

# WORKING CAPITAL MANAGEMENT AND CORPORATE PROFITABILITY OF LISTED COMPANIES IN SOUTH AFRICA

Sam Ngwenya\*

## Abstract

Working capital management plays a significant role in creating value for shareholders. The objective of this study was to investigate the relationship between working capital management and profitability of companies listed on the Johannesburg Stock Exchange for the period 1998 to 2008. The results revealed a statistically negative significant relationship between profitability (as measured through gross operating profit), the cash conversion cycle, the net trade cycle and number of days accounts receivable. The results further revealed a positive significant relationship between the number of days accounts payable, the number of days inventory and gross operating profit. The results suggest that managers can increase their companies' profitability by effectively managing the cash conversion cycle and/or the net trade cycle.

**Keywords:** working capital management, cash conversion cycle, net trade cycle, profitability

\* Senior Lecturer, Department of Finance, Risk Management and Banking  
School of Management Sciences  
University of South Africa  
P O Box 392, UNISA, 0003  
South Africa  
Tel: +27 12 429 4937  
Fax: +27 86 641 5379  
E-mail: ngwenms@unisa.ac.za

## 1. Introduction

One of the greatest challenges facing companies is to deliver a competitive return to shareholders. The investments that companies make in current assets and current liabilities represent an important share of items on a firm's balance sheet. Decisions about how much to invest in accounts receivable and inventories, and how much credit to accept from suppliers, are reflected in the management of the working capital of a company (Baños-Caballero, Garcia-Teruel and Martinez-Solano, 2009). Efficient working capital management is an integral component of the overall corporate strategy to create shareholder value (Beaumont Smith and Fletcher, 2009). The components of working capital management include credit management, cash management, inventory management and accounts payable. In short, working capital management has to do with the management of short-term assets and liabilities.

In the process of short-term assets and liabilities management, an asset-liability mismatch may occur, which may increase the firm's profitability in the short run but at a risk of insolvency. On the other hand, too much focus on liquidity may be at the expense of profitability (Padachi, 2006). Therefore the basic aim of working capital management is to provide adequate support for the smooth and efficient

functioning of normal day-to-day business operations by striking a trade-off between the three dimensions of working capital, namely liquidity, profitability and risk (Chakraborty, 2008; Garcia-Teruel and Martinez-Solano, 2007). It is in this regard that effective management of working capital plays a vital role.

Previous studies conducted internationally on working capital management support the fact that aggressive working capital management policies enhance profitability (Nazir and Afza, 2009; Uyar, 2009; Appuhami, 2008; Chakraborty, 2008; Garcia-Teruel and Martinez-Solano, 2007; Chiou and Cheng, 2006; Lazaridis and Tryfonidis, 2006; Deloof, 2003). Studies conducted in South Africa (Erasmus, 2010; Beaumont Smith and Begemann, 1997) reveal the same results. This article reports on an investigation into the relationship between working capital management and the profitability of listed companies in South Africa. The study differs from previous studies conducted in South Africa in that both the cash conversion cycle (CCC) and the net trade cycle (NTC) are used as comprehensive measures of working capital management. The remainder of this article is structured as follows: Firstly, a literature study presents the theoretical foundation of the study related to measures of working capital management. Secondly, the sample, variables and methodology employed are outlined. Thirdly, the analysis is carried

out and the results are presented, and finally, the main conclusions and managerial implications are discussed.

## 2. Measures of working capital management

Various methods have been applied in measuring working capital management. The traditional methods of measuring working capital management such as current ratio, quick ratio and net working capital have been criticised for inconsistency as their usefulness is entirely dependent on skilful interpretation (Beaumont Smith and Fletcher, 2009). Other known methods used as proxy to measure working capital management include the cash conversion cycle, the weighted cash conversion cycle, 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 cash conversion cycle and the net trade cycle still remain the most popular measures used internationally to measure working capital management (Erasmus, 2010; Baños-Caballero *et al.*, 2009; Falope and Ajilore, 2009; Garcia-Teruel and Martinez-Solano, 2007; Lazaridis and Tryfonidis, 2006; Padachi, 2006; Deloof, 2003).

