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The Influence of Working Capital Management Components on Corporate Profitability: A Survey on Kenyan Listed Firms

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Abstract: This study examined the influence of working capital management components on corporate profitability. A sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008 was used. Both the pooled OLS and the fixed effects regression models were used. The key findings from the study were: (1) there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability ($p<0.01$). This means that more profitable firms take the shortest time to collect cash from their customers; (2) there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability ($p<0.01$). This means that firms which maintain sufficiently high inventory levels reduce costs of possible interruptions in the production process and loss of business due to scarcity of products. This reduces the firm supply costs and protects them against price fluctuations; (3) there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and profitability ($p<0.01$). This implies that the longer a firm takes to pay its creditors, the more profitable it is.

Key words: Working capital management, the cash conversion cycle, agency theory, the Nairobi stock exchange

INTRODUCTION

Working capital management, which deals with the management of current assets and current liabilities, is very important in corporate finance because it directly affects the liquidity and profitability of the firm (Appuhami, 2008; Christopher and Kamalavalli, 2009; Dash and Ravipati, 2009; Deloof, 2003; Eljelly, 2004; Raheman and Nasr, 2007). For example, the current assets of a typical manufacturing firm or even a distribution firm account for more than half of the firm's total assets. Deloof (2003) held the same proposition that the accounts receivables and inventories comprise a substantial percentage of the total assets of a firm. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However, firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Van Horne and Wachowicz, 2005).

Profitability is the rate of return on firm's investment. An unwarranted high investment in current assets would reduce this rate of return (Vishnani, 2007). The purpose of working capital management is to manage the firm's current accounts so as to attain a desired balance between profitability and risk (Ricci and Vito, 2000). Shin and Soenen (1998) found that efficient working capital management is an integral component of the overall corporate strategy towards creating shareholder value. The various components of working capital management are described as follows:

The Average Collection Period (ACP) is the time taken to collect cash from customers. The average collection period was used as a proxy for the collection policy as an

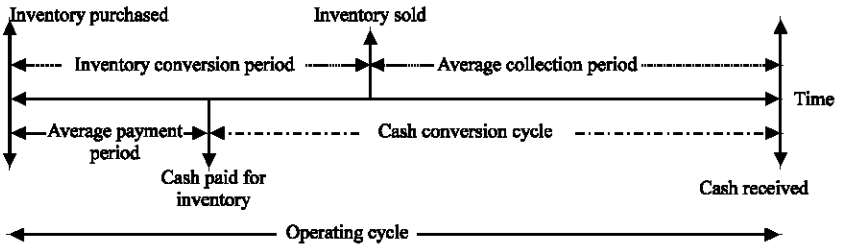

Fig. 1: Operating and cash conversion cycles. Source: Ross *et al.* (2003)

independent variable as used in previous studies (Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007; Lazaridis and Tryfonidis, 2006; Raheman and Nasr, 2007).

The Inventory Conversion Period (ICP) refers to the time taken to convert inventory held in the firm into sales. Consistent with previous studies such as Deloof, (2003), Garcia-Teruel and Martinez-Solano (2007), Lazaridis and Tryfonidis (2006) and Raheman and Nasr (2007), the inventory conversion period was used as a proxy for the inventory policy.

The Average Payment Period (APP) is the time taken to pay the firm's suppliers. Consistent with Deloof, (2003), Garcia-Teruel and Martinez-Solano (2007), Lazaridis and Tryfonidis (2006) and Raheman and Nasr (2007) the average collection period was used as a proxy for the firm's collection policy.

The various interrelationships among the working capital components can be shown in Fig. 1.

Efficient working capital management involves planning and controlling the current assets and current liabilities in a manner that eliminates the risk of inability of a firm to meet due short term obligations and to avoid excessive investment in these assets on the other hand (Eljelly, 2004). Managers spend considerable time on day-to-day problems that involve working capital decisions (Raheman and Nasr, 2007). One reason for this is that current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Taken together, decisions on the level of different working capital components become frequent, repetitive and time consuming (Appuhami, 2008).

