Impact of Working Capital Management on the Profitability of *Shariah*-Compliant and Non-*Shariah* firms: The Case of Malaysia

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Abstract: This paper examines the impact of working capital management on the firm's profitability using return on equity as its core determinant. Using a sample of ninety listed Malaysian *Shariah*-compliant and non-*Shariah* firms for the period 2009 to 2013, this study investigates whether both types of firms react differently to similar firm specific variables. By employing static panel data estimation technique, we document that although the Shariah-*compliant* firms are subject to certain restrictions, they still efficiently compete with their conventional counterparts in terms of profitability by sustaining a higher return on equity. This might be attributed to better management of their receivables as well as a higher and better inventory turnover as per our empirical results. Thus, it can be assumed that *Shariah* restrictions have not impeded the performance of *Shariah*-compliant firms; rather it has helped them in some respects if not all.

Key words: Profitability, *Shariah-compliant* and non-*Shariah* firms, working capital management
JEL classification: G31, G39

1. Introduction

The issue of working capital management[1] is generally centred on the trade-off between having large or small working capital. On one hand, a large inventory and a generous trade credit policy lead to higher sales, reduce the risk of stock, protect against price fluctuations, and reduce supply costs. Nevertheless, the negative aspect of granting trade credit and keeping inventories is that cash is locked up in working capital (Deloof 2003). Moreover, uncollected and extended trade credit can lead to cash inflow problems for the firm (Gill *et al.* 2010). On the other hand, there may be a reverse effect if firms decide to have small working capital by not extending the trade credit but receive it from suppliers. The advantage of such a policy is that it not only allows firms to assess the quality of the purchased products but also constitutes an inexpensive and flexible source of financing for the firm (Deloof 2003).

Literature on working capital management has been documented in many different ways. While some authors have studied the impact of an optimal inventory management, others have studied the optimal way of managing accounts receivables to maximise profits (Baños-Caballero *et al.*2014). Other researchers have focused on how reduction of working

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[1] Working capital management aims to ensure that a firm is able to meet its operating expenses and remains in a position to pay short-term obligations as and when they fall due. It is also important for a firm's survival because of its effects on a firm's profitability and risk, and consequently its value (see Gimeno *et al.* 1997; Gunay and Kesimli 2011; Deloof, 2003). Failure to manage working capital in a prudent manner may lead to a liquidity crisis and a reduction in profitability; affecting the ability of the firm to continue its operations.

capital improves a firm's profitability (García-Teruel and Martínez-Solano 2007; Deloof 2003; Baños-Caballero *et al.* 2014; Sen and Eda 2009; Panigrahi 2014; Ukaegbu 2014; ALShubiri 2011; Vural *et al.* 2012). To the best of our knowledge, there is no study on the impact of working capital management on a firm's profitability based on a sample divided into *Shariah* and non-*Shariah* firms. To fill this lacuna, this study provides empirical evidence on the relationship between working capital management and profitability for *Shariah* and non-*Shariah* firms as a means to better understand the effects of *Shariah* requirements on working capital management and firm profitability. This is mainly due to the fact that *Shariah* places certain constraints on the management of accounts receivable, which is one of the main determinants of working capital. For instance, the Dow Jones Islamic index imposes six quantitative screening criteria.[2] Among these six criteria, one is that *Shariah*-compliant firms must hold less than 33% of liquid assets, which includes cash and accounts receivables. We argue that tightening of accounts receivable will force the company to focus on cash sales over credit sales, which may discourage purchases. This in turn will affect the sales of the company, as the potential major customers will be keen to purchase on credit rather than cash. The cost of production will remain the same while the decreasing number of sales will ultimately affect profitability and eventually stock prices. Since working capital includes the accounts receivable as its main component, this restriction on accounts receivables may affect the performance of companies working under the *Shariah* compliant umbrella.

We utilised the annual data of Malaysian listed firms from 2009 to 2013 to investigate the impact of working capital management on profitability. We estimated our empirical model with static estimations using fixed effects and random effects subject to the Hausman test. Our aim was to explicate the differences and similarities of working capital management on profitability between *Shariah*-compliant and non-Shariah stocks. We chose Malaysia for two reasons. First, Malaysia possesses one of the world's most advanced Islamic financial markets estimated to be worth approximately USD1 trillion in assets. In addition, Malaysia is the world's first full-fledged Islamic financial system operating in parallel to the conventional banking system (*http:www.mifc.com*). Second, according to the Malaysian Islamic Capital Market bulletin, as of November 2013, the number of *Shariah*-compliant securities on Bursa Malaysia is 653 stocks, which is 71 per cent of the 914 listed securities on Bursa Malaysia. This amounts to about USD119.71 billion or 64.8 per cent of the total market capitalisation of Bursa Malaysia (Yazi *et al.* 2015).[3]

This paper is organised as follows. The next section reviews the relevant literature

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[2] First and foremost, the core business of the company should not violate any principles of the *Shariah*. In addition, interest-bearing debt in relation to total assets of the company must be less than 33% for it to be listed as *Shariah*-compliant. Non-compliant investments in relation to total assets must be less than 33%. Similarly, non-compliant income in relation to total revenue must be less than 5%, illiquid assets in relation to total assets must be greater than 5%, and the market price per share should be equal to or greater than net liquid assets per share for a company to become *Shariah* compliant. Furthermore, the qualitative screenings defined certain activities as non-permissible such as alcohol, tobacco, entertainment, conventional finance services, and defence/weapons.