### 2.1 The cash conversion cycle

The cash conversion cycle (CCC) is a powerful tool used to assess how well a company is managing its working capital. A company with a lower cash conversion cycle 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 CCC is calculated as the number of days accounts receivable (AR) plus the number of days inventory (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 inventory, collecting accounts receivable more quickly and paying debts more slowly.

Deloof (2003) investigated the relationship between working capital management and corporate profitability in a sample of large Belgian non-manufacturing firms for the period 1992 to 1996. He used the cash conversion cycle as a measuring instrument. The results revealed a negative relationship between gross operating income and the number of days accounts receivable, inventory and accounts payable. He suggested that managers can

increase the firm's profitability by reducing the number of days accounts receivable and inventories. Other researchers who have conducted the same study and used the cash conversion cycle as proxy for measuring working capital management include Garcia-Teruel and Martinez-Solano (2007), Lazaridis and Tryfonidis (2006) and Padachi (2006). The results of their studies are consistent with the results of the study conducted by Deloof (2003).

### 2.2 The net trade cycle

The net trade cycle basically corresponds with the cash conversion cycle, but the three components, namely accounts receivable, inventories and accounts payable, are expressed as a percentage of sales and therefore indicate the number of days sales the company has to finance its working capital (Baños-Caballero *et al.*, 2009). Baños-Caballero *et al.* (2009) used the net trade cycle to analyse 60 non-financial Spanish firms listed on the Spain Stock Exchange for the period 1997 to 2004. The results revealed that firms with higher profitability have a shorter net trade cycle. These firms tend to receive significantly more credit from their suppliers and hold lower finished goods inventories, while firms facing profitability problems tend to increase trade credit receivable prior to entering financial distress.

Shin and Soenen (1998) investigated the relationship between the firm's profitability and the net trade cycle using a sample of 58 985 US firms covering the period 1975 to 1994. The results indicated that there exist a statistically negative significant relationship between a firm's profitability (as measured by operating income plus depreciation, divided by total assets) and the net trade cycle. They concluded that reducing the firm's net trade cycle can enhance the profitability of a firm. Erasmus (2010) investigated the relationship between the firm's profitability and its net trade cycle using a sample of 319 South African firms (159 listed and 160 delisted) covering the period 1989 to 2007. The results revealed statistically negative significant relationships between a firm's profitability (as quantified by the return on assets in the narrower sense) and its net trade cycle.

## 3. Research objectives

The objective of the study was to investigate the relationship between working capital management and profitability using data of companies listed on the Johannesburg Stock Exchange (JSE) for the period 1998 to 2008. The cash conversion cycle and the net trade cycle were used as comprehensive measures of working capital management. The study aimed to build on previous studies conducted in working capital management, with particular reference to Erasmus (2010: 4), Baños-Caballero *et al.* (2009), Garcia-Teruel and Martinez-Solano (2007), Lazaridis

and Tryfonidis (2006), Deloof (2003) and Shin and Soenen (1998).

#### 4. Research methodology

##### 4.1 Data collection

Secondary annual data used in the empirical study was acquired from the McGregor BFA database. Data from the financial statements of all companies listed on the JSE for the year 1998 to 2008 formed the basis of the calculations. Only companies listed for the whole ten years were included to ensure that ten continuous years of observation for each participating company are available. Out of a population of 314 companies listed during the period under review, 77 were excluded because they fall in the financial sector such as banking and insurance, and have 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 delisted during those particular years. A further 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 cash conversion cycle, namely the number of days accounts payable (AP) and the number of days inventory (INV). Finally, companies with zero inventories were also removed. This left a total of 69 participating companies, resulting in 759 observations.

##### 4.2 Definition of variables

###### Independent variables

The cash conversion cycle (CCC) and the net trade cycle (NTC) were used as proxies for measuring working capital management. Breaking down the components of the cash conversion cycle equation, we get the following three variables:

- (i) Number of days accounts receivable (AR) =  $(\text{Accounts receivable}/\text{Sales}) \times 365 \text{ days}$

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 accounts receivable (Garcia-Teruel and Martinez-Solano, 2007).

