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Do Internal Auditors Improve Firms' Working Capital Management?

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ABSTRACT

This paper investigates the relationship between internal audit and the working capital management (WCM) of Malaysian public-listed firms. Good WCM is vital as it drives profitability. Anecdotal evidence suggests that the inventory conversion period is the most challenging part of WCM for Malaysian firms. In 2017, around RM71 billion in cash was locked up in working capital and thus suggesting that Malaysian public-listed firms are struggling with WCM. Based on this issue, we are therefore motivated to examine the association between the role of internal audit and WCM in publicly listed firms in Malaysia. Specifically, we would like to examine whether internal audit cost relates to better firms' WCM. We proxy WCM by the cash conversion cycle (CCC) ratio. With a sample of 309 firm-year observations, we observed a negative and significant relationship between internal audit cost and CCC. The findings suggest that an increase in internal audit cost improves firms' operational efficiency and effectiveness, hence improving firms' CCC ratios. Furthermore, we find consistent results on the influence of the internal auditor on two of three components of CCC, namely the inventory conversion and the receivables collection periods. Finally, our additional analysis demonstrates that CCC and internal auditing are critical components of firms' performance. By adding the role of internal audit in WCM, this study contributes to a further understanding of the role of internal auditor in agency theory. This study contributes to senior management of publicly listed firms that the cost incurred internal auditing function is an investment that helps improve WCM efficiency.

Keywords: Cash conversion cycle; internal audit investment; WCM, public-listed firms; Malaysia

Introduction

Malaysian publicly listed firms continue to struggle with working capital management (WCM). According to a survey by PWC, around RM71 billion in cash was trapped as working capital (PWC 2017). The survey claims that inventory conversion time is the most challenging aspect of the cash conversion cycle (CCC) as part of WCM for Malaysian firms as compared to receivable and payable management. Without effective WCM, firms cannot increase the available capital to be spent for firm expansion and growth. Moreover, the current uncertainty of the global economy increases the pressures on businesses to manage their working capital better and more efficiently. As a result of these concerns, we are motivated to empirically investigate Malaysian publicly listed firms' CCC ratio and whether these firms could benefit from internal auditing functions to improve firms CCC.

Since 2008, all publicly listed firms in Malaysia have been required by the Bursa Malaysia Listing Requirements to have an internal audit function. Internal auditors are expected to play critical roles in ensuring that management has effective and efficient corporate governance, internal control, and risk management processes. Prior studies suggest that the internal auditor should support and advocate for those responsible for corporate governance, including the development of resources to assist with corporate management daily (Vadasi et al. 2019; Soh & Martinov-Bennie 2011; Prawitt et al. 2009). Based on this suggestion, it is assumed that increased costs as investments in internal audit functions are expected to enable internal auditors to acquire the necessary tools and resources that will boost operational efficiency and effectiveness. Hence, firms with higher investment in the internal audit function are expected to have more efficient working capital, as indicated by a lower CCC ratio as compared to firms with lower investment in the internal audit function.

Since its introduction as a measure of a firm's WCM by Richard and Laughlin in 1980, the CCC ratio has become a standard ratio in financial management textbooks. The ratio has attracted the interest of many researchers to study various aspects the ratios (for examples, Ahmad et al. 2018; Gill & Biger 2013; Lyroudi & Lazaridis 2000). Prior studies have studied the determinants of WCM (for examples Farhan et al. 2021; Ahmad et al. 2018; Gill & Biger 2013) and found that the effectiveness of WCM depends on the role of board of directors and top management. For instance, Farhan et al. (2021) demonstrate that board of directors' composition moderates the relationship between CCC and firms' performance for Indian pharmaceutical firms. Ahmad et al. (2018) suggest that WCM as part of the fundamental obligation of the board of directors (BOD) and top management. It is suggested that when the board of directors and top management adopt a policy of maintaining high cash reserves, the shareholders' wealth

is not maximized (Gill & Biger 2013). Generally, these papers claimed that those charge with the governance of firms (i.e. the board of directors and top management) hold the role to monitor whether there are any weaknesses in the WCM process or whether any improvements are necessary.

