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A Contingency View to Working Capital Management in High-Tech Industries

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ABSTRACT

Despite the acknowledgement and evidence from extant studies that working capital management has influence on firm value there is argument that this relationship is subject to the external environment, internal resources and management decisions of the firm as anticipated by contingency theory. As such, this study aims to examine whether the relationship between working capital management and firm value is moderated by the contingency factors as proxied by competitive intensity, R&D investments, and independent non-executive directors. The sample of 299 non-financial firms listed on the main market of Bursa Malaysia for the period 2006-2015 were applied. By applying panel data approach through fixed effects regression estimation, the main findings showed that the influence of working capital management on firm is significantly moderated by the interaction of firms' contingency variables. This study suggests that aligning working capital management policies toward the environment, internal resources and management decisions can minimize the costs and maximize the advantages of working capital investment because any misalignment might affect the firm value significantly.

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INTRODUCTION

Aftermath the 2008 global financial crisis, valuable cash of huge firms were tied up in the working capital cycle (Wasiuzzaman, 2015). Due to the obstacle, some of these firms faced serious liquidity problems while some could not survive and went bankrupt (e.g. Bear Stearns, Lehman Brothers, General Motors) (Charitou et al., 2010). In addition, firms with liquidity problems were compelled to cut spending on investment, and those with less access to external financing had to turn to working capital which is often neglected (Campello et al., 2012). Based on this, firms view credit extensions to customers and credit terms extended by suppliers to be imperative in managing business prudently (Yang, 2011). Thus, during the financial crises when there is scarcity of external financial resources, working capital management is a very critical survival tool since it acts as a financial intermediary (Narayanan, 2014).

This inspired studies on the significance of managing organizational resources judiciously specifically the efficient management of working capital (Charitou et al., 2010) since it played a critical role in firm performance during the financial crises (Claessens et al., 2000) and contributes to business failures (Campello et al., 2012). However, working capital management (WCM) approaches and practices are different among countries, industries, and firms; these changes occur significantly over time and lead to different influence of WCM on firms' performance (Filbeck and Krueger, 2005). The obvious reason is that achieving an effective and efficient WCM does not include only financial perspective but also incorporate other disciplines (Baltes, 2015). This led to the argument that to maximize firm performance there is need for an effective and efficient WCM to be integrated with business processes since WCM encompasses the full choices of business processes. (Leavell, 2006)

In addition, studies have suggested and shown that there are some internal and external settings of present-day organizations that directly or indirectly affect WCM (e.g., Darabi and Toomari, 2012; Enqvist et al., 2014; Kieschnick et al., 2013; Wasiuzzaman, 2015). However, except for Tingbani (2015), these past studies have disregard the interactive influence of these internal and external settings on the relationship between WCM and firm value. This disregard contributes to lack of understanding of working capital approaches and practices among firms and industries which resulted in variations in working capital performance. Therefore, this study aims to determine whether the relationship between WCM and firm value in an emerging market may be dependent on the relations of internal and external settings of the firm as anticipated by the framework of contingency theory.

Contingency theory was developed through the functional sociological theory view of organizational structure that gives clear elucidations on the interrelationships that exist among organizational sub-systems, and between organizational system and its environment (Fridman and Ostman, 1989). Based on the theory, there is no single type of organizational strategy that is equally fitting to all organizations (Islam and Hu, 2012). This means that there is no best way of designing an organization in the contingency framework (Scott and Cole, 2000), because the structures and processes of organizations are shaped by their environment (Flynn et al., 2010). There is need for organizations to adopt systems and structures that will match the numerous contingencies of their external environment to improve profitability. Therefore, the more organizations could deal with the demands of the environment they interact with, the better their performance (Burrell and Morgan, 2009).