- (ii) Number of days inventory (INV) =  $(\text{Inventory}/\text{Cost of goods sold}) \times 365$

This variable reflects the average number of days inventory held by the company. Longer storage times represent a greater investment in inventory for a particular level of operations.

- (iii) Number of days accounts payable (A/P) =  $(\text{Accounts payable}/\text{Cost of goods sold}) \times 365$

This variable reflects the average time it takes firms to pay their suppliers. The higher the value, the longer firms take to settle their payment commitments to their suppliers. The formula used for the calculation of the net trade cycle in this study has been adopted from Erasmus (2010) and is as follows:

$$\text{NTC} = \frac{\text{Accounts receivables} + \text{Inventories} - \text{Accounts payables} \times 365}{\text{Revenue}}$$

###### Dependent variable

The dependent variable used to determine the relationship between working capital management and profitability is the gross operation profit (GP). Gross operation profit 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 and 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 (FFA), acid test (ACID), and financial debt ratio (FDR). The fixed financial asset ratio (FFA) is calculated as fixed financial assets 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 to be fixed financial assets and may have a significant impact on the profitability of a company as reported in the financial statement. The acid test (ACID) is calculated by subtracting inventory from current assets and then dividing the answer by current liabilities, while the financial debt ratio (FDR) is calculated as the sum of long-term loans and short-term loans 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 and Tryfonidis, 2006).

#### 5. Limitations of the study

The number of participating companies has been reduced significantly because in most instances the McGregor data do not indicate the cost of goods sold, which is essential to calculate the number of days inventory and number of days accounts payable (Erasmus, 2010).

#### 6. Results

##### Descriptive statistics

Table 2 depicts the descriptive statistics of the dependent and independent variables.

**Table 2.** Descriptive Statistics of Dependent and Independent Variables

	N	Minimum	Maximum	Mean	Std deviation
LNSales	759	10.73	23.31	14.5468	1.71283
No. days AP	756	14.23	65 920.76	192.3057	2 395.29248
No. days AR	759	0.00	511.54	60.8167	44.37226
No. days INV	756	1	34 286	122.81	1 245.587
FDR	759	0.00	4.00	0.1628	0.24825
GP	759	-11.38	6.11	0.5642	0.62217
FFAR	759	0.00	1.23	0.0795	0.11501
CCC	757	-31 583.58	1 128.71	-8.0814	1 152.95648
Sales	756	1	13 258 615 530	32 567 672.41	5.015E8
ACID	759	-6.10	4.23	1.0408	0.64741
NTC	756	-263.74	802.53	44.1676	63.52166

According to Table 2 the average total valid observations is  $n = 758$ . Total sales have a mean of R32 567 672.41. The companies included in the sample have an average of 56.42 per cent gross operating profit. Financial assets form 7.95 per cent of total assets. The credit period granted to their customers is 61 days while they paid their creditors in 192 days. Inventory took on average 123 days to be sold. Overall the average cash conversion cycle is -8 days and the length of the net trade cycle is 44 days.

#### Pearson correlations

Table 3 depicts the Pearson correlation table for the variables included in our regression model.

Table 3 shows that gross operating profit is negatively correlated with the cash conversion cycle and accounts receivable. This confirms that shortening the cash conversion cycle and the net trade cycle increases the company's profitability, and collecting customers' receivables as quickly as possible without losing sales from high-pressure collection techniques also enhances the profitability of a company. A

further observation from Table 3 indicates that the gross operating profit is positively correlated with accounts payable and inventory. This means that delaying the payment of raw materials or trading inventory to suppliers or creditors may increase the profitability of a company.

#### 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. Gross operating profit (GP) is used as a dependent variable, while financial debt ratio (FDR), fixed financial asset ratio (FFAR), acid test (ACID), the cash conversion cycle (CCC) and the size of the company as measured by the natural logarithm of sales (LNSales) are used as predictors in the regression analysis. Table 4 reports on the results of the first regression analysis.