As evidence earlier, those charge with governance need to monitor financial and operational efficiency of the firms. One of the ways to monitor efficiently is via internal audit function. Our study focuses on the role of internal auditors in providing assurance and consulting activities particularly related to firms' WCM. As part of firm corporate governance structure, studies on internal auditor's influence on WCM is rather limited and requires further attention. Moreover, only few studies have focused on the factors affecting WCM in developing countries (Zariyawati et al. 2016). Thus, the objective of this study is to investigate the influence of internal audit investment on firms' CCC.

To examine the relationship, this study used randomly selected Malaysian publicly listed firms' data set available in Datastream from 2017 to 2018. These sample data comprise of 309 company-year observations. To analyze the relationship, this study regressed the natural log of internal audit cost on Nobanee et al. (2014) calculation of the CCC ratio for the main variable. The details of the measurement are given in the research method section. The results of our regression analysis show a negative and significant relationship between internal audit cost and CCC. The findings suggest firms that spend more on internal audit functions have better WCM than firms that spend less. The results suggest that more resourceful internal audit function improves firms' operational efficiency and effectiveness, particularly on WCM.

The original contribution of this study is by extending past research (i.e., Hassan & Nasir 2020) in terms of the impact of internal audit investment. Specifically, this study focuses on the impact of internal audit investment on firms' WCM, proxied by the CCC ratio. As far as we know, studies in relation to WCM and internal auditing are still insufficient and require further attention. By addressing this issue, we also gain insight into agency theory by understanding the role of internal audit in relation to WCM. On the other hand, this study made a substantial contribution to address the issue of WCM and provide more information to help Malaysian listed corporations better manage working capital, particularly in terms of the CCC ratio. Efforts can be directed to raise awareness on the importance of internal audit function and appropriate WCM. Aside from the need for solid policies, adequate resources allocated to the internal auditor function will aid top management by improving the efficiency of WCM.

The remainder of this study is structured as follows. Section 2 examines the CCC issue and internal auditing in order to develop our hypothesis. Section 3 discusses the technique used in the research. Section 4 describes the results and discuss the findings. The paper concludes with Section 5.

Literature Review And Hypotheses Development

WORKING CAPITAL MANAGEMENT (WCM)

The cash conversion cycle (CCC) is a critical ratio that management uses to determine how quickly their resources can be converted to cash. CCC ratios provide useful information about a company's ability to convert inventories and accounts receivable to cash, as well as its ability to extend payment to payables. Firms depend on this information to manage their working capital since it is the easiest and cheapest source of finance available to firms. In other words, effective WCM increases the liquidity available to firms for strategic investments or debt management.

The concept of the cash conversion cycle was introduced by Richards and Laughlin (1980). Since then, studies on CCC ratio have focused on the relationship between CCC and firm profitability (i.e., Shin & Soenen 1998; Deloof 2003; Nobanee et al. 2011; Yazdanfar & Ohman 2014; Lin et al. 2016; Chang 2018). For example, an earlier study by Deloof (2003) provides evidence that a firm's profitability is related to a firm's CCC ratio. Using a sample of a sample of 1,009 large Belgian non-financial firms for the 1992-1996 period, Deloof (2003) found negative relationship between CCC ratio and firm's profitability. The findings imply that managers might improve firm's profitability by minimising the amount of days accounts receivable and inventories that are outstanding. Some businesses are also observed to pay their payables in longer time.

A more recent study by Chang (2018) provides a thorough examination of the impact of the cash conversion cycle on company performance. Garcia-Teruel and Martnez-Solano (2007), Raheman and Nasr (2007), Banos-Caballero et al. (2012), and Lee (2015) shown that a firm's profitability and value might be improved by monitoring firms' liquidity. This finding supplemented Soenen's (1993) previous study which demonstrated that a long CCC could be a significant cause of bankruptcy. It is argued that shorter CCC decreases the need for external funding and as such mitigates the insolvency risk (Deloof 2003; Nobanee et al. 2011). Banos-Caballero et al. (2010), on the other hand, claimed that a longer CCC may boost a firm's sales and profitability for a variety of reasons. Despite studies on the influence of WCM on profitability are numerous, research on the determinants of WCM is still understudied.