[3] The number of *Shariah* compliant firms under Bursa Malaysia is 814 listed firms, which makes it the biggest Islamic Capital Market around the world (Yazi *et al.* 2015c).

followed by a description of the data and methodology employed in this paper. Section four explicates the main findings followed by the conclusion of the study in the final section.

2. Literature Review

Corporate finance literature has traditionally focused on the study of long-term financial decisions such as capital budgeting, capital structure, dividends, or company valuation, as these are important issues for a firm's efficient financial management. Nevertheless, the issue of working capital management[4] is also crucial to the survival of firms as mismanagement of working capital may lead to a liquidity crisis and reduction in profitability, consequently affecting the ability of the firm to continue its operations as a going concern. In contrast, efficient management eliminates the risk of default on payment on short-term obligations while minimising the change of excessive levels of working capital.

When a firm has determined a working capital management policy, it faces the dilemma of achieving the optimal level of working capital where the desired trade-off between liquidity and profitability is reached (Hill *et al.* 2010). According to Arnold (2008), there are two extreme opposite working capital policies. One is the comfortable approach with large cash reserves, giving more credit to customers and high inventory. Companies that operate in an uncertain environment adopt buffers to avoid production stoppages. Among the advantages of this approach are that it reduces the cost of possible interruptions in the production process and the loss of business due to the scarcity of products, protection against price fluctuations and an increase in sales, reduction in supply costs, profit and goodwill due to high inventories and high accounts receivables (García-Teruel and Martínez-Solano 2007). However, this approach has several disadvantages including higher costs due to the high inventory level, decrease in goodwill due to using large amounts of trade credit, and increased risk of default.

As for the aggressive working capital management policy, some companies operate by keeping their capital at the minimum because of their specific environment. Firms hold a minimal inventory level and cash buffers, and force customers to pay at the earliest moment possible. This policy has been criticised by Hill *et al.* (2010) who argued that lowering the inventory level can decrease sales. The main advantage of this policy is the reduction in costs due to the low levels of inventories and accounts receivable. The disadvantages of this approach are mainly the reduction in sales, goodwill, and profit due to the lack of inventories and trade extension to a firm's customers.

A further glance at prior literature reveals a significant relation between performance and working capital management that directly affects the profitability and liquidity of firms (Quayyum 2011). Baños-Caballero *et al.* (2014) showed that there is an optimal level of working capital above which the investment begins to be negative in terms of value creation due to additional interest expenses. Hence, it is possible that inefficient working capital management can lead to bankruptcy and credit risk, even if the profitability of a firm is constantly positive as excessive levels of current assets can easily lead to a decrease in

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[4] Working capital management focuses on the short-term financing and short-term investment decisions of firms through maintaining the capital resources allocated to working capital at a minimum by improving short-term sources (Sen and Eda 2009).

average return on investment. Hence, firms need to optimise their level of working capital management and maintain sufficient liquidity as it affects profitability (Quayyum 2011). Thus, a firm has to look at each of the three parts of working capital management (accounts receivable, account payable, inventories) and try to determine the optimal level based on the trade-offs discussed above. This optimal level can be reached if it maximises the value of a firm (Deloof 2003).

Many authors have conducted research in the context of different countries, including manufacturing firms in Egypt, Kenya, Nigeria and South Africa (Quayyum 2011; Ukaegbu 2014), Bangladesh (Nobanee *et al.* 2011), Japan, (Deloof 2003), Belgium, (Vural *et al.* 2012) Turkey (Lazaridis and Tryfonidis 2006), Athens and Spain (García-Teruel and Martínez-Solano 2007). All these studies found a negative relation between working capital management, using the cash conversion cycle, and firm profitability. This means that having a working capital management policy that results in a lower period for accounts receivable and inventories and higher for accounts payable leads to higher profitability. In contrast, Gill *et al.* (2010) found a positive relation between cash conversion cycle and a firm's profitability. However, they did find a highly significant negative relation between accounts receivable and firm profitability. They suggested that firms could enhance their profitability by keeping their working capital to a minimum. This is because they argue that less profitable firms will pursue a decrease of their accounts receivable in an attempt to reduce their cash gap in the cash conversion cycle.