**Table 3.** Pearson Correlation between Dependent and Independent Variables

	LN Sales	No. days AP	No. days AR	No. days INV	FDR	GP	FFAR	CCC	NTC
No. days AP Pearson correlation sig. (2-tailed)	0.049 0.179								
No. days AR Pearson correlation sig. (2-tailed)	0.064 0.079	0.003 0.936							
No. days INV Pearson correlation sig. (2-tailed)	0.049 0.177	0.999** 0.000	-0.004 0.915						
FDR Pearson correlation sig. (2-tailed)	0.018 0.624	-0.014 0.693	0.028 0.433	-0.014 0.694					
GP Pearson correlation sig. (2-tailed)	-0.030 0.403	0.160** 0.000	-0.096** 0.008	0.156** 0.000	-0.025 0.485				
FFAR Pearson correlation sig. (2-tailed)	0.167** 0.000	-0.023 0.526	0.052 0.151	-0.021 0.565	0.124** 0.001	-0.198** 0.000			
CCC Pearson correlation sig. (2-tailed)	-0.046 0.204	-0.998** 0.000	0.028 0.446	-0.994** 0.000	0.015 0.675	-0.157** 0.000	0.027 0.454		
ACID Pearson correlation sig. (2-tailed)	-0.222** 0.000	-0.002 0.965	0.318** 0.000	-0.012 0.743	-0.128** 0.000	-0.034 0.345	-0.132** 0.000	0.002 0.948	
NTC Pearson correlation sig. (2-tailed)	0.027 0.456	-0.021 0.569	0.510** 0.000	0.017 0.636	0.035 0.343	-0.109** 0.003	0.041 0.261	0.081* 0.026	0.142** 0.000

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

\*Correlation is significant at the 0.05 level (2-tailed).

**Table 4. Regression Analysis of The Dependent And Independent Variables (PREDICTORS: CCC, ACID, FDR, FFAR, LNSALES)**

**Coefficients<sup>a</sup>**

Regression equation (A): Gross operating profit = 0.782 - 0.006 FDR - 1.068 FFAR - 0.061 ACID - 0.005 LNSales - 8.122E-5 CCC

Predictor	Unstandardised coefficient		Standardised coefficient	T	Sig.
	Beta	Std error	Beta		
Constant	0.782	0.203		3.846	0.000
FDR	-0.006	0.089	-0.002	-0.063	0.950
FFAR	-1.068	0.194	-0.199	-5.505	0.000
ACID	-0.061	0.035	-0.064	-1.758	0.079
LNSales	-0.005	0.013	-0.014	-0.382	0.703
CCC	-8.122E-5	0.000	-0.152	-4.295	0.000

**ANOVA<sup>b</sup>**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	18.940	5	3.788	10.578	0.000 <sup>a</sup>
Residual	268.945	751	0.358		
Total	287.885	756			

a. Predictors: (Constant), CCC, ACID, FDR, FFAR, LNSales

b. Dependent variable: GP

The regression equation A reported in Table 4 shows that there is a statistically negative significant relationship between the cash conversion cycle and gross operating profits, which is consistent with the view that a decrease in the cash conversion cycle will generate more profits for the company. The regression also reveals a statistically negative significant relationship between fixed financial assets and the gross operating profits. The rest of the model variables, the fixed financial asset ratio, the financial debt ratio and the acid test ratio have negative

coefficients, but they reveal no statistically significant relationship with gross operating profits. The F test equals 10.578 and is highly significant. The second regression analysis has the same predictors (ACID, FDR, FFAR, LNSales) as the first regression, except that the cash conversion cycle (CCC) has been replaced with number of days account payable (AP). Gross operating profit (GP) still remains the dependent variable. Table 5 reports on the results of the second regression analysis.