The second motivation for this study is based on the knowledge and understanding that the WCM policies among Malaysian firms is presently insufficient because Malaysia firms still undergo gradual improvement of their WCM (Wasiuzzaman, 2015), and there is late payment issue among Malaysia firms (Love and Zaidi, 2010; Paul and Boden, 2014; Paul et al., 2012; Zainudin, 2008), which always lead to increase in financing working capital (Chittenden and Bragg, 1997). The few contemporary studies that examined this area focused on the listed firms (e.g., Mohamad and Saad, 2010; Wasiuzzaman, 2015; Wasiuzzaman and Arumugam, 2013; Zariyawati et al., 2009). This is because most listed firms have a tendency of having a large amount of cash invested in working capital, and considerable amounts of short-term payables, as a basis of financing (Deloof, 2003).

REVIEW OF LITERATURE

Most of the prior empirical studies (e.g., Baños-caballero et al., 2014; Deloof, 2003; García-Teruel and Martínez-Solano, 2007; Shin and Soenen, 1998) have focus on the influence of WCM on firm's performance since working capital investment impacts on firm's profitability, risk and then its value (Smith, 1987). These prior empirical studies could be categorized into two contending views on working capital investment. The first view believes firms increase their sales and acquire better discounts for early payments when they achieve higher working capital levels (Deloof, 2003), and which then may increase their firms' value. The second view believes higher working capital levels require financing and as a result, firms face further financing expenses that increase their possibility of bankruptcy (Baños-Caballero et al., 2014). In addition, all these prior studies (e.g., Deloof, 2003; Falope and Ajilore, 2009; Shin and Soenen, 1998) are carried out from various environments and they support the traditional assumption on the relationship between working capital and firm value. This traditional believe is that reduction in working capital investment has positive effect on firm performance under aggressive policy. This is done by decreasing the amount of current assets held in total assets. Based on this thought, Autukaite and Molay (2013) stressed that firms can reduce their dependence on external financing, reduce their financing cost and relish financial flexibility. Effective WCM put firms in a healthier situation to entice cheaper funding from both lenders and shareholders since it improves the risk profile of many firms. Ganesan (2007) also suggests that reduction in working capital investment resulted into less necessity for external financing and reduction in cost of capital, which then increases cash available to the shareholders. However, empirical evidence showed that despite aggressive working capital policy focusing on improving profitability, it neglects some important aspects, which include interruptions in process of production or the risk of losing sales if firms excessively reduce their working capital investment (Baños-caballero et al., 2014)

On the other hand, some of the prior studies (e.g., Garcia-Teruel and Martinez-Solano, 2010; Kieschnick et al., 2013) also support the conservative policy that increasing working capital investment improve sales, increase firm value, and helps to evade bankruptcy risk. Conservative working capital policy increases working capital investment because its target is to stimulate sales by increasing levels of trade receivable and inventory so as to increase the firm profitability (Afza and Nazir, 2007). In addition, increasing the level of accounts receivable under conservative policy increases sales since it allows longer payment period to customers (Seifert et al, 2013), leads to reduction in information asymmetry between seller and buyer, and serve as a cheap credit source to customers (Chong et al., 2015). Furthermore, increasing the level of inventory under conservative policy prevents any disruptions in production (Garcia-Teruel and Martinez-Solano, 2010), lessen the probability of stock-out (Giannetti et al., 2011), and lessen price fluctuation and supply costs (Kollintzas, 2013). However, firms with conservative working capital policy are faced with the challenges of additional financing expenses in order to finance and achieve higher levels of working capital (Afza and Nazir, 2007). These additional financing expenses increase their risk of bankruptcy (Kieschnick et al., 2013). As a result of this, there is need for firms to assess the trade-off between risk and expected firm value before making decision on the optimal investment level on current assets (García-Teruel and Martínez-Solano, 2007). However, recent studies (e.g., Baños-Caballero et al., 2014; Nurein et al., 2015) found that there exists an optimal working capital level through concave relationship between WCM and firm performance. A positive non-linear relationship is achieved with a low working capital investment level and a negative non-linear relationship occurred when working capital investment level is higher. Hence, firms can increase their profitability and minimize their risk through better understanding of the significance of WCM.

