

WORKING CAPITAL MANAGEMENT AND FIRM PROFITABILITY: EVIDENCE FROM SMEs IN MALAYSIA

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Abstract - Efficient working capital management is particularly important for Small and Medium Enterprises (SMEs) in coping with greater difficulty in accessing capital market. In this research, we investigate the importance of working capital management to SMEs by analyzing the influence of working capital management and its components (inventory, accounts receivable and account payable) to profitability of SMEs. By using a sample of SMEs listed on the ACE market – an alternative, sponsor-driven equity market designed for Malaysian SMEs during the period from 2010 to 2016, our findings suggest that managers of Malaysian SMEs can enhance profitability by holding a large amount of inventory, offering more trade credit to customers, and lengthening the cash conversion cycle.

Key words - Working capital management; Profitability; Small and medium enterprises (SMEs); Malaysia; Cash conversion cycle.

1. Introduction

The importance of working capital management in the corporation has been investigated in the financial literature. Previous studies have focused on statistically analysing the effects of working capital management on firm profitability using the cash conversion cycle, a measure of a firm's liquidity level [1-6]. However, others emphasize the need to consider the influences of all components of working capital (for instance, inventory level, credit grants to customers and trade credit) on firm profitability [7-9]. By different research approaches, most previous studies commonly concluded that the working capital management has a significant effect on the profitability of firms.

Most previous studies have focused primarily on larger firms, however, working capital management can be more crucial for the survival and growth of Small and Medium Enterprises (SMEs) than for large firms [10]. It has been acknowledged that SMEs in general lack access to long-term capital markets, [11] so they have a propensity to rely on various traditional sources of finance (e.g., owner financing, short-term bank loans, loans from relatives and trade credit) to finance the working capital requirements of their day-to-day business operations [12]. Therefore, current liabilities are main resources of external finance of most of SMEs. Furthermore, most of their assets are in the form of current assets [13]. In this sense, [14] showed that over 50% of the total assets of SMEs are current assets. Similarly, a research by [13] also found that current assets made up 69% of SMEs' total assets while their current liabilities represented more than 52% of total liabilities. With a high percentage of both current assets and current liabilities among total assets and total liabilities in SMEs, efficient management of working capital is particularly crucial for those firms.

Many recent types of research have indicated that there is statistical evidence for the association between efficiency of working capital management and SMEs' profitability (i.e., the profitability of SMEs is inversely proportional to their cash conversion cycles), as shown in

the studies of [13] in Spain; [15] in the United Kingdom; [16] in Sweden; and [17] in Portugal. Most of the empirical studies on working capital management in SMEs have been conducted in developed countries, however, research of this sort for developing countries is scant. According to [8], working capital management is of particular importance to SMEs operating in emerging markets as compared to developed ones because ability of access to long-term capital markets is higher for SMEs in developed countries where they have "better developed financial systems, efficient legal systems, strong shareholder and creditor rights, low regulatory burdens and corporate taxes and efficient bankruptcy processes" [18, p.2967]. In this research, hence, we undertake an in-depth and comprehensive investigation of the important role of working capital management in SMEs in emerging markets through analyzing the effect of working capital management on performance regarding profitability of SMEs in Malaysia – an emerging country in Asia.

This study contributes to the literature as follows. First, we offer new evidence on the relationship between working capital management and firm profitability, by taking into account Malaysian SMEs listed on the ACE market- an equity market for SMEs in Malaysia. To our best knowledge, existing literature in Malaysia mainly focuses on large firms, so the impact of working capital management on the profitability of listed SMEs in Malaysia remains unexplored. Secondly, we estimate the model by applying a panel data method to eliminate unobservable heterogeneity. Thirdly, we use the Generalized Method of Moments (GMM) to deal with possible presence of endogeneity problems.

The rest of this paper is structured as follows: section 2 provides the literature review and hypothesis development; section 3 describes the sample, models and estimation methods; section 4 presents empirical results. Finally, section 5 is the conclusions of this paper.