Another stream of literature on working capital focuses on trade credit. Trade credit can either be given by a supplier in the form of accounts receivable, or received by a customer in the form of accounts payable. This literature on working capital studies why firms decide to receive or grant trade credit. The literature offers various theories to explain this decision (Baños-Caballero *et al.* 2014). These are based on the advantages of either the supplier or customer from the operational, commercial, and financial perspective. The amount of trade credit extended by a supplier to the firm will appear as the accounts payable, while the amount of trade credit extended by the firm to its customer will appear as the accounts receivable.

In the context of Malaysia, there are significant negative associations between working capital variables with the market value and profitability of listed companies (Mohamad and Saad 2010). Our review shows that thus far no study has focused on the possible relationship between the two variables in the context of *Shariah*-compliant firms. In this study, we attempt to investigate the impact of restrictions to which *Shariah*-compliant firms are subject to in working capital management and its possible impact on their profitability. At this stage, we can predict that *Shariah*-compliant firms will be less profitable compared to non-*Shariah* firms because an increase in limitations should naturally lead to a decrease in profitability.

3. Data and Methodology
We collected our data from the DataStream database which comprises industry wise segregation of listed firms in Bursa Malaysia according to the following groups: manufacturing; information and communication; aerospace; oil and gas products; pharmaceutical and biotech; hotels, resorts and sports; telecommunications; construction, technology, hardware and equipment; tobacco and alcohol; investment holding company;

transportation and storage; mining and quarrying; palm oil and general plantations; wholesale and retail trade. The study period ranged from 2009 to 2013. The sample size of 90 listed firms on Bursa Malaysia was equally distributed with 45 *Shariah*-compliant firms and 45 non-*Shariah* firms. The criteria employed for *Shariah* compliance is the Dow Jones Islamic Index (DJI). We opted against selecting the Malaysian Index because the limitations of accounts receivable is not mandatory for firms to fall in the nexus of *Shariah* compliance while under the Dow Jones Islamic Index, *Shariah* compliance requires that the account receivable of a firm meet a certain proportion as per the defined criteria.

Thus, unbalanced panel data sets of 445 observations were obtained for the analysis. We examined the impact of working capital management on profitability by using ROE as dependent variable, while the independent variables consisted of accounts payable period, accounts receivable period, inventory turnover period, and the cash conversion cycle by controlling for size and growth.

We developed our empirical model for this study based on studies by Deloof 2003, Tauringana and Afrira 2013, and Ukaegbu, 2014. Our model is as follows:

$$ROE = B_0 + B_1 ARP + B_2 ITP + B_3 APP + B_4 CCC + B_5 TA + B_6 SG + \mu$$

where Return on Equity *(ROE)* is measured by net income over shareholder's equity; Accounts Receivable Period *(ARP)* is the average number of days required by a firm in receiving the money for its goods sold on credit; Inventory Turnover Period *(ITP)* is the number of days required by a firm to convert their finished goods to sales; Accounts Payable Period *(APP)* is the average number days required to pay supplier; Cash Conversion Cycle *(CCC)* is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by log of Total Assets *(TA)*; the Sales Growth *(SG)* variable is calculated by computing the difference between present year and previous year sales divided by sales of previous year.

We used ROE as a dependent variable as it reflects the shareholders rate of return after deducting all operating costs, financing costs and taxes. In addition, ROE takes into consideration the leverage impact on return. Meanwhile, numerous studies (Deloof 2003), (Gill *et al.* 2010), (Vural *et al.* 2012) and (García-Teruel and Martínez-Solano 2007) have found an inverse relationship among the accounts receivable turnover and the profitability of a firm. A negative relationship is also expected to be found in this study. It suggests that firms should collect their receivables as soon as possible without losing future sales due to tight collection policy (Gitman *et al.* 1976). We computed Accounts Receivable Period as Accounts Receivable / Revenue) x Number of Days in Year.

Inventory Turnover Period is the number of days required by a firm to convert their finished goods to sales. It is a measurement to gauge the firms' performance by investors and to provide the investor the strength of the company and its productivity. A shorter duration indicates better performance, but it is important to consider that the average days differ from industry to industry. The formula for calculating is Inventory / Cost of Sales) x Number of Days in Year.

Accounts Payable Period is the extent of time it takes to clear all outstanding accounts payable. This is one of the yardsticks for gauging a firms' efficiency at clearing its short term debt obligations. Several studies found negative effect on ROE (Deloof 2003), (Padachi 2006), (Mathuva 2010) and (Gill *et al.* 2010) suggesting the fact that firms with

longer payment cycles are less profitable. The formula for calculating Accounts Payable Period is Accounts Payable / Cost of Goods Sold) x Number of Days in Year.

