# The Relationship between Working Capital Management and Profitability of Companies Listed on the Johannesburg Stock Exchange

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Efficient working capital management is an integral component of the overall corporate strategy to create shareholders' wealth. This paper seeks to extend findings regarding the relationship between working capital management and profitability. A sample of 69 companies listed on the Johannesburg Stock Exchange (JSE) for the period from 1998 to 2008 was selected. The results revealed a statistically significant negative relationship among profitability (as measured through gross operating profit), the cash conversion cycle (CCC), and number of days accounts receivable (AR). The results also revealed a positive and significant relationship among profitability, the number of days accounts payable (AP), and the number of days inventory (INV). The results suggested that managers could increase their company's profitability by effectively managing the CCC and its components.

## Introduction

In the present environment of cut-throat competition, business does not have any other option than cutting the cost of its operations in order to be competitive as well as financially viable. Customer demands, competition, labour costs, and operating environment volatility have a negative impact on the return on investment. For companies, in order to be competitive and to maximize shareholders' wealth, there is a need for effective working capital management. In practice, working capital management has become one of the most important issues in organizations, where many financial managers are struggling to identify the basic working capital drivers and an appropriate level of working capital (Nazir & Afza, 2009). It is in this connection that effective management of working capital plays a vital role. A study conducted by *Fortune* on 1,000 firms finds that more than one-third of financial management time is spent on managing current assets and about one-fourth of financial management time is spent on managing current liabilities (Gitman, 2009). Working capital management is an essential component of all business activities, and many companies invest a large proportion of their funds in working capital management, in some cases up to 70% of their total investment in assets (Smith & Fletcher, 2009). Working capital is essential for the day-to-day operations of a business, and it was the life-blood of any business (Chakraborty, 2008). Previous studies conducted on working capital management supported the fact that aggressive working capital management policies enhanced profitability (Erasmus, 2010; Nazir & Afza, 2009; Uyar, 2009; Appuhami, 2008; Chakraborty, 2008; Garcia-Teruel & Martinez-Solano, 2007; Chiou & Cheng, 2006; Jose, Lancaster, & Stevens, 1996; Lazaridis & Tryfonidis, 2006; Deloof, 2003; Smith & Begemann, 1997). This study adds that the knowledge of the relationship between working capital management and profitability in two ways to the existing knowledge. Firstly, the study differs from previous studies conducted in South Africa in that the cash conversion cycle (CCC) is used as a proxy for measuring working capital management. Secondly, the study validates the findings of previous studies conducted internationally on the relationship between working capital and corporate profitability. The rest of the paper is structured as follows: Section two reviews the literature for the relevant theoretical and empirical work on working capital management and its effect on profitability. Section three presents the methodology and framework which include sample and variables used in the empirical analysis. In section four, the analysis is carried out and the results are presented, and finally, the main conclusions and managerial implications are discussed.

## Literature Review

Various methods have been applied in measuring working capital management. The traditional methods of measuring working capital management such as current ratio (CR), quick ratio, and net working capital have been criticized for inconsistency, as their usefulness entirely depends on a skillful interpretation (Smith & Fletcher, 2009). Other known methods used as proxies to measure working capital management include the CCC, the weighted CCC, the comprehensive liquidity index, the net liquid balance, the net trade cycle, and Emery's Lambda. Although there are other methods that have been used successfully to measure working capital management, the CCC still remains the most popular method used internationally as a proxy for measuring working capital management despite its limitations (Falope & Ajilore, 2009; Garcia-Teruel & Martinez-Solano, 2007; Lazaridis & Tryfonidis, 2006; Padachi, 2006; Deloof, 2003).