Working capital management is a very sensitive area in the field of financial management. It involves the decision on the amount and composition of current assets and the financing of these assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinarily within a year and such temporary investment as may be readily converted into cash upon need (Raheman and Nasr, 2007). Smith (1980) and Raheman and Nasr (2007) observed that working capital management is important because of its effects on the firm's profitability and risk and consequently its value.

The way in which working capital is managed can have a significant impact on both the liquidity and profitability of the firm (Deloof, 2003). For example, decisions that tend to maximize profitability tend to minimize the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity will tend to reduce the potential profitability of the firm. A firm can have larger sales with a generous credit policy, which extends the cash cycle. In this case, the longer cash conversion cycle may result in higher profitability. However, the traditional view of the relationship between the cash conversion cycle and corporate profitability is that, ceteris paribus, a longer cash conversion cycle hurts the profitability of

a firm (Deloof, 2003; Smith, 1980). This study aimed at examining the influence of working capital management components on corporate profitability on Kenyan listed firms.

MATERIALS AND METHODS

Data for this study was collected from the listed firms on the NSE for the period 1993-2008. The reason as to why this market was chosen is primarily due to the availability and the reliability of the financial statements in that they are subject to the mandatory audit by internationally recognized audit firms (mainly the big four). Furthermore, firms listed on the stock exchange market have an incentive to present profits if those exist in order to make their shares more attractive (Lazaridis and Tryfonidis, 2006).

For the initial sample, data was obtained for all firms for the years ending 1993 through 2008. Consistent with Barako *et al*. (2006), data was obtained from the NSE handbooks and the Kenya Capital Markets Authority. Consequently, the sample data begins in 1993 and ends in 2008. Consistent with Deloof (2003), firms in banking and financial institutions, insurance, some commercial and service firms and some firms listed under the industrial and allied segment were omitted. This is because the definition of working capital is different for these firms from the definition being investigated in this study (Lazaridis and Tryfonindis, 2006).

Of the 36 sample firms in the sample, the final sample contains 30 firms. In order to ensure accuracy of the collected data, a number of filters were applied. Observations of firms with anomalies such as negative values in their total assets, current assets, fixed assets, capital, depreciation or the interest paid were eliminated. Observations of items from the balance sheet and profit and loss accounts showing signs contrary to reasonable expectations were removed. Since the panel data being analyzed had a number of influential observations and data errors as pointed out by Fama and French (1998), each year was treated as having missing values 1% of the observations in each tail of the distribution for each variable. This is consistent with previous studies (Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007; Raheman and Nasr, 2007; Shin and Soenen, 1998). As a result of eliminating 1% of the extreme values, the final sample of 468 firms-year observations over the period from 1993 through 2008 was arrived at.

The variables used were as follows. The study followed Deloof (2003) in computing the NOP, which is the net operating profit ratio obtained as (sales-cost of sales+depreciation and amortization)/(total assets-financial assets). ACP is the accounts collection period obtained as accounts receivables/sales×365. ICP refers to the inventory conversion cycle derived as inventory/cost of sales×365. APP is the average payment period/purchases×365. The cash conversion cycle, CCC is obtained by adding the ACP to ICP and then subtracting the APP. Firm size, CS is the natural logarithm of the total turnover (sales). The leverage ratio, Lev is obtained by (short-term loans+long-term loans)/total assets. The fixed financial assets ratio, FFAR, is obtained as fixed financial assets/total assets. Consistent with Deloof (2003), variability is obtained by computing the standard deviation of net operating profit over the 1993-2008 period. The growth in gross domestic product, GDPGrow, is the GDP growth rate in nominal terms as obtained from the Central Bureau of Statistics website. Finally, the age of the firm is obtained by the natural logarithm of the number of years the firm has existed since its inception.