Shorter Cash Conversion Cycle (CCC) is beneficial for the firms as they need less resources while the longer the CCC, the higher the working capital investment. According to Deloof (2003) higher profitability can be achieved through longer cycle which could increase sales but higher investment could rise faster than the benefits of the higher profitability in longer cycle and this can impact profitability. Moreover, Ukaegbu (2014) argued that positive value for share-holders can be created by managers by reducing the days of account receivable, ensuring that inventory sales is as quickly as possible, and buying extra time from suppliers in payment without any impact on their existing credit rating. We compute CCC as the number of days (inventories + accounts receivables) – the number of days accounts payables.

We estimated our model using static estimation where both fixed and random effects models were taken into account for the omitted variable bias as well as extracting more information from the data. The fixed effect (FE) approach imposes equality of all slope coefficients and equality of the error term across individuals or countries, and only the intercepts across units or countries are allowed to vary. On the contrary, random effects (RE) allows the error term and intercepts to differ across individuals or countries but imposes equality of all slope coefficients. In order to determine the appropriate estimator between fixed and random effects, we applied the standard Haussman test.

4. Empirical Findings

Our study investigated whether there are significant differences in the impact of working capital management on profitability of both *Shariah*-compliant and non-*Shariah* firms. Tables 1, 2 and 3 present the descriptive statistics of the overall sample for the *Shariah* compliant and non-*Shariah* firms. Among the notable findings is that the ROE of *Shariah*-compliant firms shows a higher mean and a lower standard deviation. In contrast, non-*Shariah* firms have lower ROE but higher standard deviation. This is likely due to the low leverage of *Shariah*-compliant firms following the restrictions imposed by regulatory authorities as per *Shariah* guidelines. Nevertheless, a higher return on equity by the *Shariah*-complaint firms, despite their lower leverage, is worth further investigation.

In terms of accounts receivable management, the average time for accounts receivable of the *Shariah*-compliant firms is 67 days while that for the non-*Shariah* firms is 84. These figures may make *Shariah*-compliant firms less attractive to the customers who can make less frequent payments to conventional firms by paying interest. The number of days inventories revealed that non-*Shariah* companies held inventories for an average of almost 73 days but the *Shariah*-compliant firms' average for their inventories was 69 days. Furthermore, the overall sample of *Shariah*-compliant firms was able to manage their accounts payable in a much more efficient manner than the non-*Shariah* firms. In addition, the number of days for accounts payable for both the categories was 51 and 69 days respectively. These numbers translate to 67 days of cash conversion cycle for *Shariah*-compliant firms and 105 days for non-*Shariah* firms. The difference between the two figures is extensive in this case and, hence, we may infer from these results that *Shariah*-compliant firms were managing their cash conversion cycle well due to the screening restrictions imposed on them.

Table 1. List of firms

No.	*Shariah*-compliant Firms	Non-*Shariah* Firms
1	Aeon Co. (M) Bhd	Airasia Berhad
2	Axiata Group	Berjaya Land Bhd
3	Batu Kawan Berhad	Berjaya Sports Toto
4	Bumi Armada Bhd	Boustead Holdings
5	Cahya Mata Sarawak	British Amer Tobacco
6	Dayang Enterprise	Carlsberg Brewery
7	Dialog Group Berhad	Fraser & Neave
8	Digi.Com Berhad	Genting Berhad
9	DRB - HICOM	Resorts World Bhd
10	Dutch Lady Milk Indu	Guinness Anchor Bhd
11	Genting Plantations	Hap Seng Consolidate
12	Hartalega Holdings	Magnum Bhd
13	IJM Corporation Bhd	Malaysia Airports
14	IJM Plantations Bhd	Media Prima Bhd
15	IOI Corporation Bhd	Oriental Holdings
16	KPJ Healthcare Bhd	Yinson Holdings
17	Kuala Lumpur Kepong	YTL Power Int'l Bhd
18	Kulim (Malaysia) Bhd	Amway (Malaysia)
19	Lafarge Malaysia Bhd	Ann Joo Resources
20	Malaysia Marine	Asia Brands Bhd
21	Malaysian Resources	At Systematization
22	Maxis Bhd	AWC Berhad
23	MISC Bhd	Biosis Group Berhad
24	MMC Corporation Bhd	Bina Goodyear Berhad
25	MSM Malaysia	Digistar Corp Bhd
26	Nestle (Malaysia)	Dufu Technology Corp
27	Parkson Holdings	Eduspec Holdings Bhd
28	Petronas Chemicals	Elsoft Resr Bhd
29	Petronas Dagangan	Engtex Group Bhd
30	Petronas Gas Berhad	ES Ceramics
31	Pos Malaysia Bhd	Esthetics Intn'l
32	PPB Group Bhd	Extol MSC Bhd
33	QL Resources Bhd	Fibon Bhd
34	Sarawak Oil Palms	Flonic HI
35	Sime Darby Bhd	Genetec Tech Bhd
36	SP Setia Bhd	George Kent Berhad
37	Tan Chong Motor	Global Carriers Bhd
38	Telekom Malaysia Bhd	Goldis Bhd
39	Tenaga NasionalL Bhd	Goodway Integrated
40	Top Glove Corp	Grand Central
41	TSH Resources Berhad	Green Ocean Corp
42	UMW Holdings Berhad	GSB Group Bhd
43	United Plantations	Guan Chong Berhad
44	YTL Corporation Bhd	HAI – O Marketing Sdn Bhd
45	MKH Bhd	Harrisons Holdings