2. Literature review and hypothesis development

Working capital management, a notable part of financial management, relates to managing the current assets and current liabilities of an enterprise to ensure that it has sufficient cash flow to meet its daily operation [14]. How efficient a company is managing its working capital is measured by its cash conversion cycle [19] which refers to the interval of time between actual cash payment of productive resources and actual cash collection from the sale of products or service. A short cash conversion cycle (CCC) shows that a firm reduces the amount of cash tied up in working capital while a long value means that higher working capital is being invested. In general, the CCC

concerns how much money the company invests in inventory, how much trade credit is offered to its customers as well as how much credit it accepts from suppliers [20].

In ensuring efficient working capital management, the financial managers of a company must determine the optimal equilibrium among receivables, payables, and inventory in order to create value and competitive advantage for the firm [21]. This management depends on suitable policies that a firm decides to follow [13-14]. There are two basic types of working capital management policies: aggressive policy and conservative policy. The former relates to higher risk and higher return while the latter gets lower risk and lower return [22]. The managers of a firm need to evaluate the trade-off between profitability and risk among different working capital policies to identify the optimal level of working capital whereby the firm can maximize its value.

Aggressive policy states that the profitability of a firm will be improved when it reduces its investment in working capital by lowering inventory level and limiting credit granted to customers. The advocates of this policy argue that a lower inventory level will reduce inventory holding costs, such as warehouse storage and insurance costs, which will lead to increased firm profitability [23]. Moreover, maintaining a low level of accounts receivable will increase the liquidity of a company and reduce significantly its reliance on bank loans [24]. This will help the firm to make savings on financing costs thus increasing its profitability. Besides, this policy also suggests that delaying payment to creditors allows a firm to make use of flexible and inexpensive sources of finance for its operations [21]. With a low level of inventory and receivable and a high level of payables, this strategy concludes that a shorter cash conversion cycle (CCC) will increase firm profitability.

Contrary to the view of aggressive policy, conservative policy states that high investment in working capital would impact positively on the profitability of firms [14]. This strategy emphasizes the benefits rather than costs of holding more inventory or granting more trade credit to customers [25]. In particular, it says that if the inventory level of a firm is significantly increased, the firm is in a favorable position to avoid the risk of losing sales due to scarcity of products [3]. A higher inventory level can allow a firm to prevent raising the cost of possible interruptions in its production process and the risk of higher supply cost associated with input price fluctuations [26]. Furthermore, significantly raising trade credit granted to customers may increase the sales of a firm because, as an effective price-cut, it may encourage its customers to purchase more products at a time of low demand [27]. Meanwhile, trade credit allows customers to evaluate the quality of products before payment [28-29], reducing information asymmetry between buyers and customers and thereby strengthening their mutual long-term relationship [30]. Moreover, this policy encourages firms to pay creditors on time because discounts are offered by creditors for early payments. In general, conservative policy exponents indicate that a longer CCC will increase firm profitability. In the

literature, many works such as [8, 31-32] found that firms pursuing a conservative policy by sustaining a higher inventory level attained higher profitability.

In the Malaysian context, the importance of working capital management to firm profitability is demonstrated by a range of academic research, but those studies only focus on large firms rather than SMEs. [33] finds evidence of use of aggressive policy as an efficient strategy for working capital management for a sample of 172 Malaysian large firms and demonstrates that a negative cash conversion cycle will enhance performance. Furthermore, [34] also investigates the relation between working capital management and profitability for a sample of 160 Malaysian manufacturing large firms over the period from 2005 to 2010 and finds evidence that firms' profitability will be improved as they decrease offering trade credit to customers and receiving trade credit from creditors. In relation to working capital policy, the evidence showed that these firms control their accounts receivable according to an aggressive policy, while they apply a conservative policy for managing accounts payable. In another study, [35] also examines the impact of working capital management on profitability of a sample of 122 Malaysian large firms operating in the manufacturing sector and they find a positive relation between inventory holding period and profitability, which is consistent with a conservative policy while the association between accounts receivable and profitability is negative, in line with aggressive policy.