## The CCC

The CCC is a powerful tool used to assess how well a company is managing its working capital. A company with a lower CCC is more efficient, because it turns its working capital over more times per year, and allows it to generate more sales per money invested. The working capital cycle starts, when a company buys inventory (INV) on credit from producers or suppliers, which gives rise to accounts payable. During the course of business a company may sell its finished goods to customers on credit, which gives rise to accounts receivable (AR). The time taken by a company to pay for the INV purchased on credit is referred to the average payment period. The CCC is calculated by the number of days AR plus the number of days INV minus the number of days accounts payable (AP). Longer CCC indicates more time between outlay of cash and recovery. The value for the CCC can be positive or negative. A positive value indicates the number of days a company must borrow or tie up capital while awaiting payment from customers and a negative value result indicates the number of days a company has received cash from sales before it must pay its suppliers (Uyar, 2009). The CCC can be improved by reducing the amount of time that goods are held in INV, collecting AR more quickly, and paying debts more slowly.

Raheman and Nasr (2007) conducted a study on the relationship between working capital management and profitability by using a sample of 94 Pakistani firms listed on Karachi Stock Exchange from 1999 to 2004. The effect of different variables of working capital management including the average collection period, CCC, and CR, was investigated. The results of their study revealed that there was a strongly negative relationship between variables of the working capital management and profitability of firms.  They reported that as the CCC increased, it would lead to decreasing profitability of the firm, and managers could create a positive value for the shareholders by reducing the CCC to a possibly minimum level. Garcia-Teruel  and  Martinez-Solano (2007) conducted a study on a panel of 8,872 small- and medium-sized enterprises (SMEs) covering the period from 1996 to 2002 in Spain. The author tested the effects of working capital management on SMEs' profitability by using the panel data methodology. The results demonstrated that managers could create value by reducing their inventories and number of days for which their accounts were outstanding. Moreover, shortening the CCC also improved the firm's profitability.

Lazaridis and Tryfonidis (2006) conducted a study on the relationship between working capital management and profitability by using a sample of 131 firms listed on the Athens Stock Exchange from 2001 to 2004. The results of the study revealed a statistically significant and negative relationship among profitability (as measured through gross operating profit), the CCC and its components, AR, and INV. By using correlation and regression tests, they suggested that managers could create profits for their companies by correctly managing the CCC and its components. Deloof (2003) investigated the relationship between working capital management and corporate profitability in a sample of Belgian's large non-manufacturing firms from 1992 to 1996 by making use of the CCC as a measuring instrument. The results revealed a negative relationship between gross operating income and the number of days AR, INV, and AP. The negative relationship between AP and profitability is consistent with the view that less profitable firms wait longer to pay their providers with trade credit.

Other studies conducted internationally on the relationship between working capital management and profitability include the study conducted by Nazir and Afza (2009), Uyar (2009), Appuhami (2008), Chakraborty (2008), Chiou and Cheng (2006), and Padachi (2006). All these studies supported the fact that effective working capital management enhanced profitability. Studies conducted in South Africa by Erasmus (2010) and Smith and Begemann (1997) revealed the same results.

In summary, the literature review indicates the fact that working capital management has an impact on the profitability of companies and needs to be managed effectively in order to maximize the value of shareholders.

## Research Objectives

The objective of the study was to investigate the relationship between working capital management and profitability by using the data of companies listed on the Johannesburg Stock Exchange (JSE) from 1998 to 2008. The CCC and its components were used as a comprehensive measure of working capital management. The study aimed to build on previous studies conducted in working capital management with a particular reference to Garcia-Teruel and Martinez-Solano (2007), Lazaridis and Tryfonidis (2006), and Deloof (2003).

## Research Methodology

### Data Collection

Secondary annual data used in the empirical study were acquired from the McGregor BFA database. Data from the financial statements of all companies listed on the JSE from 1998 to 2008 formed the basis of the calculations. Only companies listed for all 10 years were included, in this way ensuring that 10 years of continuous observations for each participating company would be available. Out of 314 companies listed during the period under review, 77 were excluded, because they fell in the financial sector such as banking and insurance, and had no bearing on working capital management. Companies with missing data in one or two years (140) of the period under review were also excluded. Reasons for missing data may be that those companies might have been delisted during those particular years. Another 28 companies were excluded, because their data did not contain detailed information on the cost of sales' figures required for the calculation of the two components of the CCC, namely, the number of days AP and the number of days INV. Finally, companies with zero INV were also removed. Thus, a total of 69 participating companies left.