RESULTS AND DISCUSSION

In Table 1, the summary statistics of the variables included in the regression models are presented. Overall, the mean (median) net operating profit lagged by total assets less

financial assets is 38.2% (27.5%). The mean (median) accounts collection period is 64.68 (65.23) days (approximately two months), with the first quartile (third quartile) of 41.18 days (approximately one and half months) (83.33 days (approximately three months). On average, firms take 97.26 (median 82.17) days (approximately three months) to convert their inventories into sales, with the first quartile (third quartile) of 40.63 days (approximately one and half months) (138.59 days (approximately five months). An average firm takes 95.58 (median 81.13) days (approximately 3 months) to pay its creditors, with the first quartile (third quartile) of 53.97 days (approximately three months) (121.74 days (approximately four months). The mean (median) cash conversion cycle is 69.35 (63.66) days (approximately two months), with the first quartile (third quartile) of 19.90 days (approximately half a month) (115.08 days (approximately four months). The table shows that an average firm has a size of 7.637 (median 7.608) as measured by the natural logarithm of its total turnover. The mean (median) leverage ratio is 12.70% (7.30%) lagged by total assets. The typical firm in the sample has a fixed financial assets ratio of 1.57%. The mean variability of net operating profit is 12%. The mean (median) growth in GDP is 3.28% (3.33%) in nominal terms. The average (median) age of a firm in the sample was 2.052 (2.284) as measured by the natural logarithm of the number of years since the firm was founded. All variables share a common sample size of 468 firm-years.

Pearson and Spearman's Correlations

Consistent with Shin and Soenen (1998), Table 2 shows both the Pearson and Spearman's correlations among the observed variables. The Spearman's rank correlation coefficients are on the upper right triangle while the Pearson product moment correlation coefficients are on the lower left triangle. The industry, ownership control and firm-year dummy variables are estimated but not reported.

Table 1: Summary statistics

Variable	Mean	25%	Median	75%	SD
NOP	0.382	0.162	0.275	0.442	0.576
ACP	64.680	41.180	65.230	83.330	33.920
ICP	97.260	40.630	82.170	138.590	73.100
APP	95.580	53.970	81.130	121.740	68.620
CCC	69.350	19.900	63.660	115.080	82.030
CS	7.637	6.548	7.608	8.858	1.906
LEV	0.127	0.000	0.073	0.213	0.166
FFAR	0.016	0.000	0.000	0.007	0.057
Variability	0.120	0.017	0.040	0.086	0.382
GDPGrow	3.276	1.675	3.330	4.726	2.216
Age	2.052	1.750	2.284	2.479	0.816

The industry, ownership control and firm-year dummy variables are estimated but not reported. Source: 1993-2008 survey data, author's computation

Table 2: Pearson and Spearman's correlation coefficients

	NOP	ACP	ICP	APP	CCC	CS	LEV	FFAR	Variability	GDPGrow	AGE
NOP	1.000	-0.09*	0.095*	0.207**	-0.167**	0.294**	0.071	0.186**	0.194**	0.031	0.034
ACP	-0.154**	1.000	0.148**	0.278**	0.343**	-0.272**	0.077	0.019	-0.020	0.042	-0.091*
ICP	0.120**	0.086*	1.000	0.413**	0.633**	-0.049	0.002	-0.051	-0.094*	-0.027	-0.120**
APP	0.194**	0.228**	0.382**	1.000	-0.165**	0.003	0.053	0.017	-0.032	0.011	-0.232**
CCC	-0.135**	0.312**	0.589**	-0.379**	1.000	-0.134**	-0.036	-0.101*	-0.090	-0.007	-0.023
CS	0.231**	-0.247**	-0.015	0.017	-0.090*	1.000	0.330**	0.170**	-0.047	0.109*	-0.079
LEV	-0.048	0.008	-0.067	0.033	-0.071	0.193**	1.000	0.038	0.009	0.090	-0.152**
FFAR	0.652**	-0.033	-0.105*	-0.019	-0.101*	0.126**	-0.027	1.000	-0.054	0.194**	-0.081
Variability	0.484**	-0.071	0.005	0.029	-0.057	0.052	0.053	0.380**	1.000	-0.129**	0.009
GDPGrow	0.014	0.068	-0.039	-0.009	0.001	0.099*	0.057	0.048	-0.087*	1.000	-0.002
AGE	0.016	0.006	0.012	-0.114**	0.061	-0.019	-0.076	-0.117**	-0.027	-0.002	1.000