In term of the determinants of WCM, we found several studies that discuss on the macroeconomics and firms characteristics that influence WCM. Recent evidence shows that highly leverage firms associate with less working capital (Elbadry 2018). These firms tend to reduce their costs due to receivables, inventories, and short-term liabilities in order to fulfil their loan obligations.

Mathuva (2014) reported that firms with more internal resources and older firms have a longer CCC. Kieschnick et al. (2006) found that firms' WCM is negatively correlated with firm size and uncorrelated with industry concentration. Similarly, Zariyawati et al. (2010) found that firm size, debt ratio, and sales growth in Malaysia are related to its WCM. On the other hand, Baños-Caballero et al. (2010) found that older and high cash-flow firms are associated with longer cash conversion cycles. Mansoori and Mansoori (2016) found that capital expenditure, cash flow, size, and GDP variables are negatively related to CCC while sales growth and ROA is positively correlated. Palombini and Nakamura (2012) show a negative effect of debt, free cash flow, and growth on CCC. In short, prior evidence suggest that the effectiveness of WCM will depend on the firm characteristics and macroeconomic factors.

Studies of corporate governance characteristics on CCC are rather limited. Gill and Biger (2013) examine whether corporate governance influence firm's efficiency of WCM and found that board size is negatively and significantly related to WCM. Their study was conducted on a sample of 180 American manufacturing firms from seven industries listed on the New York Stock Exchange (NYSE) from 2009 to 2011. Earlier Kieschnick et al. (2006) found that both independent directors and management ownership are associated with good WCM while top management remuneration is otherwise. In addition to that, a study by Karani (2013) also shows that the execution of corporate governance policies has an important role to play in enhancing the best level of working capital usages in a firm. Njoku (2017) also shows that the size of the BOD and the audit committee are significantly related to the CCC. According to Ahmad et al. (2018), the board of directors (BOD) and top management are fundamentally responsible for WCM. From this strand of research, however there is limited evidence on the association between internal audit investment and working capital management.

INTERNAL AUDITING AND CASH CONVERSION CYCLE (CCC)

Prior studies asserted that internal auditors play such important role and contributes to the risk management, control and corporate governance implementation of a company (Beasley et al. 2005; Fraser & Henry 2007; Kasim et al. 2009; Mat Ludin et al. 2017, Saleem et al. 2019; Iskandar et al. 2018). Internal auditors are relied by company's management not only to reduce the expense of external auditing, but also to offer assurance that internal controls are working successfully and that the business itself is efficient (Al-Twaijry et al. 2004). Despite of simply providing assurance, internal auditors are now shifting their focus to deliver advisory services in support of an organization's rising demand for better risk management and governance practises (IIA 2017; Badara et al. 2019).

Internal control system of an organization is the processes focused at ensuring the achievement of firm's operational goals and objectives, accurate financial reporting and compliance with laws and regulations (Michelon et al. 2015). A study by Nyakundi et al. (2014) shows that a company's internal control systems may reveal issues related to a lower revenue, expose the linkage between earnings management and revelation of material weakness and fraud. Anderson and Reeb (2004) emphasize that a firm's internal control is observed by an audit committee whom furnish dependable information to the shareholders. While Njoku (2017) suggests that CCC is significantly related with the size of the board of directors and the audit committee. According to Healy and Palepu (2001), an independent audit committee improves WCM efficiency by monitoring cash accounts, accounts payable, and inventory accounts. Hassan and Nasir (2020) suggest that investment in internal audit is important in order to decrease the risk of companies' going concern problems. Finally, Kabuye et al. (2019) found that internal control system and working capital are both predictors for firm's performance. They claim firms are expected to have adequate internal control system to have an appropriate WCM. Prior studies have suggested the importance to have management support on internal control system and technology implemented to ensure the effectiveness of internal audit function (for examples, Hassan et al. 2015; Alkebsi & Aziz 2017). Nevertheless there are lack of empirical evidence on the relationship between internal audit investment and WCM.