Table 2. Descriptive statistics (Overall firms)
Overall firms (*Shariah* & Non-*Shariah* firms) includes 90 Malaysian firms from 2009 to 2013. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory / Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	Mean	Standard Deviation
Return on Equity (ROE)	15.08673	34.50442
Accounts Receivable Period (ARP)	75.51685	57.90936
Inventory Turnover Period (ITP)	71.15991	65.31064
Accounts Payable Period (APP)	60.32127	59.77878
Cash Conversion Cycle (CCC)	86.64706	102.0492
Total Assets (TA)	14.30792	2.270823
Sales Growth (SG)	0.129	0.646

Table 3. Descriptive statistics (*Shariah*-compliant)
Shariah-compliant firms includes 45 Malaysian firms from 2009 to 2013. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory / Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	Mean	Standard Deviation
Return on Equity (ROE)	18.67547	28.84488
Accounts Receivable Period (ARP)	67.02464	54.50541
Inventory Turnover Period (ITP)	69.45089	62.09762
Accounts Payable Period (APP)	51.14617	60.00558
Cash Conversion Cycle (CCC)	67.92874	96.99817
Total Assets (TA)	15.51724	1.338167
Sales Growth (SG)	10.39773	27.2463

Table 4. Descriptive statistics (Non-*Shariah*)

Non-Shariah firms includes 45 Malaysian firms from 2009 to 2013. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory / Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	Mean	Standard Deviation
Return on Equity (ROE)	11.498	39.09636
Accounts Receivable Period (ARP)	84.12217	60.07434
Inventory Turnover Period (ITP)	72.9	68.52569
Accounts Payable Period (APP)	69.44091	58.38262
Cash Conversion Cycle (CCC)	105.5091	103.7628
Total Assets (TA)	13.16161	2.200852
Sales Growth (SG)	15.40067	87.23191

Table 5 illustrates the majority of the variables (accounts receivable days, inventory days, accounts payable days, and cash conversion cycle) have a negative correlation with ROE. Most researchers who studied the effect of working capital management on a firm's profitability observed similar results (Ukaegbu 2014; ALShubiri 2011; Nobanee *et al.* 2011; Mohamad and Saad 2010; Vural *et al.* 2012). Thus, the shorter the cash conversion cycle in terms of receivables as well as inventory, the more profitable the firm. The relationship of the control variables (total assets and growth) with return on equity is positive which is in accordance with theory. The correlation analysis for *Shariah* and non-*Shariah* firms seems to produce similar findings. However, it should be noted that the correlation does not necessarily recapitulate causation. Relying solely on correlation analysis may lead to wrong predictions and incorrect conclusion.

Our static panel analysis provides credible evidence to establish a significant relationship between the numbers of days for accounts receivable and firm profitability. The coefficient value of the accounts receivable period for both *Shariah*-compliant and non-*Shariah* firms shows a negative relationship between the dependent variable, i.e. ROE, and the independent variable, i.e. the number of days accounts receivable. This result is in line with the theory of working capital management that states that receivables are held longer by less profitable firms consistent with the findings of Deloof (2003), Lazaridis and Tryfonidis (2006), and Raheman and Nasr (2007). Furthermore, our empirical results show that the coefficient of accounts receivable period for the *Shariah*-compliant firms is greater than the coefficient for the non-*Shariah* firms. This means that *Shariah*-compliant firms can give more value to their shareholders by better managing accounts receivable despite the limitation of *Shariah* rules in terms of leveraging and other *Shariah* screening criteria.

Table 5. Correlation coefficients matrix for all samples
The table presents the correlation matrices for both *Shariah*-compliant & non-*Shariah* firms in Malaysian market for the period between 2009 to 2013. * Significant at the 0.05 level. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory /Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	ROE	ARP	ITP	APP	CCC	TA	SG
Return on Equity (ROE)	1						
Accounts Receivable Period (ARP)	-0.321*	1					
Inventory Turnover Period (ITP)	-0.1888*	0.2345*	1				
Accounts Payable Period (APP)	-0.1732*	0.3167*	0.0686	1			
Cash Conversion Cycle (CCC)	-0.1947*	0.548*	0.7276*	-0.3311*	1		
Total Assets (TA)	0.1589*	-0.2676*	-0.1426*	0.0447	-0.2415*	1	
Sales Growth (SG)	0.0674	-0.0983*	-0.0671	-0.0409	-0.0699	-0.0114	1

