Working Capital Management and SME Profitability: Empirical Evidence from Bangladesh

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Working capital management (WCM) is widely found to have a great impact on firm’s profitability. Due to the lack of access in long term capital market, small medium enterprise (SMEs) gives more emphasis on effective use of WCM to ensure profitability. Especially in Bangladesh, SMEs are also highly dependent on WCM. In this regard, this paper aims to examine the relationship between working capital management and profitability of SMEs from Bangladesh. Data for relevant variables were found for 10 SMEs in the textile industry for the period of 2012-2017. Through a detailed literature review, several important variables related to working capital management i.e. Accounts Receivables (AR), Accounts Payables (AP), Inventory (INV), Cash Conversion Cycle (CCC) and others were identified and tested against profitability measures i.e. Return on Asset (ROA) and Gross Operating Profit (GOP). Econometric analysis found significant relationship between INV and ROA but no significant relationship with GOP. Size of the firm as proxy by sales recorded, Asset Turnover and Financial Debt were found to be significant with both GOP and ROA. Current ratio (CR) had a significant relationship with GOP but not the ROA. These findings have strong implications on proper WCM for the Bangladeshi SMEs to sustain their profitability over the course of their business operations.

Keywords: Working Capital Management, Profitability, SME, Bangladesh.

INTRODUCTION

Working capital is considered a crucial element of corporate financial management. It is considered so primarily because it directly affects the profitability of the firm. Moreover, it is a significant force for keeping a business active and functioning (Raheman & Nasr, 2007). Thus, it is more important for small businesses to balance between liquidity and profitability while conducting its day to day operations. Small Medium-Sized Enterprises (SMEs) play a key character in the comprehensive growth of an emerging country (Sharma, 2011). SME refers to certain business that falls under a certain personnel number and fixed asset threshold. According to Bangladesh Bank, SMEs in the manufacturing sector are defined as those with employees between 31 to 120 and fixed assets worth BDT 7.5 million to BDT 150 million (Star-Business, 2017). In recent times worldwide, SMEs are viewed as the driving force behind economic growth. Furthermore, SMEs are one of the most vibrant mediators of growth and account for almost 80% of the global economy. In developing countries, 90% of the firms are SMEs (except agricultural firms) and contributed greatly to the GDP (Stephen & Elvis, 2011). In a country like Bangladesh, SMEs have occupied a central place in the Bangladeshi economy. The most recent private sector survey estimates that SMEs are accounting for 20% to 25% of GDP, 80% of industrial jobs and 25% of total labor force in Bangladesh. Despite their limited access to the long-term capital markets, as they tend to rely more heavily on owner financing, some SMEs have been growing and are successful, while others have been in decline or stagnant (Islam, Khan, Obaidullah, & Alam, 2011). However, this situation is evolving and new policies set by Bangladesh Bank are now focused more on SME financing. In 2017, Bangladesh Bank gave instructions to set aside 20% of its total loans for SMEs, with the figure gradually raising up to 25% by 2021 (Star-Business, 2017).

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Literature seems to be divided on how Working Capital Management (WCM) impact the firm’s financial performance. Key WCM variables i.e. cash conversion cycle, average receivables and payables period have been widely identified and debated on by researchers, for samples of companies across the world and of different economic status (Juan García-Teruel & Martinez-Solano, 2007; Muscettola, 2014). As firms manage the amount of time it takes for them to collect the cash from sales, and pay back the suppliers for the raw materials, it makes up the cash conversion cycle. A firm can take advantage of this discrepancy in payment cycles to enrich their performance (Ross et al., 2014). Empirical findings regarding the significance of WCM on firm performance varies across developed and developing markets, from manufacturing companies to SMEs. This study aims to measure and analyze the relationship between working capital management and profitability of Bangladeshi SMEs. With the policy makers focusing a lot on easing the SME financing in the hopes of achieving sustainable growth, this study will look to statistically evaluate how efficient these SMEs are in managing their capital and enhancing profitability. As more and more SMEs are now availing bank financing, this study will focus on how efficient these SMEs are and discuss whether this sector is actually that promising or not, from a financial perspective. With that objective, this study develops an econometric model from reviewing existing literature to test on 10 sample firms from the textile industry for a period of 6 years (2012-2017). Data were collected from a private commercial bank’s database; identity of the bank not being disclosed as per their instructions.