## Definition of Variables

**Independent variables.** The CCC and its components, number of days AR, number of days AP, and number of days INV were used as proxies for measuring working capital management, as this showed the time lag between expenditure for the purchase of raw materials and collection of sale of finished goods. The longer the cycle, the larger the funds blocked in working capital (Padachi, 2006). By breaking down the components of the CCC equation, the author gets the following three variables: (1) Number of days AR = (AR/Sales) × 365 days This variable represents the average number of days the firm takes to collect payments from its customers. The higher the value, the higher its investment in AR (Garcia-Teruel & Martinez-Solano, 2007); (2) Number of days INV = (INV/Cost of goods sold) × 365 this variable reflects the average number of days INV held by the company. Longer storage times represent a greater investment in INV for a particular level of operations; (3) Number of days AP = (AP/Cost of goods sold) × 365 this variable reflects the average time taken by firms to pay their suppliers. The higher the value, the longer firms take to settle their payment commitments to their suppliers.

**Dependent variable.** The dependent variable used to determine the relationship between working capital management and profitability is the gross operation profit (*GP*). *GP* is calculated as sales minus cost of goods sold divided by total assets minus financial assets. The reason for subtracting financial assets from total assets is to exclude the participation of any financial activity that might affect overall profitability (Lazaridis & Tryfonidis, 2006).

**Control variables.** The control variables used in this study are company size as measured through the natural logarithm of sales (*LNSales*), fixed financial assets ratio (*FFAR*), *CR*, and financial debt ratio (*FDR*). The *FFAR* calculated as fixed financial assets are divided by total assets. The rationale for using this variable, according to Lazaridis and Tryfonidis (2006), is that shares held in other firms are considered as *FFAR* and may have a significant impact on the profitability of a company as reported in the financial statement. The *CR* is calculated by dividing current assets by current liabilities, while the *FDR* is calculated as the sum of long- and short-term loans are divided by total assets. This ratio is later used to perform regression as it establishes the relationship between the external financing of a company and its total assets (Lazaridis & Tryfonidis, 2006).

## Limitations of the Study

The number of participating companies was significantly reduced, because the McGregor data in most instances did not indicate the cost of goods sold, which was essential to calculate the number of days INV and number of days AP.

## Descriptive Statistics

## Results

Table 1 depicts the descriptive statistics of the dependent and independent variables.

Table 1

*Descriptive Statistics of Independent, Dependent, and Control Variables (n = 758)*

|  | Minimum | Maximum | Mean | Std. deviation |
|---|---|---|---|---|
| *LNSales* | 10.73 | 23.31 | 14.5468 | 1.71 |
| Number of days AP | 14.23 | 65, 920.76(R) | 192.3057 | 2,395.29(R) |
| Number of days AR | 0 | 511.54 | 60.8167 | 44.37 |
| Number of days | 1 | 34,286(R) | 122.81 | 1,245.59(R) |
| FDR | 0 | 4 | 0.1628 | 0.25 |
| GP | -11.38 | 6.11 | 0.5642 | 0.62 |
| FFAR | 0 | 1.23 | 0.0795 | 0.12 |
| CCC Sales | -31, 583.58(R) | 1, 128.71 | -8.0814 | 1, 152.96(R) |
|  | 1 | 13, 258, 615, 530(R) | 32, 567, 672.41(R) | 501,500,000(R) |
| CR | 0.12 | 6.04 | 1.6228 | 0.84 |

From Table 1, the average total valid observations summed to $n = 758$. Total sales had a mean of R 32, 567, 672.41. The companies included in the sample had an average of 56.42% *GP*. Financial assets formed

7.95% of total assets. The credit period granted to their customers was 61 days, while they paid their creditors in 192 days. INV took on average 123 days to be sold. The overall *CCC* averaged -8 days.

## Pearson Correlations

Table 2 depicts the Pearson correlation for the variables that have been included in the regression model.