However, according to Luthans and Stewart (1977)'s contingency theory of management, organizational contingencies are environmental, resource and management variables of the firm which is known as ERM. Environmental variables influence the organization but cannot be directly or positively controlled by the resource managers of the organizations (Ambrosini et al., 2009; Flynn et al., 2010). They are refer to as the independent variables or "givens" that form the organizations processes and structures (Flynn et al., 2010). Resource variables could be tangible or intangible factors that are directly controlled by the management and which they use for operating and producing necessary changes in their organizational system or their environmental supra-system (Bilkova et al., 2016; Mol and Wijnberg, 2011). The unique resources of a firm are crucial factors to its firm value. Based on resource-based view, the unique accumulated resources of the firm are costly and difficult to emulate, thus they contribute more to firm value (Demsetz, 1997). Management variables are the techniques and concepts expressed through policies, procedures and practices applied by the

manager in operating on the available resource variables to define and accomplish the objectives of the firm (Luo et al., 2014; Zona, 2016).

Multidimensional contingency model is regarded as a systems model that concomitantly incorporates multidimensional concepts of fit (Donaldson, 2001; Sirmon and Hitt, 2009; Sousa and Voss, 2008) . It has been argued that numerous multidimensional concepts such as strategy, leadership preference and environment should be incorporated concomitantly to improve fit, which is regarded as efficacy, competences, and feasibility of the firm (Burton and Obel, 2012). Contingency fit ensues when a given set of contingent variables and multiple variables in an organizational design are fit. This contingency fit will link the situational factors of the firm to its structural configuration and its properties. However, a firm is in misfit when its performance is less because of the misalignment. Meanwhile, according to De Ven et al. (1985), understanding context-structure-performance relationships could only improve by concomitantly addressing the various contingencies, performance criteria, and structural alternatives that need to be holistically considered in understanding organizational design. Based on this, the systems approach concept of De Ven et al. (1985) support the necessity to apply multivariate analysis to study the consistency patterns among the dimensions of organizational structure, context and performance. Therefore, the systems approach is adopted in this study in examining consistency patterns among contingency variables, WCM and its components and how they influence firm value at different interaction levels.

Soenen (1993) stressed that firms' profitability is determine by the span of the cash conversion cycle (CCC) and firms that maintain shorter CCC achieve higher firm performance. It is also argued that firms that achieve shorter CCC can maximize their profit because of their ability to generate funds internally, which might reduce their dependence on external financing which is always expensive (Autukaite and Molay, 2013; Baños-Caballero et al., 2014; Bozzeda, 2017). Deloof (2003) showed that firm profitability is significantly and negatively related with CCC, accounts receivable days and inventories. Deloof (2003) suggested that by reducing inventories and account receivable days to a minimum level, managers can create value for their shareholders. In addition, Lazaridis and Tryfonidis (2006) argue in their study that the longer firms delay their account payable, the higher the level of working capital levels reserved and used in increasing profitability. García-Teruel and Martínez-Solano (2007) also found that account receivable days and inventory days are negatively related with firm profitability, and suggesting that managers can create value through shortening CCC because it increases the cash flow available to firms in running their day-to-day activities. Thus, this study hypothesized that CCC has relationship with firm value as follows, as in line with previous studies:

H1a: There is a negative relationship between the cash conversion cycle and firm value.

CCC is disintegrated into three components (i.e. accounts receivable management, and accounts payable management and inventory management). For a better understanding of the relationship between working capital management and firm value, it is suggested to disintegrate the individual components of WCM separately since they have different implications on firm value (Afrifa, 2013), and a firm can minimize its CCC through the optimization of each of the components (Enqvist et al., 2014). For instance, account receivables serve as short-term loans to customers given by the supplying firm, and a firm value is significantly affected by its accounts receivable policy (García-Teruel and Martínez-Solano, 2010). A reduction in accounts receivable period enhance firm value by increasing cash flow available to a firm. This increase in cash flow will then enable the firm to meet its daily obligations, avoid shortage of cash, benefit from positive speculation and growth opportunities, and reduce the cost of financial distress and transactional cost of paying bills (Petersen and Rajan, 1997). Based on these arguments, this study hypothesized that account receivables period has relationship with firm value as thus:

H2a: There is a negative relationship between the account receivables period and firm value.