For SMEs, working capital management is likely to be even more important than for large firms. In general, SMEs are less reputable in comparison with large firms, so they need to keep a higher level of inventory to serve their customers better and to prevent loss of business [36]. With available inventory at all times, customers can purchase their products at short notice, so they feel better satisfied. This improves the reputation of SMEs which will help them to increase market share and profitability. Furthermore, SMEs have lower bargaining power than large firms, so they are forced to extend more trade credit to customers as a guarantee of the quality of the products they sell [37]. Otherwise, they may lose sales and attain lower profitability. Moreover, SMEs have less market share in competitive markets [38]. In order to attract new customers and push sales growth, they need to grant more trade credit than their rivals [39]. [40] also states that trade credit is very necessary for SMEs and offering trade credit to customers will bring competitive advantage for the success of SMEs.

Besides offering trade credit to customers, SMEs also receive trade credit from creditors as a source of finance for their operations, since they face financial constraint on access to finance from banks or other financial institutions [41]. However, if SMEs delay trade credit payment to creditors, they will lose discount for early payment or even incur fees and penalties, which damages the relationship between buyers and suppliers [30]. Furthermore, if a SME habitually fails to make payment on time, its suppliers will rank it as a low creditworthy customer, which will result in

difficult barriers to its business operation and access to the financial market in the future [42]. A supplier or a financial institution always refuses to offer trade credits or loans to a customer if the latter has a history of payment issues with other suppliers or a poor credit history. Thus, paying trade credit on time is advantageous in the long run to a SME. In addition, trade credit appears as an expensive form of finance because the implicit interest rate charged in trade credit contract is higher than bank credit rates [14]. As a result, usage of it for short-term might lead to reducing firms' profitability [8, 10, 21].

Based on the above arguments, we deduce that SMEs are more likely to pursue a conservative policy. Hence, we formulate the following hypotheses:

Hypothesis H1: SMEs with a higher inventory holding period will attain higher profitability.

Hypothesis H2: SMEs with a longer accounts receivable period will attain higher profitability.

Hypothesis H3: SMEs with a shorter accounts payable period will achieve higher profitability.

Hypothesis H4: SMEs with a longer cash conversion cycle will achieve higher profitability.

3. Data and estimation methods

3.1. Data

The sample of companies selected must be listed on the ACE (Access, Certainty, Efficiency) market- an alternative, sponsor-driven equity market designed for SMEs in Malaysia (Asia, 2015) and must meet the requirements established by National SME Development Council (NSDC)'s Circular BNM/RH/CIR 028-1 on the new definition of Small and Medium Enterprises. Specifically, firms with sales turnover or total revenue not exceeding RM 50 million in the case of manufacturing and RM20 million in the case of service and other sectors were selected (Malaysia, 2016). We chose listed SMEs because their financial information is available for collection. Besides, listed firms often provide more accurate information about the financial position in comparison with non-listed firms, whose financial statements are less reliable. Furthermore, listed firms must have financial data available at least for the seven-year period from 2010 to 2016. The period was chosen because after the 2008 financial crisis, liquidity and financial constraints were raised amongst the SMEs. In theory, such constraints should make the efficiency of working capital management even more important. Firms operating in the financial sector, such as banks and insurance companies, were excluded from the sample because they have different asset structures and accounting requirements. This is consistent with previous studies [21, 43]. As a result, the sample for analysis has 539 firm-year panel observations for 77 firms. The required financial and accounting data is obtained from Bloomberg and DataStream Thomson One.

3.2. Models and estimation methods

We specify the following four regression models in this study, and for each we estimate in turn the impact of working capital management and its components and firms' profitability. Each regression includes the same set

of control variables.

$$ROA_{it} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ATAN_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 GDP_{i,t} + \lambda t + \eta_i + \mu_{it} \quad (1)$$

$$ROA_{it} = \beta_0 + \beta_1 AR_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ATAN_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 GDP_{i,t} + \lambda t + \eta_i + \mu_{it} \quad (2)$$

$$ROA_{it} = \beta_0 + \beta_1 AP_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ATAN_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 GDP_{i,t} + \lambda t + \eta_i + \mu_{it} \quad (3)$$

$$ROA_{it} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ATAN_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 GDP_{i,t} + \lambda t + \eta_i + \mu_{it} \quad (4)$$

where ROA is return on assets as a dependent variable to measure firm profitability. Following previous studies [13, 15], ROA is calculated as earnings before interest taxes, depreciation and amortization (EBITDA) divided by total assets.