Table 2

*Pearson Correlation between Dependent and Independent Variables*

|  | *LNSales* | Number of | Number of | Number of | *FDR* | *GP* | *FFAR* | *CCC* |
|---|---|---|---|---|---|---|---|---|
| **Number of AP** |  |  |  |  |  |  |  |  |
| Pearson corr. | 0.049 |  |  |  |  |  |  |  |
| Sig. (2-tailed) | 0.179 |  |  |  |  |  |  |  |
| **Number of AR** |  |  |  |  |  |  |  |  |
| Pearson corr. | 0.064 | 0.003 |  |  |  |  |  |  |
| Sig. (2-tailed) | 0.079 | 0.936 |  |  |  |  |  |  |
| **Number of INV** |  |  |  |  |  |  |  |  |
| Sig. (2-tailed) | 0.177 | 0.000 | 0.915 |  |  |  |  |  |
| **FDR** |  |  |  |  |  |  |  |  |
| Pearson corr. | 0.018 | -0.014 | 0.028 | -0.014 |  |  |  |  |
| Sig. (2-tailed) | 0.624 | 0.693 | 0.433 | 0.694 |  |  |  |  |
| **GP** |  |  |  |  |  |  |  |  |
| Sig. (2-tailed) | 0.403 | 0 | 0.008 | 0 | 0.485 |  |  |  |
| **FFAR** |  |  |  |  |  |  |  |  |
| Pearson corr. | 0.167[**] | -0.023 | 0.052 | -0.021 | 0.124[**] | -0.198[**] |  |  |
| Sig. (2-tailed) | 0 | 0.526 | 0.151 | 0.565 | 0.001 | 0 |  |  |

(Table 2 continued)

| | LNSales | Number of | Number of | Number of | FDR | GP | FFAR | CCC |
|---|---|---|---|---|---|---|---|---|
| CCC | | | | | | | | |
| Sig. (2-tailed) | 0.204 | 0 | 0.446 | 0 | 0.675 | 0 | 0.454 | |
| CR | | | | | | | | |
| Sig. (2-tailed) | 0 | 0.706 | 0 | 0.960 | 0 | 0.075 | 0 | 0.314 |

Note. **Correlation is significant at the level of 0.01 (2-tailed).

Table 2 shows that the *GP* was negatively correlated with the *CCC* and AR. This confirmed the fact that shortening the *CCC* would increase the company's profitability, and collecting customers' receivables as quickly as possible without losing sales from high-pressure collection techniques also enhanced the profitability of a company. Further observation from Table 2 indicated that the *GP* was positively correlated with AP and INV and negatively correlated with AR. This meant that delaying the payment of raw materials or trading INV to suppliers or creditors might increase the profitability of a company. The reason for the positive correlation between *GP* and inventory might be that some companies were investing in INV by storing it for a longer period to reduce costs of possible interruptions in the production process and loss of business due to scarcity of product. However, storage of INV may carry a storage cost.

## Regression Analysis

So far, the results of the descriptive analysis and Pearson correlation have been outlined. In order to shed more light on the relationship between profitability and working capital management of listed companies in the JSE, the regression analysis is applied. *GP* is used as a dependent variable, while *FDR*, *FFAR*, *CR*, the *CCC*, and the size of the company measured by the natural *LNSales* were used as predictors in the regression analysis. Table 3 reports the results of the first regression analysis.

Table 3

*Regression Analysis between the Dependent and Independent Variables*

Coefficients[a]

| Predictor | Unstandardised coefficient | | Standardised coefficient | | |
|---|---|---|---|---|---|
| | Beta | Std. error | Beta | T | Sig. |
| Constant | 0.892 | 0.210 | | 4.247 | 0 |
| LNSales | -0.009 | 0.013 | -0.024 | -0.653 | 0.514 |
| FDR | -0.032 | 0.090 | -0.013 | -0.353 | 0.724 |
| FFAR | -1.079 | 0.194 | -0.201 | -5.566 | 0 |
| CR | -0.071 | 0.027 | -0.096 | -2.578 | 0.010 |
| CCC | 0 | 0 | -0.149 | -4.205 | 0 |

| Model | Sum of squares | Df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 20.245 | 5 | 4.049 | 11.321 | 0[a] |
| Residual | 267.533 | 748 | 0.358 | | |
| Total | 287.778 | 753 | | | |

Notes. Regression Equation (A): *GP* = 0.892; *LNSales* = -0.009; *FDR* = -0.032; *FFAR* = -1.079; *CR* = -0.071; *CCC* = 0; a.
Predictors: (Constant), *CCC*, *CR*, *FDR*, *FFAR*, and *LNSales*; b. Dependent variable: *GP*.