Firms are required to keep inventory to safeguard any eventualities due to imperfections, and their firm value is influenced by the level of inventory held (Eroglu and Hofer, 2011). Reduction in inventory level may increase firm value since the untied-up funds in inventory may be invested elsewhere; and it also prevents the firms from seeking short-term credit to finance their investment in inventory (Deloof, 2003). Therefore, this study assumed the following relationship between inventory holding period and firm value:

H3a: There is a negative relationship between the inventory holding period and firm value.

On the other hand, accounts payable is a vital source of short-term funds for many firms. Firms lean towards having an optimal accounts payable policy due to market imperfection, which may influence their firm value (Baños-caballero et al., 2014). Delaying accounts payable helps in improving operational efficiency and firm value by reducing transactional cost, reducing exchange costs, and allows firms to accumulate amounts owing and pay them at a periodic interval per the credit period agreement which help them to overcome financial constraint (Bhattacharya, 2008). Regarding these arguments, it assumed that the relationship between account payable periods and firm value is as follows:

H4a: There is a positive relationship between the accounts payable period and firm value.

As this study adopts the Luthans and Stewart (1977)'s contingency theory of management which regards organizational contingencies are environmental, resource and management variables of the firm, the proxies for environmental, resource and management variables used in this study are competitive intensity (C), R&D investments (R) and independent non-executive directors (N), respectively. In other word, competitive intensity (C) represents the environmental variable, R&D investments (R) represents resource variable, while independent non-executive directors represent management variable. Thus, the proxy for ERM is CRN.

In a highly tensed competitive market, firms were challenged by different dimensions of strategy of their competitors. Competitive intensity is one of the external factors influencing working capital management (Darabi and Toomari, 2012; Filbeck and Krueger, 2005). Competitive intensity is a circumstance where there is fierce competition because of the number of competitors in the market and the absence of possible opportunities for more growth (Auh and Menguc, 2005), which then contribute to environmental hostility (Wilden, 2013). As competition intensifies, the outcome of a firm's activities will no longer be deterministic but rather stochastic as its activities are hugely affected by the activities and contingencies undertaken by competitors (Auh and Menguc, 2005). Therefore, certainty and predictability diminish under intensifying competitions. On the other hand, when there is less intensified competition, firms can make use of their existing systems to capitalize fully on the transparent predictability of their behaviour. However, firms need to adapt accordingly when competition is intense. R&D investment is regarded as an intangible assets that contributes to the long-term growth of the firm (Chan et al., 2001). An effective R&D investments leads to an innovative product and services that facilitates the firm to improve its intangible assets, therefore distinguishing itself from other firms (Ehie and Olibe, 2010). Independent non-executive directors is one of the main corporate governance management variables assumed by most research in the contingency framework (Collin, 2008). Independent non-executive directors serve as "professional referees" in a firm board of directors in ensuring that the competition among executive directors stimulates actions that are in line with the maximization of firm value (Fama, 1980). Firms that have high number of independent directors in a board achieve less common financial problems (Fathi and Gueyié, 2001) and it is linked to higher firm value (Mak and Kusnadi, 2005). Moreover, during a deteriorating business environment, firms with high number of independent directors achieve lower risk of bankruptcy (Daily et al., 2003). Based on the argument above regarding the influence of environmental, resource and management variables on working capital and firm value, this study formulate the following hypothesis:

H1b: Firm's competitive intensity, R&D investments and independent non-executive directors significantly moderate the relationship between cash conversion cycle and firm value

H2b: Firm's competitive intensity, R&D investments and independent non-executive directors significantly moderate the relationship between account receivables period and firm value