The p-values are in parentheses, with * and **Denoting significance at the 5 and 1% levels, respectively. Source: 1993-2008 survey data, author's computation

Table 2 shows that the NOP is negatively related to ACP and CCC. The negative relation of NOP and ACP is consistent with the view that the less the time taken by customers to pay their bills, the more cash is available to replenish the inventory hence leading to more sales which result to an increase in profitability. The Table also shows that the NOP is positively related to ICP and APP. The negative relationship between NOP and ICP can be explained by the fact that firms which maintain high inventory levels reduce the cost of possible interruptions in the production process. This helps in preventing loss of business due to the scarcity of products and reducing the cost of supplying the goods. In so doing, firms are protected against price fluctuations (Blinder and Maccini, 1991). The positive relation between NOP and APP can be explained by the fact that lagging payments to suppliers ensures that the firm has some cash to purchase more inventory for sale thus increasing its sales levels hence boosting its profits. The negative relationship between NOP and CCC is consistent with the view that the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods can be too long and that decreasing this time lag increases profitability (Deloof, 2003). Firm size is positively related to NOP. This means that larger firm report higher profits compared to smaller firms. This may be due to larger firm's ability to exploit their economies of scale.

Although, the Pearson linear and Spearman rank correlations give proof of an inverse relationship between NTC and profitability, these measures do not allow us to identify causes from consequences (Shin and Soenen, 1998). It is hard to say whether a shorter accounts collection period leads to higher profitability or a higher profitability is as a result of the short accounts receivable period. This means therefore that, care must be exercised when interpreting the Pearson correlation coefficients because they cannot provide a reliable indicator of association in a manner which controls for additional explanatory variables. Examining a simple bivariate correlation in a conventional matrix does not take account of each variable's correlation with all other explanatory variables (Padachi, 2006). The main analysis will be derived from appropriate multivariate models estimated using the overall least squares regression models.

To assess the effects of working capital management on the firm's profitability, the firm's profitability is modeled as a function of the three core working capital management measures in addition to other firm characteristics. Consistent with Deloof (2003) and Raheman and Nasr (2007), the NOP ratio has been used as a proxy for firm's profitability. Table 1 reports that the mean NOP in the sample is 0.382 (38.2%), which is greater than the median NOP of 0.275 (27.5%), suggesting that the distribution of NOP is skewed to the left. To control for this skewness, the variability in the NOP and the natural logarithm of turnover (as represented by CS) are incorporated in the least squares estimations. This is consistent with Huang *et al.* (2009). Five regression models were run and the results represented in a tabular form. Consistent with previous studies, the impact of working capital management on profitability was modeled using the following regression equations:

$$NOP = f(ACP, ICP, APP, CCC, CS, Lev, FFAR, Variability, GDPGrow, Age, Ind, Ctrl, \lambda,) \quad (1)$$

Model 1

$$NOP_{it} = \alpha_0 + \beta_1 ACP_{it} + \beta_2 CS_{it} + \beta_3 Lev_{it} + \beta_4 FFAR_{it} + \beta_5 Variability_{it} + \beta_6 GDPGrow_{it} + \beta_7 Age_{it} + \beta_8 Ind_{it} + \beta_9 Ctrl_{it} + \beta_t \lambda_{it} + \varepsilon_i$$