According to the literature, internal audit has largely focused on auditing and consulting services (Drogalas & Siopi 2017; Mohamed 2012; Bou-Raad 2000; Mihret & Woldeyohannis 2008; Wallace & Kreutzfeldt 1991). Drogalas et al. (2017) find that internal audit, internal auditor and added value of internal audit are related with risk management. Based on Mohamed et al. (2012), consultation has become the primary extension in the internal audit process in terms of risk management components and control assurance. While Bou-Raad (2000) argues internal audit functions that provide a value-added approach would help firms to improve the quality of information for decision making. Mihret and Woldeyohannis (2008) suggest that internal audit services can minimise the degree of organisation risk from internal audit value-added services. Finally, Wallace and Kreutzfeldt (1991) suggest that the function of internal audit was related to profitability and liquidity. Based on the above literature on the involvement of internal auditor in firms' operational management, we further argue that internal auditors assist managers by improving CCC as they provide recommendations in terms of risk management and control to management in terms of cash management, inventories, receivables and payables of an organisation. Hence, based on the above argument, we hypothesize that investing in internal audit improve firm's WCM by reducing the duration of the CCC.

EMPIRICAL MODEL

To test our hypothesis, we used the pool regression model shown below to examine the relationship between internal audit and cash conversion cycle:

$$LnCCC = \beta_0 + \beta_1 LnIAC + \beta_2 OUT + \beta_3 SIZE + \beta_4 LEV + \beta_5 ACIND + \beta_6 ACSIZE + \beta_7 ACMEET + \beta_8 BIG4 + \beta_9 YEAR + \varepsilon$$

We use Nobanee et al. (2011) method of calculating the natural log of CCC ratio as our primary dependent variable. The periods of inventory conversion, receivable collection, and payable deferment are added to calculate the CCC ratio. The inventory conversion period is computed as (inventory/ cost of goods sold) x 365 and is used to determine the time required to convert raw materials into completed items and then sell them. We utilize the average number of days between the sale of products and the collection of receivables (accounts receivable/sales) x 365] for the receivable collection period. The payment deferral period is the average time required to acquire and pay for goods. It is calculated as the sum of (accounts payable/cost of products sold) multiplied by 365.

Our interested variable is internal audit investment. We measure internal audit investment using natural log of internal audit cost following Wan-Hussin and Bamahros (2013). We control for firms that have outsource their internal audit function (OUT) because internal audit outsourcing can also affect the quality of internal audit function (Ma 2021). Other than internal audit outsourcing, we also controlled for firm variables that influence the CCC ratio such as firm size and leverage. Firm size is represented by the natural log of total asset (Manoori & Muhammad 2012) while firm leverage is represented by total liabilities over total assets (Zariyawati et al. 2016; Mansoori & Mansoori 2012). According to Berger et al. (2001) and Jordan et al. (1998), larger firms have lower cost of investment in working capital than smaller firms due to lower information asymmetry. While firms with higher leverage must keep their working capital lower since the cost of funds invested in working capital would be higher (Baños-Caballero et al. 2012). Since previous studies indicate that governance mechanism such as audit committee membership are fundamentally responsible for WCM (Ahmad et al. 2018), we also control for audit committee independence, size and meeting. Audit committee independence is measured based on the proportion independent member of each audit committee. While audit committee size is the total number of audit committee and audit committee meeting is represented by the number of audit committee meeting for the year. Finally, we control in our samples on whether being audited by Big 4 or Non-big 4 with a dummy variable.

SAMPLE SELECTION

In order to test the above model, this study utilizes 309 firm-year observations that were conveniently selected from Bursa Malaysia's listed firms during 2017 and 2018. To test the relationship, all financial data, including total assets, is derived from the Datastream database, whereas data on internal audit investment, our primary independent variable, is derived from yearly reports. Corporate governance data such as the size of the audit committee, the number of independent directors on the audit committee, and the type of external auditor, are also extracted governance data from annual reports as control variables.