H3b: Firm's competitive intensity, R&D investments and independent non-executive directors significantly moderate the relationship between inventory holding period and firm value

H4b: Firm's competitive intensity, R&D investments and independent non-executive directors significantly moderate the relationship between accounts payable period and firm value

RESEARCH METHODOLOGY

The data of 299 non-financial firms listed on the main market of Bursa Malaysia for the period 2006-2015. These firms were selected from "high-tech industries" as categorized by the NIW-ISI-list (Lower Saxony Institute for Economic Research (NIW) and Institute for Systems and Innovation Research (ISI)), and also identified as innovative firms (Gehrke and Grupp, 1994; Grupp, 1995). These industries include automobiles and parts with 20 firms, Chemicals – 29 firms, electronic and electrical equipment – 29 firms, forestry and paper- 15 firms, general industrials – 32 firms, household goods and home construction – 38 firms, industrial metals and mining – 33 firms, industrial engineering – 45 firms, oil equipment and services – 20 firms, technology hardware and equipment – 16 firms. These high-tech industries consist of high-intensive firms that involve more in innovation through R&D investment, and they are more contingent to their environment, resources and management factors to achieve firm value.

The dependent variable is firm value and is measured as enterprise value divided by Earnings before interest, taxes, depreciation and amortization (EV/EBITDA). Enterprise value is measured as Equity Value + Total Debt– Cash & Cash Equivalents + Preferred Stock + Minority Interest. Previous studies (e.g., Deloof, 2003; Garc á-Teruel and Mart ínez-Solano, 2007; Soenen, 1993) have adopted the CCC as the main measure of working capital management. This study also adopts CCC as a proxy for working capital management. CCC measures the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods; or reveals the time (days) interval needed to convert a dollar invested in current assets into cash (Richards and Laughlin, 1980). Other independent variables are account receivables period, inventory holding period, and account payables period. Moderating variables are competitive intensity, R&D investments, and independent non-executive directors. Control variables applied are firm size, financial leverage, liquidity ratio, assets tangibility, and firm growth. The measurements for the variables are depicted in table 1 below.

Table 1 Variables Measurement

No	Variables	Connotation	Measurement
1.	Firm Value	FV	(Equity Value + Total Debt– Cash & Cash Equivalents + Preferred Stock + Minority Interest) ÷EBITDA
2.	Cash conversion cycle	CCC	(ARP + IHP – APP)
3.	Account receivables period	ARP	Accounts receivables ÷sales) ×365
4.	Inventory holding period	IHP	(Inventory divided /cost of sales) × 365
5.	Account payables period	APP	Accounts payables /cost of sales) × 365
6.	Competitive intensity	C	Firm sales ÷ sum of the sales of firms present in the given industry
7.	R&D investments	R	R&D expenditure ÷ total sales volume
8.	Independent non-executive directors	N	(Number of non-executive directors) ÷total board directors
9.	Firm size	SIZE	Natural logarithm of sales
10.	Financial leverage	LEV	Total debt ÷ total capital
11.	Liquidity ratio	LIQ	Current assets ÷current liabilities
12.	Assets tangibility	ASTAN	Fixed assets ÷ total assets.
13.	Firm growth	GROWTH	(Current sales –previous sales) ÷ previous sales

The following models were estimated to examine the hypotheses:

$$FV_{it} = \beta_o + \beta_1 CCC_{it} + \beta_2 ARP_{it} + \beta_3 APP_{it} + \beta_4 IHP_{it} + \beta_5 SIZE_{it} + \beta_6 LIQ_{it} + \beta_7 LEV_{it} + \beta_8 ASTAN_{it} + \beta_9 Growth_{it} + \varepsilon_{it} \quad (1)$$

$$FV_{it} = \beta_o + \beta_1 CCC_{it} + \beta_2 ARP_{it} + \beta_3 APP_{it} + \beta_4 IHP_{it} + \beta_5 SIZE_{it} + \beta_6 LIQ_{it} + \beta_7 LEV_{it} + B_8 ASTAN_{it} + \beta_9 GROWTH_{it} + \beta_{10} CRN*CCC_{it} + \beta_1 CRN*ARP_{it} + \beta_{11} CRN*APP_{it} + \beta_{11} CRN*IHP_{it} + \varepsilon_{it} \quad (2)$$