The first regression reported in Table 3 showed that there was a statistically significant negative relationship between the *CCC* and *GP*, which was consistent with the view that a decrease in the *CCC* would generate more profits for the company. The regression also revealed a statistically significant negative relationship between fixed *FFAR*, *CR*, and the *GP*. The rest of the model variables, *FDR* and size of the company as measured by *LNSales* had negative coefficients, but they revealed no statistically significant relationship with *GP*. The *F*-test equals 11.321 and is highly significant. The second regression analysis had the same predictors (*FDR*, *LNSales*, *FFAR*, and *CR*) as the first regression, except that the *CCC* had been replaced with number of days AP. *GP* still remained the dependent variable. Table 4 reported on the results of the second regression analysis.

Table 4

*Regression Analysis between the Dependent and Independent Variables*

Coefficients[a]

| Predictor | Unstandardised coefficient | | | Standardised coefficient | | |
|---|---|---|---|---|---|---|
| | Beta error | Std. | | Beta | *T* | Sig. |
| Constant | 0.868 | 0.198 | | | 4.381 | 0 |
| *LNSales* | -0.008 | 0.013 | | -0.024 | -0.645 | 0.519 |
| *FDR* | -0.015 | 0.085 | | -0.007 | -0.182 | 0.855 |
| *FFAR* | -1.057 | 0.183 | | -0.208 | -5.781 | 0 |
| *CR* | -0.073 | 0.026 | | -0.104 | -2.808 | 0.005 |
| Number of days | 0 | 0 | | 0.155 | 4.402 | 0 |

| Model | Sum of squares | *Df* | Mean square | *F* | Sig. |
|---|---|---|---|---|---|
| Regression | 19.343 | 5 | 3.869 | 12.161 | 0[a] |
| Residual | 237.647 | 747 | 0.318 | | |
| Total | 256.990 | 752 | | | |

*Notes.* a. Predictors: Constant, Number of days AP, *CR*, *FFAR*, *FDR*, and *LNSales*; b. Dependent variable: *GP*.

The results of the second regression analysis reported in Table 4 revealed a positively significant relationship between the number of days AP and the *GP*. This meant that delaying the payment to creditors or suppliers of raw material without damaging the credit rating of a company might increase its profitability. A negative significant relationship was also observed between *FFAR*, *CR*, and the *GP*. The size of the company as measured by *LNSales* and the *FDR* had negative coefficients, but revealed no significant relationship. The *F*-test equals 12.161 and is highly significant. The third regression analysis had the same predictors (*CR*, *FFAR*, *FDR*, and *LNSales*) as the first and second regression, except that the *CCC* and number of days AP had been replaced with number of days AR. *GP* still remained the dependent variable. Table 5 reported the results of the third regression analysis.

The results of the third regression analysis reported in Table 5 revealed a negative significant relationship between the number of days AR and *GP*. This meant that collecting customer's receivables as quickly as possible without losing sales from high-pressure collection techniques enhanced the profitability of a company. A negative significant relationship was also observed between *FFAR*, *CR*, and the *GP*. This meant that *GP*

decreased as the total long-term investments increased. The *FDR* and the size of the company as measured by *LNSales* had negative coefficients, but did not reveal any significant relationship. The *F*-test equals 8.416 and is highly significant. The last regression analysis had the same predictors (*FDR*, *LNSales*, *FFAR*, and *CR*) as the

first, the second, and the third regression, except that the *CCC*, number of days AP, and number of days AR were replaced by the number of days INV. *GP* still remained the dependent variable. Table 6 reported the results of the last regression analysis.