**Table 5. Regression Analysis of the Dependent And Independent Variables (PREDICTORS: AP, ACID, FDR, FFAR, LNSALES)**

**Coefficients<sup>a</sup>**

Regression equation (B): Gross operating profit = 0.733 + 0.014 FDR - 1.041 FFAR - 0.053 ACID - 0.004 LNSales + 3.802E-5 No. Days AP

Predictor	Unstandardised coefficient		Standardised coefficient	T	Sig.
	Beta	Std Error	Beta		
Constant	0.733	0.192		3.819	0.000
FDR	0.014	0.084	0.006	0.167	0.867
FFAR	-1.041	0.183	-0.206	-5.686	0.000
ACID	-0.053	0.033	-0.059	-1.617	0.106
LNSales	-0.004	0.012	-0.010	-0.287	0.775
No. days AP	3.802E-5	0.000	0.156	4.421	0.000

**ANOVA<sup>b</sup>**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	17.638	5	3.528	11.049	0.000 <sup>a</sup>
Residual	239.455	750	0.319		
Total	257.093	755			

a. Predictors: (Constant), No. Days AP, ACID, FDR, FFAR, LNSales

b. Dependent variable: GP

The results of the regression equation B reported in Table 5 reveal a positive significant relationship between the number of days accounts payable and the gross operating profit. 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. A negative significant relationship is also observed between the fixed financial asset ratio and the gross operating profits. The size of the company and the acid test ratio have

negative coefficients, but reveal no significant relationship, while the financial debt ratio has a positive coefficient and also reveals no significant relationship. The F test equals 11.059 and is highly significant. The third regression analysis has the same predictors as the first and second regression, except that the number of days account receivable (AR) is the independent variable. Gross operating profits (GP) still remains the dependent variable. Table 6 reports on the results of the third regression analysis.

**Table 6. Regression Analysis of the Dependent And Independent Variables (PREDICTORS: AR, ACID, FDR, FFAR, LNSALES)****Coefficients<sup>a</sup>**

Regression equation (C): Gross operating profit = 0.756 - 0.009 FDR - 1.074 FFAR - 0.036 ACID + 0.000 LNSales - 0.001 No. Days AR

Predictor	Unstandardised coefficient		Standardised coefficient		T	Sig.
	Beta	Std Error	Beta			
Constant	0.756	0.207			3.655	0.000
FDR	-0.009	0.091	-0.003		-0.095	0.924
FFAR	-1.074	0.198	-0.198		-5.427	0.000
ACID	-0.036	0.038	-0.038		-0.955	0.340
LNSales	0.000	0.014	0.000		-0.022	0.982
No days AR	-0.001	0.001	-0.074		-1.934	0.053

**ANOVA<sup>b</sup>**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	14.022	5	2.804	7.558	0.000 <sup>a</sup>
Residual	279.391	753	0.371		
Total	293.414	758			

a. Predictors: (Constant), No. of days AR, FDR, LNSales, FFAR, ACID

b. Dependent variable: GP

The results of regression equation C reported in Table 6 reveal a negative significant relationship between the number of days accounts receivable (AR) and gross operating profit (GP). This means that collecting customers' receivables as quickly as possible without losing sales from high-pressure collection techniques enhance the profitability of a company. A negative significant relationship is also observed between the fixed financial asset ratio (FFAR) and the gross operating profits (GP). This means that gross operating profit decreases as total long-term investments increase. The size of the

company reveals an indifferent position as far as the profitability of a company is concerned and does not reveal any significant relationship. The financial debt ratio (FDR) and the acid test ratio (ACID) have a negative coefficient and reveal no significant relationship. The F test equals 7.558 and is highly significant. The fourth regression analysis has the same predictors as the previous regressions, except that the independent variable is the number of days inventory (INV). Gross operating profit (GP) still remains the dependent variable. Table 7 reports on the results of the fourth regression analysis.