Results And Discussion

DESCRIPTIVE RESULTS

Based on the descriptive analysis, the average CCC of firms is 380 days. While the average amount of investment in internal audit and total assets of the firms are RM310,000 and RM1,600 million respectively. As per Table 1 about 29 percent of our samples outsource their internal audit function. The mean size of audit committee in our samples is 3.4 with the maximum number of 7 members and the mean number of independent directors in the audit committee is 3 with the maximum number of directors are 6. For our samples, the percentage of firms audited by Big 4 are approximately 35 percent.

TABLE 1. Descriptive analysis

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
CCC	380.16	148.76	6904.42	5.13	744.44
LnCCC	5.13	5.00	8.84	1.64	1.22
IAC	320,000	56,000	43,000,000	6,000	2,400,000
LnIAC	11.22	10.93	17.58	8.70	1.30
OUT	0.30	0.00	1.00	0.00	0.46
TA	1,600,000	340,000	220,000,000	9,964	12,000,000
SIZE	5.58	5.54	8.34	4.00	0.58
TLiab	440,000	99,017	24,000,000	-1,848	1,600,000
LEV	0.46	0.35	21.12	-0.05	1.33
ACIND	3.00	3.00	6.00	0.00	0.75
ACSIZE	3.39	3.00	7.00	0.00	0.71
ACMEET	0.72	1.00	1.00	0.00	0.45
BIG4	0.37	0.00	1.00	0.00	0.48

Notes: CCC represents actual cash conversion cycle ratio; LnCCC represents the natural log of cash conversion cycle; IAC represents actual internal audit costs; LnIAC represents the natural log of internal audit costs; OUT represents firms with outsourced internal audit function; TA represents actual total assets; SIZE represents the natural log of total assets is a proxy for the size of firms; TLiab is the amount of total liabilities; LEV is leverage ratio of the firm measured by total liabilities over total assets; ACIND is the proportion independent member in audit committee; ACSIZE is the total number of audit committee; ACMEET represents the number of audit committee meeting for the year; BIG4 is a1 if the firms being audited by big four audit firm and 0 otherwise.

On the other hand, based on the correlation matrix in Table 2, the results indicate that no unreasonably high correlation present among the independent variables. The results of the correlation analysis employing Variance Inflation Factor (VIF) also shows that the VIF value of each variable is less than 2 and tolerance value less than 1 which confirms there is no multicollinearity problem. In order to examine whether internal audit investment affect firm's WCM, we analyse our data by regressing the natural log of internal audit investment on CCC.

TABLE 2. Correlation analysis

Probability	LnIAC	OUT	SIZE	LEV	ACIND	ACSIZE	ACMEET	BIG4	VIF
LnIAC	1								2.77
OUT	0.6670*	1							1.88
SIZE	0.6134*	0.4116*	1						1.77
LEV	0.2220*	0.1206*	-0.0698	1					1.15
ACIND	0.1612*	0.0252	0.1472*	0.0749	1				2.38
ACSIZE	0.1180*	-0.015	0.104	0.0928	0.7545*	1			2.38
ACMEET	-0.0232	-0.0968	0.0148	0.0342	0.0026	-0.0308	1		1.04
BIG4	0.3105*	0.1260*	0.2750*	0.1179*	0.0771	0.1346*	-0.1041	1	1.18

Notes: LnIAC represents the natural log of internal audit costs; OUT represents firms with outsourced internal audit function; SIZE represents the natural log of total assets is a proxy for the size of firms; LEV is leverage ratio of the firm measured by total liabilities over total assets; ACIND is the proportion independent member in audit committee; ACSIZE is the total number of audit committee; ACMEET represents the number of audit committee meeting for the year; BIG4 is a1 if the firms being audited by big four audit firm and 0 otherwise. VIF is variance inflation factors. *Significant level at $p < 0.05$.

MULTIVARIATE ANALYSIS

Table 3 reports the main regression results. Consistent with the prediction, our main analysis shows a significant relationship between cost of internal audit and firm's CCC. In particular, the regression results show that the variable of interest, cost of internal audit (LnIAC) is negatively and significantly associated to firm's CCC with (β =-0.241 , p <0.01). The results suggest that firms with higher investment in internal audit tend to have better WCM than firms with lower internal audit investments. In contrast, firms that outsource their internal audit function are positively and significantly related to CCC (β=0.88, p <0.1). Other control variables such as firm size and leverage are also positively and significantly related to CCC. Only ACMeet and Big4 are found negatively and significantly related to CCC with (β=-0.294, p <0.1) and (β=-0.412, p <0.01) respectively. R-squared of the regression model is 9.7%. Despite low R-squared, the objective is to investigate the connection between internal audit cost and WCM. Since the low R-squared is significant, the model is valid to determine the association between the internal audit cost and WCM. The results support our argument that internal audit costs reducing CCC ratio by increasing efficiency and effectiveness of operation of the firms.