Model 2

$$NOP_{it} = \alpha_0 + \beta_1 ICP_{it} + \beta_2 CS_{it} + \beta_3 Lev_{it} + \beta_4 FFAR_{it} + \beta_5 Variability_{it} + \beta_6 GDPGrow_{it} + \beta_7 Age_{it} + \beta_8 Ind_{it} + \beta_9 Ctrl_{it} + \beta_t \lambda_{it} + \varepsilon_i$$

Model 3

$$NOP_{it} = \alpha_0 + \beta_1 APP_{it} + \beta_2 CS_{it} + \beta_3 Lev_{it} + \beta_4 FFAR_{it} + \beta_5 Variability_{it} + \beta_6 GDPGrow_{it} + \beta_7 Age_{it} + \beta_8 Ind_{it} + \beta_9 Ctrl_{it} + \beta_t \lambda_{it} + \varepsilon_i$$

Model 4

$$NOP_{it} = \alpha_0 + \beta_1 CCC_{it} + \beta_2 CS_{it} + \beta_3 Lev_{it} + \beta_4 FFAR_{it} + \beta_5 Variability_{it} + \beta_6 GDPGrow_{it} + \beta_7 Age_{it} + \beta_8 Ind_{it} + \beta_9 Ctrl_{it} + \beta_t \lambda_{it} + \varepsilon_i$$

Model 5

$$NOP_{it} = \alpha_0 + \beta_1 ACP_{it} + \beta_1 ICP_{it} + \beta_1 APP_{it} + \beta_2 CS_{it} + \beta_3 Lev_{it} + \beta_4 FFAR_{it} + \beta_5 Variability_{it} + \beta_6 GDPGrow_{it} + \beta_7 Age_{it} + \beta_8 Ind_{it} + \beta_9 Ctrl_{it} + \beta_t \lambda_{it} + \varepsilon_i$$

Where, NOP denotes the net operating profit ratio, ACP is the average collection period, ICP is the inventory conversion period, APP is the average payment period, CS is the firm (firm) size, Lev is the leverage ratio, FFAR is the fixed financial assets ratio, Variability represents the variability of the NOP, GDPGrow is the nominal GDP growth rate, Age is the age of the firm, Ind is the industry dummy, Ctrl is the ownership dummy and λ denotes firm year controls. Subscripts i denotes firms (cross-section dimension) ranging from 1 to 468 and t denotes years (time-series dimension) ranging from 1 to 16.

Following Garcia-Teruel and Martinez-Solano (2007) and Deloof (2003), the determinants of corporate profitability are estimated both with the pooled OLS and the fixed effects models as presented in Table 3 and 4. These two models were used for comparison purposes. The fixed effects model excludes all variables that are time invariant from the model (Deloof, 2003).

Table 3: Relationship between WCM and profitability (1993-2008) pooled OLS models

	Dependent variable = Net Operating Profit (NOP)				
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.108(0.500)	-0.283(0.039)**	-0.379(0.006)***	-0.086(0.543)	-0.095(0.528)
ACP	-0.002(0.003)***				-0.003(0.000)***
ICP		0.002(0.000)***			0.011(0.000)***
APP			0.002(0.000)***		0.002(0.000)***
CCC				-0.001(0.083)*	
CS	0.033(0.004)***	0.050(0.000)***	0.044(0.000)***	0.039(0.000)***	0.037(0.001)***
Lev	-0.255(0.031)**	-0.207(0.071)*	-0.211(0.056)**	-0.2677(0.024)**	-0.160(0.144)*
FFAR	5.247(0.000)***	5.620(0.000)***	5.656(0.000)***	5.277(0.000)***	5.728(0.000)***
Variability	0.435(0.000)***	0.4301(0.000)***	0.392(0.000)***	0.4286(0.000)***	0.393(0.000)***
GDPGrow	-0.015(0.423)	-0.012(0.515)	-0.007(0.704)	-0.012(0.526)	-0.011(0.527)
Age	0.060(0.009)***	0.062(0.000)***	0.077(0.001)***	0.060(0.009)***	0.077(0.000)***
Adjusted R^2	53.00%	55.60%	56.80%	52.40%	59.70%
F-value	22.08***	24.43***	25.52***	21.56***	26.64***
Durbin watson	1.213	1.256	1.365	1.220	1.383
Firm years	468	468	468	468	468