Table 6. Correlation coefficients matrix for *Shariah*-compliant firms
The table presents the correlation matrices for both *Shariah*-compliant & non-*Shariah* firms in Malaysian market for the period between 2009 to 2013. * Significant at the 0.05 level. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable/Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory /Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	ROE	ARP	ITP	APP	CCC	TA	SG
Return on Equity (ROE)	1						
Accounts Receivable Period (ARP)	-0.1919*	1					
Inventory Turnover Period (ITP)	-0.2028*	0.2753*	1				
Accounts Payable Period (APP)	-0.0247	0.3736*	0.0628	1			
Cash Conversion Cycle (CCC)	-0.2237*	0.5084*	0.7572*	-0.3677*	1		
Total Assets (TA)	-0.1179	0.1207	-0.0145	0.1530*	-0.0328	1	
Sales Growth (SG)	0.0603	-0.0713	-0.0702	-0.0530	-0.0536	0.0904	1

Table 7. Correlation coefficients matrix for non-*Shariah* firms

The table presents the correlation matrices for both *Shariah*-compliant & non-*Shariah* firms in Malaysian market for the period between 2009 to 2013. * Significant at the 0.05 level. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory/Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

Variables	ROE	ARP	ITP	APP	CCC	TA	SG
Return on Equity (ROE)	1						
Accounts Receivable Period (ARP)	-0.3937*	1					
Inventory Turnover Period (ITP)	-0.1774*	0.1980*	1				
Accounts Payable Period (APP)	-0.3147*	0.2606*	0.0910	1			
Cash Conversion Cycle (CCC)	-0.1507*	0.5615*	0.7233*	-0.3499*	1		
Total Assets (TA)	0.2609*	-0.4245*	-0.2346*	-0.2468*	-0.2521*	1	
Sales Growth (SG)	0.0797	-0.1294	-0.0773	-0.0445	-0.0969	-0.0091	1

Table 8. Panel regression result of overall firms. Dependent variable is ROE

t-statistic in parentheses. * Significant at 10%, ** Significant at 5%, *** Significant at 1%. Hausman is p-value of Hausman (1978) test. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory /Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

		Estimator		
		Fixed Effects		Random Effects
Model 1	Accounts Receivable Period (ARP)	-0.0431293 (-0.89)		-0.1130111*** (-3.11)
	Total Assets (TA)	-1.978533 (-0.49)		1.582399 (1.25)
	Sales Growth (SG)	6.104748*** (3.18)		4.509469*** (2.50)
	C	46.05217 (0.80)		0.1921021 (0.01)
	Hausman		0.1157	

Table 8. Continued from previous page

Model 2	Inventory Turnover Period (ITP)	-0.0204016 (-0.42)		-0.0640912* (-1.88)
	Total Assets (TA)	-9.605349** (-2.42)		0.8746125 (0.67)
	Sales Growth (SG)	4.637646** (2.69)		3.777533** (2.23)
	C	154.4218** (2.72)		6.784066 (0.35)
	Hausman		0.0348	
Model 3	Accounts Payable Period (APP)	0.0464161 (1.16)		-0.0228867 (0.68)
	Total Assets (TA)	-2.59782 (-0.64)		2.295397* (1.80)
	Sales Growth (SG)	6.863018*** (3.80)		5.916491*** (3.34)
	C	48.80325 (0.85)		-17.37579 (-0.94)
	Hausman		0.0065	
Model 4	Cash Conversion Cycle (CCC)	-0.0545504** (-2.04)		-0.0529151** (-2.57)
	Total Assets (TA)	-1.801295 (-0.45)		1.726857 (1.31)
	Sales Growth (SG)	5.995129*** (3.27)		5.358594*** (3.04)
	C	44.95289 (0.78)		-5.997035 (-0.31)
	Hausman		0.4532	
Model 5	Accounts Receivable Period (ARP)	-0.0435192 (-0.93)		-0.1040444** (-2.83)
	Inventory Turnover Period (ITP)	-0.0280503 (-0.57)		-0.0519212* (-1.54)
	Accounts Payable Period (APP)	0.057888 -1.49		0.0052366 (0.16)
	Total Assets (TA)	-9.691687** (-2.43)		0.4154344 (0.33)
	Sales Growth (SG)	4.16082** (2.25)		2.478384 (1.40)
	C	156.041** (2.74)		20.21091 (1.05)
	Hausman		0.0059	

Table 9. Panel regression result of *Shariah*-compliant firms. Dependent variable is ROE. *t*-statistic in parentheses. * Significant at 10%, ** Significant at 5 %*** Significant at 1%. Hausman is p-value of Hausman (1978) test. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory / Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