LITERATURE REVIEW

Working capital is thought to be the vital element to an economic entity. Efficient management of working capital is one of the pre-requisites for the commercial success of an organization (Mukhopadhyay, 2004). It has also been claimed to be a significant force for keeping a business alive and functioning (Eljelly, 2004). To avoid the risk of incapacity in meeting the short-term obligations and prevent excessive investment in short-term assets, a firm requires to manage their working capital efficiently. In fact, working capital management (WCM) is substantial for creating value for shareholders (Shin & Soenen, 1998). Studies further revealed that long-term survival of a firm depends on efficient management of working capital (Panda, 2012). Therefore, it is essential to for a firm to a cautious liquidity status. According to Singh and Kumar (2017) a firm has to maintain a proper level of investment in working capital to avoid the uncertain cash inflow and outflow situation. Suitable liquidity and profitability scenarios are the main two objectives of WCM but not at the cost of one another. Thus, each enterprise should make a trade-off between these two objectives to enhance the efficiency of WCM (Singh & Kumar, 2017). However, there is a massive debate in the existing literature as to which level of working capital is good for the firm. Arguments exist on supporting both for holding high and low amount of working capital. In light of that note, one study established that the nature of the relationship between working capital level and firm profitability depends on the particular WCM approach preferred by a firm (Afrifa & Padachi, 2016). The general consensus is that low investment in working capital (aggressive policies) may result in outcomes such as loss of sales and disruptions in the production process, leading to lower profitability (Baños-Caballero, Garcia-Teruel, & Martinez-Solano, 2012). A firm can apply aggressive policy of WCM by decreasing investment in both the accounts receivable and inventory. Reducing inventory cost leads to higher firm profitability because of a drop in inventory holding costs (Afrifa & Padachi, 2016). Similarly, another study put forward the idea that, reducing working capital investment would positively affect the profitability of the firm by minimizing the fraction of its total assets in the form of net current assets (Juan García-Teruel & Martinez-Solano, 2007). Yet, if inventory levels are decreased considerably, the firm might face the risk of losing sales. In contrast, a conservative WCM strategy (signifying higher investment in working capital) may lead to boosting sales by increasing both inventories and trade receivables in order to increase profitability (Afrifa & Padachi, 2016). Furthermore, keeping large inventory level decreases the cost of possible disruptions in the production process. It also protects against potential loss of business by diminishing supply costs and defending against price fluctuations (Blinder & Maccini, 1991).

WCM policy in practice vary from industry to industry. Significant differences exist among industries in working capital practices (Filbeck & Krueger, 2005). However, limited access in the long-term capital market force SMEs to depend heavily on proper WCM (Islam et al., 2011; Saccurato, 1994). Majority of the empirical studies relating WCM with profitability support the fact that aggressive policy enhances profitability. One particular study investigating 65 Pakistani companies for the time period between 2005 – 2009 found significant correlation with market value and firm profitability and the various components of working capital (Alam, Ali, Rehman, & Akram, 2011). Another study analyzing the relationship between WCM and profitability documented a positive coefficient with conversion cycle (CCC), using of a sample of 88 NYSE listed US manufacturing firms for the period of 2005 to 2007 (Gill, Biger, & Mathur, 2010). From their standpoint, the higher the CCC, higher the profitability of the firm. This opinion is supported by one empirical study, confirming the positive relationship between CCC and profitability from the perspective of Turkey (Samiloglu & Demirgunes, 2008). Conversely, another empirical study argued by demonstrating a significantly negative relationship between profitability with number of days of inventory (INV) and cash conversion cycle (CCC) (Pais &
Gama, 2015). This finding was supported by some other researchers as well (Doloi, 2003; Falope & Ajilore, 2009). In addition, one study on a sample of 8,872 SMEs in Spain through the period from 1996 to 2002 investigated the role of working capital management in SME value generation. Their findings established a significantly negative relationship between an SME’s profitability with the number of days in accounts receivable and days of inventory (Juan García-Teruel & Martínez-Solano, 2007). Moreover, more profitable firms on the Kenyan market were found to take less time in collecting cash from their customers, thereby enforcing low average collection period (Mathuva, 2015). Nevertheless, many other researchers found strong evidence of significant impact of WCM on profitability across different industries (Doloi, 2003; Ejelley, 2004; Juan García-Teruel & Martínez-Solano, 2007; Raheman & Nasr, 2007).