Table 5

*Regression Analysis between the Dependent and Independent Variables*

Coefficients[a]

| Predictor | Unstandardised coefficient | | Standardised coefficient | | |
|---|---|---|---|---|---|
| | Beta error | Std. | Beta | *T* | Sig. |
| Constant | 0.899 | 0.213 | | 4.212 | 0 |
| *LNSales* | -0.005 | 0.014 | -0.015 | -0.392 | 0.695 |
| *FDR* | -0.039 | 0.092 | -0.015 | -0.421 | 0.674 |
| *FFAR* | -1.094 | 0.197 | -0.202 | -5.542 | 0.000 |
| *CR* | -0.065 | 0.029 | -0.087 | -2.267 | 0.024 |
| Number of days | -0.001 | 0.001 | -0.069 | -1.884 | 0.050 |

| Model | Sum of squares | *Df* | Mean square | *F* | Sig. |
|---|---|---|---|---|---|
| Regression | 15.582 | 5 | 3 .116 | 8.416 | 0[a] |
| Residual | 277.724 | 750 | 0 .370 | | |
| Total | 293.305 | 755 | | | |

*Notes.* Regression Equation (C): *GP* = 0.899; *LNSales* = -0.005; *FDR* = -0.039; *FFAR* = -1.094; *CR* = -0.065; Number of days AR = -0.001; a. Predictors: Constant, Number of days AR, *CR*, *FDR*, *FFAR*, and *LNSales*; b. Dependent variable: *GP*.

Table 6

*Regression Analysis between the Dependent and Independent Variables*

Coefficients[a]

| Predictor | Unstandardised coefficient | | Standardised coefficient | | |
|---|---|---|---|---|---|
| | Beta error | Std. | Beta | *T* | Sig. |
| Constant | 0.872 | 0.198 | | 4.400 | 0 |
| *LNSales* | -0.008 | 0.013 | -0.024 | -0.657 | 0.511 |
| *FDR* | -0.017 | 0.085 | -0.007 | -0.196 | 0.845 |
| *FFAR* | -1.060 | 0.183 | -0.209 | -5.796 | 0.000 |
| *CR* | -0.075 | 0.026 | -0.107 | -2.879 | 0.004 |
| Number of days INV | 0 | 0 | 0.152 | 4.323 | 0 |

| Model | Sum of squares | *Df* | Mean square | *F* | Sig. |
|---|---|---|---|---|---|
| Regression | 19.130 | 5 | 3.826 | 12.016 | 0[a] |
| Residual | 237.860 | 747 | 0.318 | | |
| Total | 256.990 | 752 | | | |

*Notes.* Regression Equation (D): *GP* = 0.872; *LNSales* = -0.008; *FDR* = -0.017; *FFAR* = -1.060; *CR* = -0.075; Number of days INV = 0; a. Predictors: Constant, Number of days INV, *CR*, *FFAR*, *FDR*, and *LNSales*; b. Dependent variable: *GP*.

The results of the last regression analysis reported in Table 6 revealed a positive significant relationship between the number of days INV and *GP*, which might be translated as that companies invested in INVs by storing INV for a longer period, perhaps to ensure that sufficient INV was available for their customers at the time of sales. However, the shorter INV was tied in a company, the more working capital was available to the company. A negative significant relationship was also observed between *FFAR*, *CR*, and the *GP*. This meant that *GP* decreased as total long-term investments increased. The size of the company as measured by *LNSales* and the *FDR* had negative coefficients, but revealed no significant relationship. The *F*-test equals 12.016 and is highly significant.

## Conclusions

The goal of a company is to maximize the wealth of the shareholders by investing the company's resources in investments that are profitable and by adding value to the company. It is for this reason that business success depends on management's ability to effectively manage AR, INV, and AP. The main objective of this study is to investigate the relationship between working capital management and profitability of companies listed on the JSE from 1998 to 2008. The CCC and its components were used as a comprehensive measure of working capital management. The results of the first regression revealed a statistically significant negative relationship between profitability (as measured through *GP*) and the CCC. This confirms the fact that shortening the CCC enhances the profitability of a company. These results are similar to those found in previous studies (Falope & Ajilore, 2009; Garcia-Teruel & Martinez-Solano, 2007; Lazaridis & Tryfonidis, 2006; Padachi, 2006; Deloof, 2003). The results of the second regression revealed a positive significant relationship between the number of days AP and the *GP*. This means that delaying the payment to creditors or suppliers of raw material without damaging the credit rating of a company may increase its profitability. The results of the third regression revealed a negative significant relationship between number of days AR and *GP*. This indicates that collecting customer' receivables as quickly as possible without losing sales from high-pressure collection techniques may enhance the profitability of a company. The results of the fourth regression revealed a positive significant relationship between the number of days INV and *GP*.

