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Working Capital Management and Corporate Financial Performance: Evidence from Panel Data Analysis of Selected Quoted Tea Companies in Kenya

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Abstract
This study aimed to provide empirical evidence about the impact of Working Capital Management on corporate financial Performance of tea firms in Kenya for the period 2005 to 2012. The study utilized panel data econometrics of 6 tea firms which are listed on Nairobi Securities Exchange. The results indicate that the cash conversion cycle, net trade cycle and inventory turnover in days are significantly affecting the financial performance of the firms. The tea firms are in general facing problems with their collection and payment policies. Similarly, the financial leverage, sales growth and firm size also have significant effect on the firm's profitability. The study also concludes that tea firms in Kenya are following conservative working capital management policy and the firms are needed to concentrate and improve their collection and payment policy. The effective policies must be formulated for the individual components of working capital. In addition, efficient Management and financing of working capital (current assets and current liabilities) can increase the operating profitability of tea firms. For efficient working capital management, specialized persons in the fields of finance should be hired by the firms for expert advice on working capital management in the tea firms.
Keywords: Working Capital Management, Cash Conversion Cycle, Net Trade Cycle, Average Collection Period, Average Payment Period, Tea sector, Fixed Effect Model.

1. Introduction

Tea is one of the leading cash crops in Kenya and makes significant contribution to the economy. In the year 2010, Kenya produced 399 metric tons of black tea. Over 95% of the tea was exported mainly in bulk earning over Ksh. 97 billion in foreign exchange. This represents about 26% of the total export earnings, and about 4% of Kenya's GDP (Government of Kenya, 2005-12). An estimated 4million Kenyans (about 10% of the total population) derive their livelihoods from the tea industry. Kenya is ranked third in annual tea production after China and India. The tea produced in Kenya accounts for about 10% of the world production and about 22% of the export share. As an important sector in the overall economic growth, tea industry requires in-depth analysis at the industry as well as firm.

Working capital is a financial metric which represents operating liquidity available to a business, organization or other entity, including governmental entity (Beaumont and Begemann, 1997). If a company's current assets do not exceed its current liabilities, then it may run into trouble paying back creditors in the short term. The worst-case scenario is bankruptcy. A declining working capital ratio over a longer time period could also be a red flag that warrants further analysis(Emercy, 1984).Working capital management efficiency is vital especially for tea firms, where a major part of assets is composed of current assets (Horne and Wachowitz,2000). It directly affects the profitability and liquidity of firms (Raheman and Nasr, 2007). The profitability liquidity trade-off is important because if working capital management is not given due considerations then the firms are likely to fail and face bankruptcy (Kargar and Bluementhal, 1994). The significance of working capital management efficiency is irrefutable (Filbeck and Krueger, 2005). Working capital is known as life giving force for any economic unit and its management is considered among the most important function of corporate management. Every organization whether, profit oriented or not, irrespective of size and nature of business, requires necessary amount of working capital. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004). Working capital management is one of the most important areas while making the liquidity and profitability comparisons among firms (Eljelly, 2004), involving the decision of the amount and composition of current assets and the financing of these assets. The greater the relative proportion of liquid assets, the lesser the risk of running out of cash, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play a vital role in the performance of any firm. Shin and Soenen, (1998) argued that

efficient working capital management is very important to create value for the shareholders, while Smith et. al., (1997) emphasized that profitability and liquidity are the salient goals of working capital management.

Considering the importance of working capital management the researchers focused on evaluating the working capital management and profitability relationship such as Uyar, 2009;Samiloglu and Demirgunes, 2008; Vishnani and Shah, 2007; Teruel and Solano, 2007; Lazaridis & Tryfonidis, 2006; Padachi, 2006; Shin and Soenen, 1998; Smith et al., 1997 and Jose et al., 1996among others. However, there are a few studies with reference to Kenya like Gature and Cheluget 2012; Onyango and Keraro 2010, Mathura 2010 and Mung'atu 2010. Gature and Cheluget (2012) focused only on the working capital management and profitability of manufacturing firm listed in NSE. Other two studies focused on the relationship between profitability and working capital management in Kenya. Gature and Cheluget (2012) concentrated on the manufacturing firms and estimated the relationship using small sample of 18 Companies. Mathura (2010) analyzed profitability and working capital management performance of only 30 firms listed on Nairobi securities Exchange for the period 1993-2008 only by using Ordinary Least Square and Generalized Least Square. However this study ignored the fixed effect of each firm as each firm has its unique characteristics and also ignored sector wise analysis of working capital management performance of tea firms. Insufficient evidences on the corporate financial performance and working capital management with reference to tea sector in Kenya provide a strong motivation for evaluating the relationship between working capital management and firm's financial performance in detail in reverence to listed tea companies.