		Estimator		
		Fixed Effects		Random Effects
Model 1	Accounts Receivable Period (ARP)	-0.016064 (-0.89)		-0.0630077*** (-3.11)
	Total Assets (TA)	-14.44729 (-0.49)		-4.561876 (1.25)
	Sales Growth (SG)	0.0317493*** (3.18)		0.0195141** (2.50)
	C	243.7613 (0.80)		93.51149** (2.56)
	Hausman		0.3694	
Model 2	Inventory Turnover Period (ITP)	0.0295747 (0.35)		-0.06742* (-1.48)
	Total Assets (TA)	-14.89978** (-2.14)		-4.774671** (-2.06)
	Sales Growth (SG)	0.0402206 (0.69)		0.0352251 (0.62)
	C	247.5626** (2.30)		97.08988** (2.68)
	Hausman		0.2952	
Model 3	Accounts Payable Period (APP)	0.0605927 (1.31)		0.0307051 (0.81)
	Total Assets (TA)	-16.07504** (-2.30)		-5.171621** (-2.14)
	Sales Growth (SG)	0.0422819 (0.73)		0.0437964 (0.77)
	C	263.5669** (2.44)		96.35219** (2.57)
	Hausman		0.3424	
Model 4	Cash Conversion Cycle (CCC)	-0.037326 (-1.01)		-0.0550966** (-2.13)
	Total Assets (TA)	-14.84688** (-2.15)		-4.993807** (-2.17)

Continued next page

Table 9. Continued from previous page

		Fixed Effects		Random Effects
Model 4	Sales Growth (SG)	0.0231904		0.0214141
		(0.39)		(0.37)
	C	251.4425**		99.66255**
		(2.34)		(2.77)
	Hausman		0.4150	
Model 5	Accounts Receivable Period (ARP)	-0.0306603		-0.0638273
		(-0.41)		(-1.25)
	Inventory Turnover Period (ITP)	0.0247078		-0.0577624
		(0.29)		(-1.23)
	Accounts Payable Period (APP)	0.0617766		0.0452725
		(1.32)		(1.17)
	Total Assets (TA)	-16.28164**		-4.899532**
		(-2.29)		(-2.08)
	Sales Growth (SG)	0.0316264		0.0173758
		(0.48)		(0.29)
	C	267.1438**		99.69081**
		(2.45)		(2.73)
	Hausman		0.5033	

Table 10. Panel regression result of non-*Shariah* firms. Dependent variable is ROE. *t*-statistic in parentheses. * Significant at 10%, ** Significant at 5%, *** Significant at 1%. Hausman is p-value of Hausman (1978) test. Return on Equity (ROE) is in term of percentage, measured by (Net Income/Shareholder's Equity); Accounts Receivable Period (ARP) is the average number of days required by a firm to receive money from the goods sold, measured by (Accounts Receivable / Revenue) x Number of Days in Year; Accounts Payable Period (APP) is the average number of days required by a firm to pay suppliers, measured by (Accounts Payable / Cost of Goods Sold) x Number of Days in Year; Inventory Turnover Period (ITP) is the number of days required by a firm to convert their finished goods to sales, measured by (Inventory /Cost of Sales) x Number of Days in Year; Cash Conversion Cycle (CCC) is the number of days (inventories + accounts receivable) – the number of days for accounts payable; size is measured by the natural logarithm of the Total Assets (TA); Sales Growth (SG) is in term of percentage, measured by (present year Sales - previous year Sales)/ previous year Sales.

		Estimator		
		Fixed Effects		Random Effects
Model 1	Accounts Receivable Period (ARP)	-0.0716412		-1.1316325**
		(-1.05)		(-2.41)
	Total Assets (TA)	3.075812		3.229192*
		(0.60)		(1.61)
	Sales Growth (SG)	0.0557877**		0.0456058**
		(2.58)		(2.27)
	C	-23.75547		-20.98501
		(-0.35)		(-0.74)
	Hausman		0.3378	

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Model 2	Inventory Turnover Period (ITP)	-0.0423892 (-0.71)		-0.0617768* (-1.30)
	Total Assets (TA)	-7.305576 (-1.49)		1.847187 (0.89)
	Sales Growth (SG)	0.0450292** (2.44)		0.0374858** (2.08)
	C	111.0887* (1.72)		-8.584435 (-0.30)
	Hausman		0.2287	
Model 3	Accounts Payable Period (APP)	0.0631185 (1.38)		-0.0143018 (-0.34)
	Total Assets (TA)	2.869005 (0.56)		4.417723** (2.32)
	Sales Growth (SG)	0.0657382*** (3.26)		0.0585529** (2.93)
	C	-30.46573 (-0.45)		-47.0849* (-1.82)
	Hausman		0.0013	
Model 4	Cash Conversion Cycle (CCC)	-0.0787048** (-2.04)		-0.0544711* (-1.76)
	Total Assets (TA)	3.747752 (0.74)		4.001624* (1.93)
	Sales Growth (SG)	0.0551539** (2.69)		0.0544329** (2.79)
	C	-30.31829 (-0.46)		-36.65665 (-1.30)
	Hausman		0.4814	
Model 5	Accounts Receivable Period (ARP)	-0.0579443 (-0.93)		-0.1302859** (-2.53)
	Inventory Turnover Period (ITP)	-0.0774119 (-1.23)		-0.0544251 (-1.16)
	Accounts Payable Period (APP)	0.078087* (1.79)		0.0032826 (0.08)
	Total Assets (TA)	-6.570551 (-1.34)		1.190775 (0.62)
	Sales Growth (SG)	0.0394059* (1.99)		0.0235868 (1.22)
	C	104.8203* (1.62)		10.49882 (0.38)
	Hausman		0.0010	