The p-values are in the parentheses with *, **and ***Denoting significance at 10, 5 and 1% levels, respectively. The results are obtained using the pooled OLS estimation model. Source: 1993-2008 survey data, author's computation

Table 4: Relationship between WCM and profitability: Fixed effects regression models

Independent variables	Dependent variable = Net Operating Profit (NOP)				
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-0.090(0.397)	-0.364(0.000)***	-0.418(0.000)***	-0.186(0.050)**	-0.398(0.052)**
ACP	-0.001(0.013)**				-0.003(0.000)***
ICP		0.001(0.000)***			0.001(0.000)***
APP			0.002(0.000)***		0.002(0.000)***
CCC				-0.001(0.054)**	
CS	0.043(0.000)***	0.049(0.000)***	0.049(0.000)***	0.049(0.000)***	0.047(0.000)***
Lev	-0.241(0.036)**	-0.212(0.058)*	-0.271(0.014)***	-0.270(0.019)**	-0.124(0.000)***
FFAR	5.382(0.000)***	5.590(0.000)***	5.470(0.000)***	5.311(0.000)***	5.694(0.000)***
GDPGrow	0.002(0.808)	0.001(0.868)	0.001(0.950)	0.001(0.958)	-0.010(0.554)
Age	0.059(0.009)***	0.060(0.007)***	0.076(0.001)***	0.061(0.008)***	0.064(0.004)***
Adjusted R^2	52.40%	54.80%	56.10%	52.20%	60.10%
F-value	74.55***	81.93***	86.37***	73.81***	26.08***
Durbin watson	1.204	1.255	1.353	1.221	1.401
Firm years	468	468	468	468	468

The p-values are in the parentheses, with *, ** and ***Denoting significance at the 10, 5 and 1% levels, respectively. The results are obtained using the fixed effects estimation model. Source: 1993-2008 survey data, author's computation

The OLS-model includes all variables of the fixed effects model in addition to the dummy variables. The fixed effects model explains the variations in profitability within firms while the pooled OLS explain the variations in profitability between firms.

Consistent with Garcia-Teruel and Martinez-Solano (2007), this methodology presents important benefits. These include the fact that panel data methodology assumes that individuals, firms, states or countries are heterogeneous. Time-series and cross-section data studies not controlling for this heterogeneity run the risk of obtaining biased results. Furthermore, panel data give more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency (Baltagi, 2001). Estimating models from panel data requires the researchers first to determine whether there is a correlation between the unobservable heterogeneity of each firm and the explanatory variables of the model. If there is a correlation (fixed effects), it would be possible to obtain the consistent estimation by means of the within-group estimator.

In the first regression model, the ACP has been regressed against the NOP. In the second regression model, the ICP has been regressed against the NOP. The third regression model involves a regression of the APP against the NOP. In the fourth regression model, the CCC is regressed against the NOP. Finally, the three working capital measures (ACP, ICP and AP) have been regressed together against the NOP. The CCC was not included in the last regression model because its inclusion results to a high degree of multicollinearity among the working capital management variables as shown by the variance inflation factors (VIFs) (Montgomery *et al*., 2007).

Because a firm's working capital management practices are affected by the macroeconomic factors, the growth in the Gross Domestic Product (GDP) in its nominal terms has been included. Since, good economic conditions tend to be reflected in a firm's profitability, this variable controls for the evolution of the economic cycle (Garcia-Teruel and Martinez-Solano, 2007). The GDP also controls for the inflationary pressures that affect the key components of working capital management. It also controls for other economic changes in the macroeconomic environment. The firm size (CS), leverage (Lev), Fixed Financial Assets Ratio (FFAR), the variability in sales (Variability) and the natural logarithm of the firm years of existence (Age) have been incorporated to control for firm characteristics.