The first equation (1) indicates a direct relationship between working capital management and firm value without any interactive effect (i.e. moderating variables) which is to examine hypotheses H1a to H4a, while the second equation (2) indicates the relationship with the introduction of the interactive term (i.e. moderating variables). Hausman (1978) specification test is conducted to determine whether the firm specific effects are fixed effects or random effects. In carrying out the Hausman test, the p-value for this test is < 0.05 (Prob>chi2 = 0.00). Therefore, the null hypothesis is rejected. This indicates that the random effects model is inappropriate, and the fixed effects specification is the suitable model for this study. Therefore, to examine the estimated models, correlation and OLS fixed effect estimation was applied.

RESULTS AND DISCUSSION

Summary Statistics

The summary of descriptive statistics of the variables are shown in table 2 below.

Table 2 Descriptive statistics

Variable	Observation	Mean	Standard Deviation	Min	Max	Skewness	Kurtosis
FV	2990	0.886291	0.425135	0.428418	2.448718	1.461603	3.221545
CCC	2990	142.5112	258.81032	-1451.63	6120.96	9.82445	12.56963
ARP	2990	93.42124	60.62681	-827.2131	986.8120	3.237680	14.57469
IHP	2990	105.1639	132.1765	-0.861811	973.2480	4.247449	16.40312
APP	2990	97.529	162.8761	-925.8677	986.3582	3.869248	14.88867
C	2990	8.993939	5.478927	-1.952122	952.9667	12.72073	138.8686
R	2990	9.781214	14.82568	-89.4	98.65	-0.067189	17.50381
N	2990	4.929719	2.156725	2.56432	7.553535	1.65842	10.83941
SIZE	2990	6.68759	1.43521	-1.751124	8.541723	-1.165822	8.368254
LEV	2990	0.6859837	8.11396	-0.865981	261.2188	26.11288	871.9942
LIQ	2990	1.691388	2.552926	0	87	18.62216	694.4087
ASTAN	2990	8.642576	59.87748	-1.952133	962.9668	14.82074	138.5757
GROWTH	2990	0.5614013	9.712138	-18.64693	298.9791	29.71752	915.3877

Firm value indicates a mean of 88.6%, which implies that the firms have strong firm value during these periods examined. The mean for CCC, account receivables period, inventory holding period, and account payable period are 142 days, 93 days, 105 days, and 97.53 days respectively. This indicates that the number of days to convert sales to cash is averagely longer during these periods. Competitive intensity shows a mean of 8.99, indicating a high intensity of competition among the firms in the industries. R&D investments with mean of 9.78, implying that the firms highly invest in R&D. Independent non-executive directors indicates a mean of 4.93, which implies that the board of directors of each firm averagely consist of 5 independent non-executive directors.

Correlation Matrix

The correlation analysis is applied to measure the degree of linear relationship that exists between two or more variables. However, before the correlation analysis was carried out a formal test was used to ascertain that multicollinearity is not present in this analysis by using variance inflation factor (VIF) which is depicted in Table 3 below.

Table 3 Result of Variance Inflation Factor

Variable	VIF
CCC	4.82
IHP	4.76
ARP	4.61
APP	1.99
SIZE	1.29
C	1.23
LIQ	1.18
R	1.16
ASTAN	1.13
GROWTH	1.04
LEV	1.01
N	1
Mean VIF	2.10

The largest VIF is 4.82 (CCC), confirming that multicollinearity is not present in the sample, because it is less than 10 (Hair et al., 2006).

The correlation coefficient among the variables are depicted in Table 4 below.