Our findings also show a statistically significant negative relationship between the number of days for inventories and firm profitability. The coefficient value of *Shariah* compliant and non-*Shariah* firms shows a decrease in ROE associated with an increase in number of days of inventories on a daily basis. In other words, the profitability of a firm can increase by decreasing the number of days of inventories held by the firm. In our case, it is evidenced that by following the *Shariah* guidelines, *Shariah*-compliant firms adopted the best strategy in terms of inventory turnover management, as the panel regression analysis shows the coefficient of the *Shariah* compliant firms to be larger than non-*Shariah* firms. This finding is well supported (Deloof, 2003; Lazaridis and Tryfonidis, 2006; Raheman and Nasr, 2007). Mathuva (2010) was the only research to have reported a contradictory result. We believe that this result makes economic sense because it is a part of the operational process that most of the firms mutually cooperate in terms of production cycle, so the firm's inventories need to be transferred into processing as soon as possible. This will reduce the operational costs related to inventories including the storage cost thus increasing the company's profitability.

By take a closer look at the coefficients in the third model in the panel regression result, we can see the non-*Shariah* firms have a larger coefficient for the days for accounts payable as compared to *Shariah*-compliant firms. Since accounts payable is not considered one of the limitations for *Shariah* screening, we cannot create any difference between *Shariah*-compliant and non-*Shariah* firms. However, conventional firms have longer payment cycles to their suppliers. Thus, the longer the delay in terms of making payments to suppliers by the conventional firms, the more the reserves they have for return on equity. In other words, a positive relationship is explained by the fact that conventional companies delay their payment to the suppliers and consequently have more cash in hand to earn more through other means. This in return increases the profitability of the firm, even though it may lead to serious damage in the long run.

Our study also investigated the combination effect using the cash conversion cycle as the measurement of working capital management. The main point here is that even though the results shows significant negative relationship between cash conversion cycle and ROE for both *Shariah*-compliant and non-*Shariah* firms, the coefficient value of the *Shariah* compliant firms is larger than non-*Shariah* firms, which means that *Shariah*-compliant firms better manage their working capital. The smaller the period of cash conversion cycle, the more return on equity for the firm, since the firm can increase the cycle of cash for a longer period. A negative relationship was also found by Deloof (2003), Lazaridis and Tryfonidis (2006), García-Teruel and Martinez-Solano (2007), and Raheman and Nasr (2007). In contrast, Gill *et al.* (2010) found a positive relationship. The overall result indicated that Malaysian pubic listed companies for both *Shariah* and non-*Shariah* firms successfully applied the working capital management theory of shortening the cash conversion cycle which leads to increased firm profitability.

Finally, the fifth model shows the pooled variables together and highlights the relationship between a firm's total assets and sales growth with firm profitability. However, the firm's total assets and sales growth are also considered important indicators of its performance and were thus included into the model as control variables. Total assets variable consistently showed a significant negative relationship with firm profitability through the panel regression analysis. It could be noted that their assets were not utilised

in the most efficient way. In other words, the theory of the relationship between total assets and sales growth is a positive relationship; the greater the total assets of a firm, the greater its profitability. The relationship between sales growth and return on equity is a positive relationship as mentioned in the fifth model for the panel regression result. The logical elaboration for this result is that the more sales a firm gets, the more its return on equity.

Conclusion

This study takes a new look at whether there is a significant difference between Shariah-compliant and non-*Shariah* firms in terms of their returns on equity in Malaysian public listed firms. Taking the Dow Jones Islamic Index (DJIM) as a selection criterion for *Shariah* compliance, our study focused on the firms' management primarily on its working capital and whether being *Shariah*-compliant hinders the growth and profitability of a firm by imposing limitations to its receivables. Our empirical results negate the statement of lower profits of firms while complying with *Shariah* requirements. Rather, we proved that although the *Shariah*- compliant firms are subject to certain restrictions, they still efficiently compete with their conventional counterparts in terms of profitability by sustaining a higher return on equity. This might be attributed to better management of their receivables as well as a higher and better inventory turnover as per our empirical results. Thus, it can be assumed that *Shariah* restrictions have not impeded the performance of *Shariah*-compliant firms; rather it has helped them in some respects, if not all.

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