The agency theory suggests that managers may manage the working capital towards set targets hence deceiving the shareholders of the firm. Again, as Deloof (2003) posits,

developing countries have underdeveloped capital markets in the sense that information and agency problems are particularly pronounced. La Porta *et al.* (1997), who find that countries with poorer investor protection have smaller and narrower external capital markets, shows that a developing country has weak legal protection of corporate shareholders and creditors, making bank financing and trade credit more attractive. Fisman and Love (2003) argue that trade creditors mitigate weak creditor protection and imperfect information better than formal lenders and find that firms in countries with less developed financial markets use informal credit provided by their suppliers to finance growth.

Finally, the controls for industry, ownership and time effects (not reported) using indicator variables have also been incorporated in the regression models. Table 3 and 4 report the pooled OLS and fixed effects regression results of the overall relationship which exists between WCM and profitability. The analysis on this study is based on Table 3 since the results in this table are obtained using the pooled OLS model.

Relationship Between Accounts Collection Period (ACP) and Profitability

Consistent with Deloof (2003), Raheman and Nasr (2007), Shin and Soenen (1998) and Garcia-teruel and Martinez-Solano (2007), a negative relationship exists between the ACP and profitability ($p<0.01$). This result suggests that firms can improve their profitability by reducing the number of days accounts receivable are outstanding. The result can also be interpreted as the less the time it takes for customers to pay their bills, the more cash is available to replenish inventory hence the higher the sales realized leading to higher profitability of the firm. The negative coefficient on the ACP suggests that an increase in the number of days accounts receivable by 1 day is associated with a decline in profitability. Consistent with Lazaridis and Tryfonidis (2006), this finding implies that managers can improve profitability by reducing the credit period granted to their customers. This finding implies that a more restrictive credit policy giving customers less time to make their payments improves performance.

The coefficients on the other variables are significant. The model shows that the net operating profit increases with firm size (as measured by natural logarithm of sales) and this is highly significant at 1% level. The NOP increases with an increase in the variability of net operating profit ($p<0.01$). The NOP decreases with an increase in leverage ($p<0.05$). Consistent with Deloof (2003), net operating profit also increases with fixed financial assets ($p<0.01$). Again, net operating profit increases with an increase in a firm's age (as measured by the natural logarithm of years of existence) ($p<0.01$). The model's adjusted R^2 is 53% with an F-value of 22.08 which is highly significant ($p<0.01$). The Durbin Watson statistic is 1.213.

Relationship Between Inventory Conversion Period (ICP) and Profitability

In model 2, the coefficient on the inventory conversion period is positive and highly significant at 1%. This means that there exists a positive relationship between the ICP and profitability. This finding is consistent with studies carried out on conservative working capital policies. This means that maintaining high inventory levels reduces the cost of possible interruptions in the production process and the loss of business due to scarcity of products. Maintaining high levels of inventories also helps in reducing the cost of supplying the products and protects the firm against price fluctuations as a result of adverse macroeconomic factors as observed by Blinder and Maccini (1991). Most studies have not found the expected negative relationship between ICP and profitability to be significant (Lazaridis and Tryfonidis, 2006; Padachi, 2006). The other variables in model 2 are also

significant. The firm size is positively related to profitability and this is highly significant at 1%. The use of leverage is negatively related to firm's profitability ($p<0.10$). The fixed financial assets ratio is positively related to the firm's profitability and is highly significant at 1%. Both the variability of net operating profit and the age of the firm (as measured by the natural logarithm of sales) are positively related to the firm's profitability at 1%. The model's adjusted R^2 is 55.6% with an F-value of 24.43 which is highly significant ($p<0.01$). The Durbin Watson statistic is 1.256.