The key independent variables to be analysed are inventory days (INV), accounts receivable days (AR), accounts payable days (AP) and cash conversion cycle (CCC), all of which have been widely used in the extant literature such as [13, 15, 21]. The CCC is one of several measures of working capital management effectiveness [19] and it is calculated as accounts receivable days (AR) plus inventory days (INV) minus accounts payable days (AP). INV is calculated as $(365 \times \text{average inventory}) \div \text{cost of goods sold}$. This variable reflects the average number of days' goods remain in inventory before being sold. AR is defined as $(365 \times \text{average accounts receivable}) \div \text{annual sales revenue}$. This variable indicates the average number of days that a firm needs to collect payments from its customers. AP is calculated as $(365 \times \text{average accounts payable}) \div \text{annual credit purchases}$, reflecting the average number of days that a firm takes to pay its trade creditors [14].

Each regression model in this study also comprises control variables which have been found by prior studies to explain firm profitability [21, 24, 37]: financial leverage (LEV), asset tangibility (ATAN), liquidity ratio (LIQ), firm size (SIZE) and GDP growth (GDP). LEV is the ratio of total debt to total capital. Debt is an important source of finance for SMEs. It is considered a cheaper form of finance compared to equities as it is less risky and tax deductible. However, debt creates financial uncertainties; hence, creditors may require a risk premium and a higher return [44]. Thus, the priori sign of this association might be ambiguous. ATAN is the ratio of fixed assets divided by total assets. SMEs in general maintain a lower share of tangible assets compared to large firms. Their successes mainly depend on intangible assets such as brand reputation and human capital. Thus, we expect a negative relation between asset tangibility and firm profitability. Next, LIQ is measured by current assets divided by current liabilities. The availability of liquidity allows SMEs to have better control over their business operations. Nevertheless, if a firm retains high liquidity, it must forgo the advantages of investing in profitable opportunities. Hence, we cannot predict a clear relation between liquidity ratio and firm profitability. SIZE is the natural logarithm of

sales. There is no consensus as to the relation between firm size and firm performance. For example, [45] finds a positive relation while [46] finds a negative association between firm size and firm performance. Theoretically speaking, large firms can capture economies of scale, which results in lower average cost. On the other hand, large firms may incur higher management costs due to, say, inefficiencies in internal communication and higher executive pay. Thus, we expect the relation between firm size and profitability to be either way. Furthermore, economic conditions tend to be reflected in the profitability of a firm, which means that firm's profitability will increase under good economic conditions. Annual GDP growth (GDP) is applied for the evolutions of the economic cycle [39]. The parameter λ_t controls for time impacts and is a year dummy variable, η_i is the unobservable heterogeneity considered as particular characteristics of each firm. Finally, μ_{it} is random disturbance. In order to minimize the effect of outliers, all variables with values in the 1% or 99% region of the population will be winsorised.

We investigate our hypothesis on the impact of working capital management and its components on firm profitability using the panel data methodology. First, this study applies a fixed-effect panel model to control for unobservable heterogeneity [47]. Hausman tests are used to check to choose between Random-effect and Fixed-effect models [48]. Next, we will choose either one-way or two-way fixed effect estimation, where the latter considers the time effect in the model while the former does not. To do this, joint tests of time effects are performed.

Besides using the static version of regressions, we estimate all our equations from (1) to (4) using the General Method of Moments System (GMM-SYS) estimator developed by [49-50]. The GMM-SYS is appropriate since it controls the possible endogeneity of explanatory variables and biases due to unobserved firm-specific effects. Differently from previous studies [8,20], this study is not based on a two-step GMM-SYS estimator for dynamic panels. Although the two-step GMM-SYS estimator is known to be asymptotically efficient in the presence of heteroskedastic errors, this estimator is highly inaccurate for extrapolation purpose, since its standard errors are downward biased in finite samples [50-51]. Given the size of our sample, we decide to employ the one-step GMM-SYS estimator.