This may be interpreted that the sampled companies invest in inventories by storing it for a longer period, perhaps to ensure that sufficient inventory is available for their customers at the time of sales and/or to ensure consistent supply of raw materials to their production. Keeping a reasonable stock of inventory may reduce the supply costs and protect the company against price fluctuation. However, the shorter the period inventory is tied in a company, the more working capital is available to the company. Lastly, a negative significant relationship was observed between *FFAR*, *CR*, and the *GP*. This can be interpreted as that *GP* decreases as total long-term investments increases. The size of the company and the *FDR* reveals no statistically significant relationship.

## Managerial Implications and Recommendations

Based on the results obtained, it is recommended that management could generate profits for their companies and thus maximize shareholders' wealth by managing the CCC and its components, namely, number of days AP, number of days AR, and number of days INV. Efficient working capital management will ensure that a company delivers a competitive return to shareholders, and thus achieves the goal of maximizing shareholders' wealth.

# References

Appuhami, B. A. R. (2008). The impact of firm's capital expenditure on working capital management: An empirical study across industries in Thailand. *International Management Review, 4*(1), 8-21.

Chakraborty, K. (2008). Working capital and profitability: An empirical analysis of their relationship with reference to selected companies in the Indian pharmaceutical industry. *The Icfaian Journal of Management Research, 7*(12), 41-59.

Chiou, J., & Cheng, L. (2006). The determinants of working capital management. *The Journal of American Academy of Business, Cambridge, 10*(1), 149-155.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business, Finance, and Accounting, 30*(3-4), 573-587.

Erasmus, P. D. (2010). Working capital management and profitability: The relationship between the net trade cycle and return on assets. *Management Dynamics, 19*(1), 2-10.

Falope, O. I., & Ajilore, O. T. (2009). Working capital management and corporate profitability: Evidence from panel data analysis of selected quoted companies in Nigeria. *Residential Journal of Business Management, 3*(3), 73-84.

Garcia-Teruel, P. J., & Martinez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of Managerial Finance, 3*(2), 164-177.

Gitman, L. J. (2009). *Principles of managerial finance*. Boston: Pearson Prentice Hall.

Jose, M. L., Lancaster, C., & Stevens, J. L. (1996). Corporate returns and cash conversion cycle. *Journal of Economic Finance, 20*(1), 33-46

Lazaridis, I., & Tryfondis, D. (2006). Relationship between working capital management and profitability of listed companies in the Athens Stock Exchange. *Journal of Financial Management and Analysis, 19*(1), 26-35.

Nazir, M. S., & Afza, T. (2009). Impact of aggressive working capital management policy on firm's profitability. *The IUP Journal of Applied Finance, 15*(8), 19-30.

Padachi, K. (2006). Trends of working capital management and its impact on firms' performance: An analysis of Mauritian small manufacturing firms. *International Review of Business Research Papers, 2*(2), 45-58.

Raheman, A., & Nasr, M. (2007). Working capital management and profitability Case of Pakistani firms. *International Review of Business Research Papers, 3*(1), 279-300.

Smith, M. B., & Begemann, E. (1997). Measuring association between working capital management and return on investment. *South African Journal of Business Management, 28*(1), 1-5.

Smith, M. B., & Fletcher, L. (2009). Factors influencing working capital management in South Africa. *Management Dynamics, 18*(3), 15-24.

Uyar, A. (2009). The relationship of cash conversion cycle with firm size and profitability: An empirical investigation in Turkey. *International Research Journal of Finance and Economics*, 24, 186-193.