Therefore the current study focused on evaluating the impact of working capital management and the financial performance, in terms of profitability, of Kenya's tea firms listed on NSE and to identify important variables that are influencing working capital management efficiency. Moreover the objective is also to see the investment and financing policies of working capital for the tea firms. This study has included a sample of 6 tea firms listed on Nairobi Securities Exchange for the period 2005 to 2012.

2. Literature Review

The relationship of Cash Conversion Cycle with firm size and profitability for firms listed at Dutch Stock Exchange was studied by Shaskia (2012) using ANOVA and correlation analysis. The results showed retail/wholesale industry has shorter Cash Conversion Cycle (CCC) than Tea firms industries. Furthermore, study found significant negative correlation between CCC and profitability as well as between CCC and firm size. Lazaridis and Tryfonidis (2006) investigated the relationship of corporate profitability and working capital management for firms listed at Athens Stock Exchange. They reported that there is statistically significant relationship between profitability measured by gross operating profit and the Cash Conversion Cycle. Furthermore, Managers can create profit by correctly handling the individual components of working capital to an optimal level. Padachi (2006) has examined the trends in working capital management and its impact on corporate financial performance for 58Mauritian small tea firms during 1998 to 2003. He explained that a well designed and implemented working capital management is expected to contribute positively to the creation of firm's value. The results indicated that high investment in inventories and receivables is associated with low profitability and also showed an increasing trend in the short term component of working capital financing.

Most of the empirical studies support the traditional belief about working capital and profitability that reducing working capital investment would positively affect the profitability of firm (aggressive policy) by reducing proportion of current assets in total assets. Deloof (2003) analyzed a sample of Belgian firms, and Wang (2002) analyzed a sample of Japanese and Taiwanese firms, emphasized that the way the working capital is managed has a significant impact on the profitability of firms and increase in profitability by reducing number of day's accounts receivable and reducing inventories. A shorter Cash Conversion Cycle and net trade cycle is related to better performance of the firms. Furthermore, efficient working capital management is very important to create value for the shareholders. Shin Soenen (1998) analyzed a sample of US firms also reported similar findings but have used Net Trading Cycle (NTC) as comprehensive measure of working capital management and found significant negative relationship between NTC and profitability. However, this relationship was not found to be very significant when the analysis was for specific industry (Soenen, 1993). Jose, et al.(1996) performed an industry wise analysis and measured the ongoing liquidity by Cash Conversion Cycle. Controlling industry and size differences they have concluded that more aggressive liquidity management is associated with higher profitability for several industries.

However, divergent to traditional belief, more investment in working capital (conservative policy) might also increase profitability. When high inventory is maintained, it reduces the cost of interruptions in the production

process, decrease in supply cost, protection against price fluctuation and loss of business due to scarcity of products (Blinder and Maccini, 1991). Czyzewski and Hicks (1992) also concluded that firms with the highest return on assets hold higher cash balances but they did not consider liquidity management beyond static cash and assets ratio.

There are few studies with reference to working capital management in Kenya like Gature and Cheluget, (2012), who studied the factors determining the working capital requirements for a sample of 18 manufacturing firms during 2006 to 2010. Another study by Mathura (2010), investigated the relationship between aggressive and conservative working capital policies for a large sample of 30 firms listed on Nairobi securities Exchange during 1993 to 2008. They found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. Onyango and Keraro, (2010) studied the relationship between working capital management and corporate profitability for 94 firms listed on Nairobi securities Exchange using static measure of liquidity and ongoing operating measure of working capital management during 1999-2004. The findings of study suggested that there exist a negative relation between working capital management measures and profitability. Gature and Cheluget, (2012) used a sample of 18 of manufacturing firms to investigate this relationship for period 2006-2010.The results suggested that managers can generate positive return for the shareholders by effectively managing working capital.

Lack of empirical evidence on the working capital management and its impact on the firm performance in case of tea firms in Kenya is main motivating force to study the subject in more detail. Existing literature with reference to Kenya on the comparison of different working capital measures on sectoral basis lacks the empirical evidence and regression analysis is undertaken for other sectors like manufacturing and service sector a with reference to Kenya and non has been done on tea firms. Therefore, the present study is an attempt to fill this gap and estimates the relationship between working capital management and firm financial performance for tea firms listed on Nairobi Securities Exchange during 2005 to 2012.