The GMM-SYS estimator addresses the weak instrument problem in the first-differenced GMM proposed by [51] by combining lagged levels of endogenous or predetermined variables and lagged differences of those variables as instruments. In this study, one-period lagged levels of all the right-hand-side variables are used as instrumental variables for the difference equation and one-period lagged differences for those variables are used as instrumental variables for the level equation. To assess whether our instruments are exogenous and our model is correctly specified, we employed two diagnostic tests. The first is the Sargan or Hansen test for overidentifying restrictions, which test for the null of instrument validity. The second is the autoregressive test for serial correlation of error term developed by [51]. By construction, the first-

differenced errors, AR(1), is allowed to be first-order serially correlated, whereas second-order serial correlation of the error term, AR(2), disrupts the instrument validity. Hence, checking AR(2) works as an important test for serial correlation of the error term.

4. Results

4.1. Descriptive statistics

Descriptive statistics of variables used in this research is presented in Appendix 1. A mean return on assets (ROA) of -0.17% is found for Malaysian SMEs, which is lower than the 7.9% found for Spanish SMEs [42]. With regard to business activities, the firms take on average 83.96 days to sell their inventory (INV) (median is 39.84 days). In addition, firms receive payments from customers (AR) after an average of 129.87 days while they wait on average 86.93 days to pay for their purchases (AP). The difference between receivable and payable days shows that SMEs can experience cash flow issues because the time of receipt from their debtors is longer than that of payment to their creditors. The average cash conversion cycle (CCC) is 121.63 days, which is considerably higher than that of large Belgian companies (44.5 days) and Spanish SMEs (76.3 days) but lower than the mean CCC of Vietnamese SMEs (144 days) [21, 42, 54].

Interestingly, on average, fixed assets only made up 28% of total assets (ATAN), which suggests that a significant percentage of total assets are current assets. This demonstrates the importance of working capital management in Malaysian SMEs. Average total debts to total capital (LEV) is 0.44, the mean liquidity ratio (LIQ) is 5.2, and mean size (SIZE) is 1.06 (median is 1.32). Over the period 2010 to 2016 the annual Gross Domestic Product growth of Malaysia was, on average, 5.3%.

4.2. Empirical results

As discussed in the above section, we use Hausman tests to determine the best model between fixed and random effects. The p -value of Hausman test of all equations obtained is lower than 0.01. It means that H_0 is rejected, so the fixed effects model would be the most appropriate model. Moreover, we also conduct a joint test of time effects to identify one-way or two-way fixed effects model. According to results from Table 1, p -value of joint test of time effect of each model is insignificant at 10% level so time effect should not be included into the model. Hence, we used one-way fixed effects for all models proposed.

According to the results of Table 1, regression (1) shows that the number of days of inventory (INV) has a statistical significant positive relationship with firm profitability (ROA) at the 1% level (0.000855), which is in line with the findings of previous studies [10,8]. Thus, lengthening the number of days of inventory increases profitability of Malaysian SMEs, supporting hypothesis 1. In regression (2), our results also confirm hypothesis 2 of a positive association between the number of days of accounts receivable (AR) and firm profitability (ROA) (0.00189, significant at the 1% level). This result is consistent with [52] for US listed firms and [53] for Spanish SMEs. Especially, AR is slightly better than CCC and INV and AP in terms of R square (33.3% compares with 30.7% and 32%,

respectively), which indicates that grants of trade credit to customers is mostly beneficial for Malaysian SMEs.

Table 1. *The relationship between working capital management and firm profitability in the Fixed-effect models*

Dependent Variable (ROA)	(1) FE	(2) FE	(3) FE	(4) FE
INV	0.000855*** (0.009)			
AR		0.00189*** (0.000)		
AP			-0.000769*** (0.000)	
CCC				0.000948*** (0.000)
LEV	-0.169*** (0.000)	-0.183*** (0.000)	-0.178*** (0.000)	-0.161*** (0.000)
ATAN	1.353*** (0.000)	1.491*** (0.000)	1.433*** (0.000)	1.309*** (0.000)
LIQ	0.0208*** (0.002)	0.0208*** (0.001)	0.0200*** (0.002)	0.0187*** (0.003)
SIZE	0.443*** (0.000)	0.452*** (0.000)	0.368*** (0.000)	0.411*** (0.000)
GDP	4.034 (0.240)	2.278 (0.501)	3.037 (0.373)	1.963 (0.558)
Hausman test (p-value)	0.000	0.002	0.000	0.000
F-test (p-value)	0.2481	0.3849	0.1478	0.2851
Observations	539	539	539	539

Note: p-value in parentheses, *significant at the 0.10 level, ** significant at the 0.05 level, *** significant at the 0.01 level.