Relationship Between the Average Payment (APP) and Profitability

In model 3, the coefficient on the average payment period is positive and highly significant at 1%. This suggests that an increase in the number of days accounts payable by 1 day is associated with an increase in profitability. The positive relationship can be explained in two ways. First, contrary to Deloof (2003) and Raheman and Nasr (2007), this finding holds that more profitable firms wait longer to pay their bills. This implies that they withhold their payment to suppliers so as to take advantage of the cash available for their working capital needs. Second, this result makes economic sense in that the longer a firm delays its payments to its creditors, the higher the level of working capital levels it reserves and uses in order to increase profitability. This finding is in line with the working capital management rule that firms should strive to lag their payments to creditors as much as possible, taking care not to spoil their business relationships with them. The other variables in the model are significant with firm size being positively related to profitability ($p<0.01$). Consistent with the other models, an increase in the use of debt decreases profitability ($p<0.05$). The fixed financial assets ratio is positively related with profitability and this is highly significant at 1% level. The firm's profitability is positively related with both the variability of the net operating profit and the age of the firm at 1% level of significance. The model's adjusted R^2 is 56.8% with an F-value of 25.52 which is highly significant ($p<0.01$). The Durbin Watson statistic is 1.365.

Relationship Between the Cash Conversion Cycle (CCC) and Profitability

In model 4, there exists a negative relationship between the cash conversion cycle and profitability. This finding is significant at 10% level. This supports the notion that the cash conversion cycle is negatively related with profitability. Shin and Soenen (1998) argued that the negative relation between profits and the cash conversion cycle could be explained by the market power or the market share, i.e., a shorter CCC because of bargaining power by the suppliers and/or the customers as well as higher profitability due to market dominance. The negative relationship between the firm's CCC and profitability can also be explained by the fact that minimizing the investment in current assets can help in boosting profits. This ensures that liquid cash is not maintained in the business for too long and that it is use to generate profits for the firm. The other variables in the model are also statistically significant. The firm size is positively related to profitability and this is highly significant at 1%. The use of leverage is negatively related to firm's profitability ($p<0.05$). The fixed financial assets ratio is positively related with profitability and it is highly significant at 1%. Both the variability of net operating profit and the age of the firm are positively related to firm's profitability at 1%. The model's adjusted R^2 is 52.4% with an F-value of 21.56 which is highly significant ($p<0.01$). The Durbin Watson statistic is 1.220.

Model 5 acts as a control model for the variables under study. The model was run so as to provide an indicator as to the most significant variables affecting the study. The model shows that all the variables included are highly significant at 1% level with an exception of

leverage (significant at 10%) and GDP Growth rate which is not significant. In this model, the ACP and the leverage are negatively related with the firm's profitability while all the other variables exhibit a positive relationship. The model's adjusted R^2 is 59.7%% with an F-value of 26.64 which is highly significant ($p<0.01$). The Durbin Watson statistic is 1.383.

In this research, an examination of the relationship between working capital management and corporate profitability is carried out. While prior research documents that managers can create value for their shareholders by reducing the ACP and the ICP to a reasonable minimum (Deloof, 2003; Raheman and Nasr, 2007; Padachi, 2006; Garcia-Teruel and Martinez-Solano, 2007), this study holds that managers can actually create value for their shareholders by decreasing the ACP and increasing the ICP. This finding is consistent with prior research such as Blinder and Maccini (1991). Contrary to findings by Deloof (2003), the negative relationship between the accounts payable and profitability is consistent with the view that more profitable firms wait longer to pay their bills since they have a greater bargaining power with their suppliers.

CONCLUSION

Based on the key findings from this study, the following conclusions can be derived: The management of a firm can create value for their shareholders by reducing the number of days accounts receivable.

The management can also create value for their shareholders by increasing their inventories to a reasonable level. Firms can also take long to pay their creditors in as far as they do not strain their relationships with these creditors.

Firms are capable of gaining sustainable competitive advantage by means of effective and efficient utilization of the resources of the organization through a careful reduction of the cash conversion cycle to its minimum. In so doing, the profitability of the firms is expected to increase.

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