**Table 7. Regression Analysis of the Dependent and Independent Variables (PREDICTORS: INV, ACID, FDR, FFAR, LNSALES)****Coefficients<sup>a</sup>**

Regression equation (D): Gross operating profit = 0.727 + 0.014 FDR - 1.043 FFAR - 0.052 ACID - 0.003 LNSales + 7.078E-5 No. Days INV

Predictor	Unstandardised coefficient		Standardised coefficient		T	Sig.
	Beta	Std. Error	Beta			
Constant	0.727	0.192			3.785	0.000
FDR	0.014	0.084	0.006		0.172	0.864
FFAR	-1.043	0.183	-0.206		-5.691	0.000
ACID	-0.052	0.033	-0.059		-1.570	0.117
LNSales	-0.003	0.012	-0.010		-0.269	0.788
No. days INV	7.078E-5	0.000	0.151		4.276	0.000

**ANOVA<sup>b</sup>**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	17.245	5	3.449	10.785	0.000 <sup>a</sup>
Residual	239.848	750	0.320		
Total	257.093	755			

a. Predictors: (Constant), No. of days INV, ACID, FDR, FFAR, LNSales

b. Dependent variable: GP

The results of the regression equation D reported in Table 7 reveal a positive significant relationship between the number of days inventory (INV) and gross operating profit (GP), which may be translated as that companies invest in inventories by storing inventory for a longer period, perhaps to ensure that sufficient inventory is available for their customers at the time of sales. However, the shorter inventory is tied in a company, the more working capital is available to the company. A negative significant relationship is also observed between the fixed financial asset ratio (FFAR) and the gross operating profits (GP). This means that gross operating profit

decreases as total long-term investments increase. The size of the company and the acid test ratio has negative coefficients, but reveal no significant relationship. The financial debt ratio has a positive coefficient and also reveals no significant relationship. The F test equals 10.785 and is highly significant. The last regression analysis has the same predictors as the previous regressions, except that the net trade cycle is the independent variable. Gross operating profit (GP) still remains the dependent variable. Table 8 reports on the results of the final regression analysis.

**Table 8. Regression Analysis of the Dependent and Independent Variables (PREDICTORS: NTC, LNSales, FDR, FFAR, ACID)**

#### Coefficients<sup>a</sup>

Regression equation (E): Gross operating profit = 0.777 - 0.011 FDR - 1.080 FFAR - 0.048 ACID - 0.002 LNSales + 0.000 NTC

Predictor	Unstandardised coefficient		Standardised coefficient	T	Sig.
	Beta	Std. Error	Beta		
Constant	0.777	0.207		3.753	0.000
FDR	-0.011	0.091	-0.004	-0.118	0.906
FFAR	-1.080	0.198	-0.200	-5.465	0.000
ACID	-0.048	0.036	-0.050	-1.330	0.184
LNSales	-0.002	0.013	-0.006	-0.176	0.860
NTC	0.000	0.000	-0.093	-2.576	0.010

#### ANOVA<sup>b</sup>

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	15.162	5	3.032	8.177	0.000 <sup>a</sup>
Residual	278.143	750	0.371		
Total	293.305	755			

a. Predictors: (Constant), NTC, LNSales, FDR, FFAR, ACID

b. Dependent variable: GP

The results of the regression equation E reported in table 8 reveals a negative significant relationship between the net trade cycle (NTC) and the gross operating profit (GP), which is consistent with the view that a reduction in the firm's NTC may enhance its profitability. A negative significant relationship is also observed between the fixed financial asset ratio (FFAR) and the gross operating profits (GP). This means that gross operating profit decreases as total long-term investments increase. The size of the company (LNSales), the acid test ratio (ACID) and the financial debt ratio (FDR) have negative coefficients but reveal no significant relationship. The F test equals 8.177 and is highly significant.

## 7. Conclusion

The goal of a firm is to maximise the wealth of the owners by investing the company's resources in investments that are profitable and add value to the company. It is for this reason that business success depends on management's ability to manage accounts