In regression (3) of Table 1, a significant negative relation is found between the number of days of accounts payable (AP) and firm profitability (ROA) (-0.000769 at the 1% level). The result supports hypothesis 3 - SMEs with a shorter accounts payable period will achieve higher profitability. Consistent with findings by [21], this result shows that lengthening the number of days of accounts payable (AP) reduces firm profitability (ROA). Next, an integrated analysis of INV, AR and AP is carried out by using the CCC in regression (4). The result shows a significant positive association between the CCC and ROA, which supports hypothesis 4 of the research.

The results of regressions (1) to (4) suggest that Malaysian SMEs could increase corporate profitability by lengthening the number of inventory (INV), the number of days of accounts receivable (AR) and Cash conversion cycle (CCC) but shortening the number of days of accounts payable. It could be concluded that Malaysian SMEs employ a conservative strategy to manage their working capital.

4.3. Robustness check

We perform a robustness test to deal with potential endogeneity problems in the relationship between working capital management and firm profitability, as a firm's profitability may have an impact on its working capital management policy. For example, firms with high profitability can lengthen the deadlines for clients to make their payments days as a competitive tool to continue to

increase sales while they can decrease their dependence on the amount of trade credit received from creditors because the higher the cost of raising external funds can reduce their profitability.

To deal with endogeneity issues, we employed one-step GMM-SYS estimator. According to the results of Table 2, the p-value of AR(2) statistics of all equations is insignificant at the 10% level, providing no evidence for significant second order autocorrelation. Similarly, the Hansen test for overidentifying restrictions of all equations also indicates acceptance of the null hypothesis of instrument validity. Hence, the two tests indicate that the instruments in the four equations are exogenous and not correlated with the error term.

Equations (1), (2) and (3) indicate that the coefficients of INV, AR and CCC regressed on firm profitability, respectively, remain significantly positive at the 5% level. It is similar to result of Table 2, except those for variable AP, which now does not keep significant association. These results imply that endogeneity problem is not a concern and that our test results are robust.

Table 2. *A robustness check of the relationship between working capital management and firm profitability*

Dependent Variable (ROA)	(1) GMM	(2) GMM	(3) GMM	(4) GMM
INV	0.000385** (0.049)			
AR		0.00138** (0.018)		
AP			-0.000384 (0.307)	
CCC				0.000552** (0.043)
ROA(t-1)	0.544** (0.011)	0.498** (0.016)	0.502** (0.021)	0.504** (0.019)
LEV	-0.127 (0.271)	-0.136 (0.212)	-0.126 (0.265)	-0.124 (0.253)
ATAN	0.169 (0.388)	0.341 (0.156)	0.122 (0.552)	0.134 (0.488)
LIQ	0.0145** (0.030)	0.0152** (0.025)	0.0132** (0.038)	0.0117** (0.049)
SIZE	0.129*** (0.004)	0.171*** (0.001)	0.122*** (0.005)	0.130*** (0.005)
GDP	2.335 (0.378)	1.996 (0.467)	1.821 (0.559)	0.552 (0.856)
Arellano-Bond				
AR(1)	-2.32** (0.020)	-2.41** (0.016)	-2.31** (0.021)	-2.36** (0.018)
AR(2)	1.23 (0.217)	1 (0.316)	1.24 (0.214)	1.09 (0.278)
Hansen test	7.62 (0.573)	10.40 (0.319)	8.43 (0.492)	7.85 (0.550)
Observations	462	462	462	462

Note: p-value in parentheses, *significant at the 0.10 level, ** significant at the 0.05 level, *** significant at the 0.01 level. AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. The Hansen test of over-identification is under the null that all instruments are valid.

5. Conclusion

SMEs often tend to retain a high level of current assets and current liabilities for their day-to-day business activity, so efficient working capital management is particularly important [10,42]. In this context, the objective of this research provides empirical evidence about the influence of working capital management (measured by the CCC) and its components (INV, AR, AP) on firm profitability. A sample of 77 Malaysian SMEs in the period from 2010 to 2016, was used to conduct this research.