TABLE 3. Analysis of cash conversion cycle and internal audit cost.

Variables	Coefficient (tstat)
Constant	5.341***
	(0.892)
LnIAC	-0.241***
	(0.0862)
OUT	0.388*
	(0.200)
SIZE	0.542***
	(0.155)
LEV	0.176***
	(0.0536)
ACIND	0.0501
	(0.138)
ACSIZE	-0.152
	(0.147)
ACMEET	-0.294*
	(0.153)
BIG4	-0.412***
	(0.151)
Observations	309
R-squared	0.097

Notes: LnIAC represents the natural log of internal audit costs; OUT represents firms with outsourced internal audit function; SIZE represents the natural log of total assets is a proxy for the size of firms; LEV is leverage ratio of the firm measured by total liabilities over total assets; ACIND is the proportion independent member in audit committee; ACSIZE is the total number of audit committee; ACMEET represents the number of audit committee meeting for the year; BIG4 is a1 if the firms being audited by big four audit firm and 0 otherwise.

*** significant level at $p < 0.01$, ** significant level at $p < 0.05$ and * significant level at $p < 0.1$

ADDITIONAL TEST

For additional test, we examines the effect of internal audit costs based on each component of CCC. The analysis is important to determine which component of CCC has more effect from the internal audit function. Furthermore, using the component of CCC we can assess to more accurate and comprehensive measures of WCM (Nobanee & Alhajjar 2015). We found consistent results where LnIAC is negatively related to inventory conversion period, receivable collection period and payable deferral period respectively. Nevertheless, we find a significant effect of internal audit costs on inventory conversion and receivable collection periods only. The findings suggest that an increasing in investment of internal audit function will shorten the inventory conversion period by selling items to consumers more rapidly.

Similarly, firms can shorten their receivables collection period by better debt monitoring if firms spend more on internal audit costs. These findings provide further support for the influence of internal audit cost on CCC. Table 4 is presented as follows.

TABLE 4. Analysis of cash conversion cycle components and internal audit cost

Dependent variables	LnICP	LnRCP	LnPDP
Variables	Coefficient	Coefficient	Coefficient
	(t stat)	(t stat)	(t stat)
Constant	2.228*	6.532***	3.566***
	(1.177)	(0.656)	(0.875)
LnIAC	-0.241**	-0.163**	-0.0519
	(0.114)	(0.0634)	(0.0845)
OUT	0.198	0.278*	-0.0226
	(0.264)	(0.147)	(0.196)
SIZE	0.931***	0.0338	0.216
	(0.204)	(0.114)	(0.151)
LEV	0.213***	0.0953**	0.0759
	(0.0707)	(0.0394)	(0.0526)
ACIND	0.162	-0.0532	-0.00332
	(0.181)	(0.101)	(0.135)
ACSIZE	-0.132	-0.0251	-0.0730
	(0.194)	(0.108)	(0.144)
ACMEET	-0.262	-0.103	0.104
	(0.202)	(0.113)	(0.150)
BIG4	-0.150	-0.217*	0.0643
	(0.200)	(0.111)	(0.148)
Observations	309	309	309
R-squared	0.089	0.070	0.016

Notes: LnICP represents the natural log of inventories cycle; LnRCP represents the natural log of receivable cycle; LnPDP represents the natural log of payable cycle; LnIAC represents the natural log of internal audit costs; OUT represents firms with outsourced internal audit function; SIZE represents the natural log of total assets is a proxy for the size of firms; LEV is leverage ratio of the firm measured by total liabilities over total assets; ACIND is the proportion independent member in audit committee; ACSIZE is the total number of audit committee; ACMEET represents the number of audit committee meeting for the year; BIG4 is a1 if the firms being audited by big four audit firm and 0 otherwise. *** significant level at $p < 0.01$, ** significant level at $p < 0.05$ and * significant level at $p < 0.1$

FURTHER TEST

We also regress CCC and internal audit investment on firm's performance. The result show that CCC is negatively and significantly related to performance. While internal audit cost is positively and significantly associated with performance. The results suggest that both CCC and internal audit investment are important elements for firms to generate revenues.