receivable, inventory and accounts payable effectively. The main objective of this study was to investigate the relationship between working capital management and profitability of companies listed on the JSE for the period 1998 to 2008. The cash conversion cycle and the net trade cycle were used as comprehensive measures of working capital management. The results of the study revealed a statistically negative significant relationship between profitability (as measured through gross operating profit), the cash conversion cycle and the net trade cycle. This confirms that shortening the cash conversion cycle and the firm's net trade cycle enhances the profitability of a company. These results are similar to those found in previous studies (Erasmus 2010; Baños-Caballero *et al.*, 2009; Falope and Ajilore, 2009; Garcia-Teruel and Martinez-Solano, 2007; Lazaridis and Tryfonidis, 2006; Padachi, 2006; Deloof, 2003; Shin and Soenen, 1998). The results also reveal a positive significant relationship between the number of days accounts payable and the gross operating profit. 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 negative significant relationship between number of days accounts receivable and gross operating profit indicates that collecting customers' receivables as quickly as possible without losing sales from high-pressure collection techniques enhances the profitability of a company. Furthermore, a positive significant relationship between the number of days inventory and gross operating profit may be translated as that companies invest in inventories by storing inventory for a longer period, perhaps to ensure that sufficient inventory is available for their customers at the time of sales or to ensure consistent supply of raw materials to their production sections. However, the shorter inventory is tied in a company, the more working capital is available to the company. The results confirm that companies with higher profitability have a shorter net trade cycle. These companies tend to receive significantly more credit from their suppliers and hold lower finished goods inventories, while companies facing profitability problems tend to increase trade credit receivable prior to entering financial distress (Baños-Caballero *et al.*, 2009).

Lastly, a negative significant relationship is observed between fixed financial asset ratio (FFAR) and gross operating profits (GP). This can be interpreted as that gross operating profit decreases as total long-term investments increase. The size of the company, the financial debt ratio and the acid test ratio reveal no statistically significant relationship.

## 8. Managerial implications and recommendations

Based on the results obtained, it is recommended that management could generate profits for their companies and thus maximise shareholders' wealth by managing the cash conversion cycle and the net trade cycle. Reducing the length of the cash conversion cycle and the net trade cycle may enhance the profitability of a company. Efficient working capital management will ensure that a company delivers a competitive return to shareholders and thus achieves the goal of maximising 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*, Vol. 4 No.1, pp. 11-24.
- Baños-Caballero, S., García-Teruel, P. J. and Martínez-Solano, P. (2009). "How do market imperfection affect working capital management?", WP-EC 2009-14.
- Beaumont Smith, M. and Begemann, E. (1997). "Measuring association between working capital management and return on investment", *South African Journal of Business Management*, Vol. 28 No. 1, pp. 1-5.
- Beaumont Smith, M. and Fletcher, L. (2009). "Factors influencing working capital management in South Africa", *Management Dynamics*, Vol. 19 No. 1. pp. 2-10.
- Chakraborty, K. (2008). "Working capital and profitability: an empirical analysis of their relationship with reference to selected companies in the Indian pharmaceutical industry", *The Icfai Journal of Management Research*, Vol. 7 No. 12, pp. 41-59.
- Chiou, Jeng-Ren and Cheng, Li. (2006). "The determinants of working capital management", *The Journal of American Academy of Business, Cambridge*, Vol. 10 No. 1, pp. 149-155.
- Deloof, M. (2003). "Does working capital management affect profitability of Belgian firms?", *Journal of Business Finance & Accounting*, Vol. 30 Nos.3&4, pp. 573-587.
- Erasmus, P. D. (2010). "Working capital management and profitability: the relationship between the net trade cycle and return on assets", *Management Dynamics*, Vol. 19 No. 1, pp. 2-10.
- Falope, O. I. and 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*, Vol. 3, pp. 73-84.
- Garcia-Teruel, P. J. and Martinez-Solano, P. (2007). "Effects of working capital management on SME profitability", *International Journal of Managerial Finance*, Vol. 3 No. 2, pp. 164-177.
- Lazaridis, I. and Tryfondis, D. (2006). "Relationship between working capital management and profitability of listed companies in the Athens Stock Exchange", *Journal of Financial Management and Analysis*, Vol. 19 No. 1, pp. 26-35.
- Nazir, M. S. and Afza, T. (2009). "Impact of aggressive working capital management policy on firm's profitability", *The IUP Journal of Applied Finance*, Vol. 15 No. 8, pp. 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*, Vol. 2 No. 2, pp. 45-58.
- Shin, H and Soenen, L. (1998). "Efficiency of working capital management and corporate profitability", *Financial Practice and Education*, Vol. 8 No. 2, pp. 37-45.
- 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*, Vol. 24, pp. 186-193.