The results suggest that Malaysian SMEs improve their profitability by holding a large amount of inventory (INV), offering more trade credit to customers (AR), and lengthening the cash conversion cycle (CCC). Hence, these results confirm that a conservative working capital policy generates value for Malaysian SMEs, which is different from the finding of past studies by [42] for Spanish SMEs and [54] for Vietnamese SMEs, which supported aggressive working capital policy as an efficient strategy.

When possible endogeneity problems are controlled, we cannot find a relationship between the number of days' accounts payable (AP) and firm profitability (ROA) although trade credit from creditors is an important source of short-term external financing in SMEs due to financial constraints on access to the capital market. This could be explained by Malaysian SMEs' benefit from many financial support policies from the government and Bank Negara Malaysia (BNM), which decreases demand for trade credit from their suppliers to substitute for bank credit. For instance, the Soft Loan Schemes for SMEs (SLSME) was offered by the Ministry of International Trade and Industry (MITI) in 2014. Also, funds for SMEs are provided by BNM to ensure that eligible SMEs can access finance at lower than the market rate [55].

Thank to these financial support policies, Malaysian SMEs are to some extent relieved of capital constraints, so they have a stronger incentive to improve their performance by retaining high inventory and granting more trade credit to customers. Although keeping high inventory is associated with high holding costs, it ensures production of SMEs because it restricts risks created by high supply cost due to frequent purchase, price fluctuations, interruptions in the production process and loss of business due to scarcity of products. Also, granting more trade credit to customers can serve as an effective price cut to encourage customers to acquire more of the firm's merchandise in spite of risks of exposure to payment default, late payment as well as presence of credit management costs. Thus, it might also increase firm sales and, hence, firm profitability.

This paper has some limitations as follows. First, this study focuses on 77 listed SME on ACE market and so the findings would not be representative ones for all SMEs in Malaysia, especially unlisted SMEs. In fact, for non-listed SMEs, access to the financial markets is harder than for listed ones, hence managing their working capital and its components can be even more important. For further research, it is suggested to conduct a similar research on unlisted SMEs to provide different results for the effect of working capital management on firm profitability. Second, this research only

uses a sample of listed SMEs for a seven-year period from 2010 to 2016 – a period after the financial crisis. However, the problems of liquidity and financial constraint will rise in a period of financial crisis and so working capital management will be different from the period before and after the crisis, and thus, investigations using data over different periods would be interesting for future research.

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APPENDIX 1: Descriptive statistics

Variable	Mean	Median	SD	Minimum	Maximum
ROA	-0.1661	0.0024	0.9048	-7.4058	0.335
INV	83.9593	39.849	130.4962	0	814.884
AR	129.8749	94.5786	113.9424	0	635.806
AP	86.9292	40.5556	190.0256	0	1599.05
CCC	121.6276	99.4765	225.0969	-1147.68	870.9
LEV	0.44343	0.2292	1.3612	0	12.1111
ATAN	0.2788	0.2397	0.2154	0	0.8496
LIQ	5.209	3.1667	6.3722	0	37.7778
SIZE	1.063	1.3244	1.2079	-3.2189	2.7061
GDP	0.053	0.0088	0.05	0.04	0.07

Notes: Return on assets (ROA) is earnings before interest taxes, depreciation and amortization (EBITDA) ÷ total assets; number of days of inventory (INV) is $(365 \times \text{average inventory}) \div \text{cost of goods sold}$; number of days of accounts receivable (AR) is $(365 \times \text{average accounts receivable}) \div \text{annual sales revenue}$; number of days of accounts payable (AP) is $(365 \times \text{average accounts payable}) \div \text{annual credit purchases}$; cash conversion cycle (CCC) is $AR + INV - AP$; financial leverage (LEV) is $\text{total debt} \div \text{total capital}$; asset tangibility (ATAN) is $\text{fixed assets} \div \text{total assets}$; liquidity ratio (LIQ) is $\text{current assets} \div \text{current liabilities}$; firm size (SIZE) is natural logarithm of sales; GDP growth (GDP) is $(GDP_n - GDP_{n-1}) \div GDP_{n-1}$