More recently, one study showed that profitability of firm and sales growth are positively related to Working Capital Requirements (WCR). Yet, they also pointed out that financial leverage, operating cash flow and asset tangibility are found to be negatively related to WCR (Singh & Kumar, 2017). Interestingly, another study demonstrated a significantly negative effect of leverage, asset tangibility, sales growth and profitability on the length of the cash conversion cycle. They also established that there is a significant negative connection of the cash conversion cycle (CCC) with cash flow and the age of a firm (Baños-Caballero et al., 2012). Moreover, Afrifa and Padachi (2016) confirmed the presence of working capital level which maximizes firm profitability and deviations from the optimal level lessen firm profitability. Similarly, Tauringana and Afrifa (2013) examined a relationship to inspect the relative significance of WCM, measured by cash conversion cycle (CCC) and its components (Inventory (INV), Account Receivable (AR), Account Payable, AP) to the profitability of listed SMEs. By applying the panel data regression analysis they come to the conclusion that AP and AR are important for the profitability of SMEs (Tauringana & Adjapong Afrifa, 2013). Likewise, Wasiuzzaman (2015) also documented the relationship between working capital investment and firm value based on Malaysia by using data from 192 firms over a period of 8 years (from year 2000 to 2007). Results of multiple regression analysis indicate that firm value is considerably increased by progresses in working capital management and specifically factual for financially constrained firms. Hence, this study also suggests, to evaluate a firm investors should not only focused on firm’s capital structure, dividend and investment policies but also their working capital strategy in order to pick the suitable investment alternatives (Wasiuzzaman, 2015). Study on Cyprus, an emerging EU country with a volatile stock exchange, also demonstrated empirical proof that key WCM variables i.e. cash conversion cycle and its components have statistically significant impact on firm profitability (Charitou, Elfani, & Lois, 2010).

Literature on the influence of WCM on Bangladeshi firms also showed positive impact under different samples and methodologies implemented. One study conducted on the listed manufacturing companies of Bangladesh demonstrated that short term had greater significance in affecting ROA and ROE than long term debt (Hossain, 2016). Another research demonstrated negative relationship on ROA and no relationship on ROE with short term debt (Hasan, Ahsan, Rahaman, & Alam, 2014). While impact of different factors i.e. relationship marketing, corporate social responsibility on Bangladeshi SME profitability do exist in the literature (Hoque, Awang, & Salam, 2017; Shabnam & Sarker, 2012; Sultana, 2009), very few considered important financial constraints i.e. capital structure and working capital management. Unavailability of valid public data is one of the main reason for such research gap on studies focusing on Bangladeshi SMEs and their WCM. While SME lending facilities have loosened a lot in Bangladesh (BSS, 2017), whether they are utilizing these funding to proper use is still a debatable issue. This research will look into this particular issue and elaborate further.

METHODOLOGY AND ANALYSIS

This study concentrations on assessing the empirical association between SME’s profitability and different working capital management mechanisms. It adopts a cross-sectional research model designed by analyzing secondary data of the sample SMEs. Ordinary Least Squared (OLS) method was used for estimating the unknown parameters in a panel regression model, with the goal of minimizing the differences between the observed responses in the arbitrary dataset and the responses predicted by the linear approximation of the data. Primary focus of this research is to test the following core hypothesis:

H0: Working Capital mechanisms have no significant relationship with SME profitability.
H1: Working Capital mechanisms have significant relationship with SME profitability

For this research, the aim was to consider as many SMEs possible, to enlarge the size of the dataset. However, it is difficult to gather structured and audited financial statements from SMEs for this research purpose (Naser & Ahmed, 2018). Many do not keep their accounting records on structured order, and authenticity of data from these statements are inaccurate. However, there have been a growing focus on SME financing from the Banking and Non-banking financial institutions in recent times (Star-Business, 2017). To assess their credit worthiness, these financial institutions send their executives to verify these SME records and prepare structured statements. Such data sources were used for analysis purpose, however due to the financial institution wishing to remain anonymous, their identity is not disclosed.
Based on the prior studies which are associated to the major determinants of Working Capital Management and Profitability, the following two models are established to state the Hypothesized relationship:

Model 1: \( ROA_{t,t} = \beta_0 + \beta_1 AR_{t,t} + \beta_2 AP_{t,t} + \beta_3 INV_{t,t} + \beta_4 CCC_{t,t} + \beta_5 CR_{t,t} + \beta_6 FD_{t,t} + \beta_7 \text{LNS}_{t,t} + \beta_8 \text{Aturn}_{t,t} + \epsilon_t \)

Model 2: \( GOP_{t,t} = \beta_0 + \beta_1 AR_{t,t} + \beta_2 AP_{t,t} + \beta_3 INV_{t,t} + \beta_4 CCC_{t,t} + \beta_5 CR_{t,t} + \beta_6 FD_{t,t} + \beta_7 \text{LNS}_{t,t} + \beta_8 \text{Aturn}_{t,t} + \epsilon_t \)

Where, \( i \) and \( t \) denotes the firm and year respectively.

Here, Table 1: Identification of Variables

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOP</td>
<td>Gross Operating Profit as a measurement of profitability (Dependent Variable)</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Total Asset as a measurement of profitability (Dependent Variable)</td>
</tr>
<tr>
<td>AR</td>
<td>No. of Days A/R = (Accounts Receivables/Sales) *365</td>
</tr>
<tr>
<td>AP</td>
<td>No. of Days A/P = (Accounts Payable/Sales) *365</td>
</tr>
<tr>
<td>INV</td>
<td>No. of Days Inventory = (Inventory/COGS) *365</td>
</tr>
<tr>
<td>CCC</td>
<td>Cost Conversion Cycle = (NO. of Days A/R+ No. of Days Inventory)</td>
</tr>
<tr>
<td>CR</td>
<td>Current Ratio = (Current Assets/Current Liabilities)</td>
</tr>
<tr>
<td>FD</td>
<td>Financial Debt Ratio = (Short-Term Loans+ Long-Term Loans)/Total Assets</td>
</tr>
<tr>
<td>LnS</td>
<td>Natural Logarithm of Sales</td>
</tr>
<tr>
<td>A-turn</td>
<td>Asset Turnover = (Sales/ Total Assets)</td>
</tr>
</tbody>
</table>

Findings and Analysis

Descriptive Analysis

Table 2 represents the descriptive statistics of the data collected on the various determinants of Working Capital Management and Profitability. The data set comprises of 10 firms which are either private limited company or sole-proprietorship.

From Table 2, we can conclude that mean ratio of GOP was 16.51% which is higher than the ROA ratio (15.34%). On the same note, standard deviation (11.41%) of GOP ratio was also high compare to ROA ratio. But the maximum values of both GOP (40.23%) and ROA (40.32%) were almost same. In addition, we observed that mean of AR is approximately 42 days with SD of 39 days. In contrast, the mean of AP is approximately 22 days, which is almost half of AR. INV and CCC showed their mean value of 164 days and 186 days with SD of 237.33 and 195.87 respectively. In addition, the mean of FD and CR were 0.269% and 2.282% respectively. Furthermore, A-TURN indicated that asset turnover had a mean value of 2.34, maximum value if 0.42, and the standard deviation of 1.75.

Regression Estimates:

Following the observation of general characteristics of the dataset, OLS regression models specified previously on chapter 3 were performed. Two separate regression estimates were found, for each of the two dependent variables. Table 3 outlines the regression estimates below:

Table 3: Regression Estimates

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model-1 (ROA as DV)</th>
<th>Model-2 (GOP as DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>46.129 (0.000)*</td>
<td>17.63 (0.004)*</td>
</tr>
<tr>
<td>AR</td>
<td>0.057 (0.764)</td>
<td>1.508 (0.554)</td>
</tr>
<tr>
<td>AP</td>
<td>-0.198 (0.296)</td>
<td>-4.698 (0.553)</td>
</tr>
<tr>
<td>INV</td>
<td>-0.176 (0.349)</td>
<td>-0.768 (0.006)*</td>
</tr>
<tr>
<td>CCC</td>
<td>-0.148 (0.437)</td>
<td>-0.012 (0.169)</td>
</tr>
<tr>
<td>LnS</td>
<td>-3.323 (0.122)</td>
<td>-1.89 (0.002)*</td>
</tr>
<tr>
<td>FD</td>
<td>-27.316 (0.001)*</td>
<td>-19.92 (0.044)*</td>
</tr>
<tr>
<td>CR</td>
<td>-4.37 (0.023)*</td>
<td>0.55 (0.739)</td>
</tr>
<tr>
<td>A-TURN</td>
<td>4.215 (0.001)*</td>
<td>3.15 (0.003)*</td>
</tr>
<tr>
<td>R SQUARED</td>
<td>0.867</td>
<td>0.73</td>
</tr>
<tr>
<td>ADJUSTED R SQUARED</td>
<td>0.82</td>
<td>0.62</td>
</tr>
<tr>
<td>Prob (F-Statistic)</td>
<td>(0.000)*</td>
<td>(0.000)*</td>
</tr>
</tbody>
</table>

Note: All variables are defined in table 1. Coefficients are significant at 10% levels.

Findings

Regression estimates clearly demonstrates a statistically significant negative relationship between GOP and Asset Turnover (A-TURN). In addition, as evident by the regression output, No. of Days A/P (AP), Cost Conversion Cycle (CCC). No. of Days Inventory (INV) has negative relationship with GOP. However, only INV among them has a significant relationship at 10% significance level. It might be primarily due to the small sample available. On the other hand, Natural Logarithm of Sales (LnS) has a significantly negative relationship with ROA, meaning SMEs start losing efficiency and profitability as they get bigger in size, sales and operations. Yet, this result is not
consistent with Singh and Kumar (2017), who established that firms have to maintain higher sales for higher return. Moreover, empirical results also found asset turnover (A‐TURN) to have a significant positive association with ROA. Furthermore, No. of Days A/P (AP), Cost Conversion Cycle (CCC), Financial Debt Ratio (FD) have negative relationship with ROA; with only FD having statistically significant effect. This is in line with the findings by Deloof (2003), establishing that ROA can be influenced by number of days accounts receivable, days of inventory and days accounts payable.

CONCLUSION

WCM is a very financial element for firms of all sizes. Yet, it is even more critical in the case of small firms due to their restricted sources of funds and financial expertise. In context of Bangladesh, SMEs are contributing for 20% to 25% of GDP and 80% of industrial jobs in Bangladesh. Therefore, it is imperative for these SMEs to maintain proper WCM, for the benefit of the country as a whole (Islam et al., 2011).

The overall results of the study suggest that sales and asset turnover are the key drivers of WCM for Bangladeshi SMEs. Statistically significant empirical evidence was found in this regard. Moreover, Financial Debt Ratio (FD), No. of Days A/P (AP), Cost Conversion Cycle (CCC) and Sales (LnS) are found to be negatively related to GOP and ROA. Similarly, an SME’s return on assets was found to be reduced by lengthening the number of days accounts receivable and inventory and number of days accounts payable (Juan García‐Teruel & Martínez‐Solano, 2007). Interestingly, the findings imply that Bangladeshi SMEs should shy away from loans from banks and other sources of debts to sustain profitability. As implied on our findings, financial debt seems to have a significantly negative relationship with both the proxies of profitability. It could be attributed to the inability for these SMEs to cope up with the installment payments from such debt.

This study contributes to the WCM knowledge base by including Bangladeshi SME sample to the existing literature. Moreover, findings of the study will be helpful for SMEs owner/managers and of Bangladesh to effectively manage investment in working capital management and also helpful for investors and lenders to evaluate SMEs. However, this study does not consider the possible relations between working capital and the other variables such as earnings and capital structure policy which may provide a clearer understanding of the direct/indirect impact of net operating working capital on firm value. Moreover, future research may also be directed towards investigating the influence of entrepreneurs’ characteristics on SME performance, and whether that has significant effect on business success of SMEs in Bangladesh.

REFERENCES


Hossain, M. I. (2016). Effects of Capital Structure and Managerial Ownership on Profitability: Experience from