Table 4 Correlation result of the variables

Variable	FV	CCC	ARP	IHP	APP	C	R	N	SIZE	LEV	LIQ	AST	GRO
FV	1.00												
CCC	-.06***	1.00											
ARP	-.15***	.19***	1.00										
IHP	.06***	.73***	.05**	1.00									
APP	-.02**	.57***	.05**	.06**	1.00								
C	.17***	-.07**	.07**	.03**	.02*	1.00							
R	.40***	-.08**	-.07**	.07*	.05**	-.06**	1.00						
N	-.03	-.01	-.09**	.08*	.04**	-.00	-.06**	1.00					
SIZE	-.10***	.20**	.05**	.05**	.02**	.03**	.07*	-.07*	1.00				
LEV	.06***	.06**	.20**	.06**	.08*	.04**	.04**	.06**	.08*	1.00			
LIQ	.05***	.09**	.06*	-.08*	.03**	.02**	.03**	.04	.03*	.05	1.00		
AST	-.03	.02	.05**	-.03	-.06	-.05**	.05**	-.01	.07**	-.04	.01*	1.00	
GROWT	.04	-.01	.04	-.02	-.04	.03	.08**	.011	.04**	-.08	.06*	.02**	1.00

The coefficients of the variables are not greater than the 0.87 or 0.97 limit based on Field (2009). The results indicate a negative significant relationship between firm value and CCC, implying that decrease in WCM increases firm value since firms could convert their inventory into sales in a short period, recover receipts from credit sales and slow down their cash payments. The negative correlation between accounts receivable period and firm value indicates that accounts receivable policy of the firms negatively influences their firm value. Inventory and firm value are negatively correlated, which signifies that the inventory policy of the firms reduce their firm value. A positive relationship between account payable period and firm value indicates that longer payable period increases the firm value.

Regression Results

The results of the fixed regression analysis of the models is depicted in table 5 below.

Table 5 Fixed Effects regression of the models

	Model 1	**Model 2**
CCC	-0.258***	-0.482***
	(-5.31)	(-8.36)
ARP	-0.389***	-0.635***
	(-7.81)	(-9.52)
IHP	-0.032***	-0.354***
	(-0.89)	(-7.83)
APP	0.088***	0.092***
	(5.26)	(6.41)
CCC*CRN		0.724***
		(8.52)
ARP*CRN		0.756***
		(9.15)
IHP*CRN		0.571***
		(8.26)
APP*CRN		0.781**
		(6.62)
SIZE	-0.381***	-0.371***
	(-8.67)	(-8.47)
LEV	-0.010**	-0.021**
	(4.39)	(4.27)
LIQ	-0.052***	-0.076***
	(-3.12)	(-5.61)
ASTAN	-0.002***	-0.005***
	(-9.39)	(-8.82)
GROWTH	0.008**	0.006**
	(1.65)	(1.37)
Constant		-4.216***
		(-12.79)
		-0.027**
C		(-3.75)
		-0.11**
R		(-3.92)
		-0.035***
N		
Observations	2990	2990
R-SQ	45	67
Akaike Test	8749	7683
Total Effect		0.514

Note: Significance levels are at 1% (***), 5% (**) and 10% (*)

Model 1 presents the regression on the direct relationship between WCM and firm value, while Model 2 presents the regression on the moderating effect of contingency variables on the relationship between WCM and firm value. Model 1 shows a significant negative relationship between CCC and firm value at 1% significant level. (at b= -0.258, p<0.01). Thus, H1a is accepted, which indicates that with 1% decrease in CCC the firm value will increase by 25.8%. This findings is consistent with study done by Garc á-Teruel and Mart ínez-Solano (2007). Account receivable period has a negative significant relationship with firm value at 1% significant level. (at b= -0.389, p<0.01). Therefore, H2a is accepted, and implies that with 1% decrease in account receivable period the firm value will increase by 38.9%. This supports the argument that keeping a shorter account receivable period untied cash and improve firm value. Also, it is consistent with Padachi (2006) and Deloof (2003). Inventory holding period is significant and negatively related with firm value at 1% significant level. (at b= -0.032, p<0.01). Thus, H3a is accepted, which implies that with 1% decrease in inventory holding period the firm value will increase by 3.2%. This also indicates that reducing inventory by converting it into sales in shorter period increases firm value. This finding is also in line with the study of Gill et al. (2010). Account payable period has a positive and significant relationship with firm value at 1% significant level. (at b=0.088, p<0.01). Therefore, H4a is accepted, and signifies that at 1% increase in account payable period the firm value increases by 8.8%. It also implies that delaying payables increases firm value. The finding is consistent with the study of Mathuva (2010) and Raheman et al. (2010).