TABLE 5. Analysis of cash conversion cycle, internal audit cost and performance

Dependent variable	Performance
Variables	Coefficient (t stat)
Constant	2.822***
	(0.439)
LnCCC	-0.250***
	(0.0269)
LnIAC	0.115***
	(0.0406)
OUT	-0.0803
	(0.0938)
SIZE	-0.417***
	(0.0734)
LEV	0.534***
	(0.0254)
ACIND	-0.00228
	(0.0640)
ACSIZE	0.0333
	(0.0685)
ACMEET	-0.0838
	(0.0716)
BIG4	0.0645
	(0.0713)
Observations	309
R-squared	0.704

Notes: Performance is represented by firm sales over total assets ratio; LnCCC represents the natural log of cash conversion cycle; LnIAC represents the natural log of internal audit costs; OUT represents firms with outsourced internal audit function; SIZE represents the natural log of total assets is a proxy for the size of firms; LEV is leverage ratio of the firm measured by total liabilities over total assets; ACIND is the proportion independent member in audit committee; ACSIZE is the total number of audit committee; ACMEET represents the number of audit committee meeting for the year; BIG4 is a1 if the firms being audited by big four audit firm and 0 otherwise. *** significant level at $p < 0.01$, ** significant level at $p < 0.05$ and * significant level at $p < 0.1$

Conclusion

This paper investigates the relationship between cash conversion cycle and internal audit cost, aiming to demonstrate how an internal audit function influence management practices of CCC. Using 309 observations of listed firms on the Bursa Malaysia from 2017 to 2018, our main findings suggest that internal audit investment is negatively and significantly related to firm's CCC. This paper, in particular, advances Hassan and Nasir's (2020) research by offering an understanding of the function of internal audit in WCM. We further argue that investment in internal auditors enhance the quality of services provided on the effectiveness and efficiency of WCM. Our results support prior study on the evidence of assurance and consultancy services provided by internal auditors in various aspect of operation in an organisation (e.g. Drogalas & Siopi 2017; Mohamed 2012; Bou-Raad 2000; Mihret & Woldeyohannis 2008; Wallace & Kreutzfeldt 1991). We also conduct additional tests using each component of cash conversion cycle ratio to increase the credibility of our findings.

Our study have significant implications on internal audit function and WCM. First, when board of directors or management making resource allocation decision on internal audit function, they need to be careful as resourceful internal audit function benefits more to the firms. The findings in both main and additional analyses show consistent results that higher internal audit cost improves firms operational effectiveness and efficiency as well as performance. Second, we would also like to shed the light on the importance of effective WCM on performance. Despite limited empirical evidence on the relationship between governance and WCM, the board of directors and top management are still responsible for monitoring WCM of the firms. As such, both board of directors and top management can utilise internal audit function in achieving low CCC ratio. Managers especially can facilitate and support internal audit function not only in terms of access to the information but also by allocating the appropriate level of budget for internal audit activities. These findings imply that resourceful internal audit function contributes to firms' operations and performance.

Notwithstanding the findings, the current study has shortcomings that might lead to further research. This study's main limitations are the lack of control variables such as board attributes, timing and industries effect. The results may be different if all control variables are available. Another possible future study is the ample opportunities for researchers to examine the governance characteristics on WCM in different periods of revised governance rules or governance codes. While there have been consistently revised rules or codes for governance, researcher and regulators should learn from each other in terms of the implication of changes in governance codes on WCM. Finally, it would also be interesting for researchers to study the effect of Covid-19 pandemic on WCM and how internal audit assist management to reduce the pandemic effect on firms' operation.

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