reports the results of Arellano-Bover/Blundell-Bond GMM system dynamic panel-data estimation with robust standard errors of the liquidity-profitability tradeoff for an unbalanced sample of 5,802 US non-financial firms listed in the New York Stock Exchange, American Stock Exchange, NASDAQ Stock Market and Over the Counter Market for the period 1990-2004. Dependent variable and independent variables are in the form of first difference. *,**Significant at 95 and 99 percent confidence level, respectively

supported the view that lower current assets may lead to shortages, illiquidity and difficulties in managing day to day operations. The findings of this study are also consistent with the findings of Sunday (2011) who analyzed the effectiveness of working capital management in small and medium firms in Nigeria and observed that the selected firms show signs of overtrading and illiquidity.

Small firms are most likely to improve their liquidity position by applying strategies that result in shortening their net trade cycle. The findings of this paper support the view that working capital management is important especially for small firms that have most of their assets in the form of current assets, and their main alternative source of expensive and unavailable external financing are their current liabilities.

6. Implications for practice and future research

The findings of this study are expected to help owners and managers of small firms in applying essential working capital management practices that ensure a proper balance between current assets and current liabilities. The findings of this study will also guide owners and managers of small firms in managing their working capital more efficiently in a way that improves the liquidity of their firms and reduces the need for expensive external financing. Considering the importance of the small business sector in generating employment, the findings of this study offer valuable insights for policy makers and educators in deploying necessary resources for this sector. Further development of policies to support the small business sector can be included in future research. This will help to bridge the gap between theoretical research and practice. Educators in the field of small business management can apply the findings of this study to enrich and strengthen the content on working capital management and business sustainability. While most existing literature focusses on the large firms, it will be interesting to examine the effect of working capital management policies on the small firm's profitability, cash flow and market value in future research.

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Further reading

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