Model 2 shows that the direct relationship between firm value and all the independent variables are still significant and improved than in model 1. With the inclusion of the moderating variables, 1% decrease in CCC, account receivable period and inventory holding period firm value will increase by 48.2%, 63.5% and 35.4% respectively. Moreover, 1% increase in accounts payable period will increase firm value by 9.2%. These findings indicate that contingency variables of these firms positively influence their working capital management and firm value relationship. Meanwhile, CCC and the interaction of the contingent variables (CCC*CRN) is significant and has a positive coefficient (b= 0.724, p<0.01). Accounts receivable period and the interaction of the contingent variables (ARP*CRN) is significant and has a positive coefficient (b= 0.756, p<0.01). Inventory holding period and the interaction of the contingent variables (IHP*CRN) is significant and has a positive coefficient (b= 0.571, p<0.01). Accounts payable period and the interaction of the contingent variables (ARP*CRN) is significant and has a positive coefficient (b= 0.781, p<0.01). The combine total effect is also significant and positive (b= 0.514, p<0.0). This is an indication that interaction of environmental, resources and management variables applied in this study significantly moderates the relationship between WCM and firm value as anticipated by contingency theory of Luthans and Stewart (1977). The positive coefficients of the interaction terms indicate that CRN as moderator significantly strengthening the relationship between WCM and firm value.

CONCLUSIONS

This study examines the moderating effect of contingency variables on the relationship between WCM and firm value. The evidence presented indicates a significant and negative relationship between WCM and firm value as consistent with previous studies (Autukaite and Molay, 2013; Jakpar et al., 2017; Kieschnick et al., 2008; Wasiuzzaman, 2015). It also supports the view that reduction in working capital investment improves firm value through reduction in the level of current assets (Garc á-Teruel and Mart ínez-Solano, 2007). However, the inclusion and the consideration of contingency variables as a moderator between working capital and firm value improves their relationship. This indicates that organizational contingencies moderates WCM and firm value. The assumption of contingency theory is that the policies of firms changes over time so as to react to the demanding environment (Ambrosini et al., 2009), the available resources (Mol and Wijnberg, 2011) and the capability of the management (Hamza and Jarboui, 2016). Firms that adjust its assets to these contingency variables will improve their firm value. Firms that react to intense competition through investing in R&D that focus on innovating its products, processes and technology will achieve an improvement in their firm value. This is because firm unique or innovative products, processes and technology create superiority and contribute to firm value (Demsetz, 1973).

The implication of this study is that internal and external settings of firms affect the management of working capital towards improving firm value. It is suggested that management should align their WCM policies

towards their contingency factors to improve firm value, as any misalignment will influence firm value negatively. Also, firms need to introduce suitable policies that fit in to their resources to challenge the opportunities and threats that exist in the environment towards improving their firm value. Competitive intensity is out of control of firms. Policy makers need to ensure a conducive business environment and equal regulations for all firms in all industries.

This study uses competitive intensity, R&D investments, and independent non-executive directors as main organizational contingencies and as proxies for environmental, resources, management variables respectively. However, there other organizational contingencies that need to be consider as moderating effect on WCM and firm value. It is recommended that further studies should consider the influence of other organizational contingencies on the relationship between WCM and firm value.

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