3. Methodology

The impact of working capital management on corporate financial performance of tea firms is tested by panel data methodology. The panel data methodology used has certain benefits like using the assumption that firms are heterogeneous, more variability, less colinearity between variables, more informative data, more degree of freedom and more efficiency (Baltagi, 2001).

4. Model Specification

In order to find out the relationship between different variables, first Pearson Correlation Coefficients are calculated. The impact of working capital management on firm's financial performance is then investigated using balanced panel data of tea firms listed at Nairobi Securities Exchange. For this purpose, we develop an empirical framework first used by Deloof (2003) and subsequent work of Padachi (2006). We specify our model as:

$$NOP_{it} = \beta_0 + \beta_1 (WCM\ it) + \beta_2 (GWCTR_{it}) + \beta_3 (CATAR_{it}) + \beta_4 (CLTAR_{it}) + \beta_5 (FDR_{it}) + \beta_6 (LOS_{it}) + \beta_7 (SG_{it}) + \beta_8 (CR_{it}) + \eta_i + \lambda_t + \varepsilon_{it}$$

Where, Net Operating Profitability (NOP) is used as a measure of company's financial performance. WCM is Working Capital Management, which is a key variable of the study used as a vector of Average Collection Period (ACP), Inventory Turnover in Days (ITID), Average Payment Period (APP), Cash Conversion Cycle (CCC) and Net Trading Cycle (NTC) of the firm. It is expected that WCM has negative relationship with the corporate profitability. If we reduce number of days in receivables (ACP), inventory (ITID), Cash Conversion Cycle (CCC) and Net Trade Cycle (NTC), it will enhance the corporate profitability. Furthermore, Average Payment Period is directly associated with profitability. Other explanatory variables typically assumed to affect firm performance are GWCTR is the Gross Working Capital Turnover Ratio which is expected to have positive relationship with profitability, CATAR is the Current Assets to Total Assets Ratio and CLTAR is the Current Liabilities to Total Assets Ratio are used to check the investing and financing policy of working capital management respectively. Financial Debt Ratio (FDR) representing leverage is expected to have negative relationship and natural logarithm of sales (LOS) representing size has positive relationship with corporate profitability. SG is sales growth which represents the investment growth opportunities while CR is Current Ratio to measure liquidity of firm. η_i measures the specific characteristics of each firm called unobservable

heterogeneity, whereas λ_t is a parameter for time dummy variables which is equal for all firms in each year but changes over time and ε is the error term.

A classical test for the panel data is one of Random effect model versus fixed effect model (Yafee, 2003). For estimating the models, first we need to determine whether there exists a correlation between the independent variables. If the correlation exists then a fixed effect model will give consistent results otherwise random effect model will be an efficient estimators and it is estimated by generalized least square (Teruel and Solano, 2007). Fixed effects are computed by subtracting the "within" mean from each variable and estimating Panel Least Square using the transformed data. Infixed effect model, it assumes firm specific intercepts and capture effects of those variables which are specific to each firm and constant over time. In random effect model it is assumed that there is a single common intercept and it varies from firm to firm in a random manner. To determine which of these two models is appropriate, coefficients are estimated by both fixed and random effects. We have used Hausman (1978) test to determine whether fixed or random effect should be used. If the null hypothesis i.e. $\mathbf{E}(\eta_i / X_{it}) = 0$is accepted, then random effect will be an efficient estimator otherwise incase of rejection of null hypothesis, fixed effect estimation will give better or efficient estimation of betas. Hausman test rejects the null hypothesis, therefore decision is taken to use fixed effect model. We have used EVIEWS to estimate the above models.

5. Data and Variables

In the present study, there include 6tea firms listed on Nairobi securities Exchange. These firms include Kakuzi Limited, Kapchorua Tea Company Limited, Limuru Tea Company Limited, Sasini Tea Limited, and Williamson Tea Kenya Limited. The firms included in the study qualify the criteria that they remained listed on the Nairobi securities Exchange during 2005 to 2012, and also performed operations during this time period and submitted annual reports to NSE. Data are extracted from the annual reports of these firms. The formula and abbreviations used for measurement of all the variables are presented in the following table:

Table 1: Measurement of Variables and Abbreviation

Variable	Measurement	Abbreviation
Net Operating Profitability	*(Earnings before Interest and Tax + Depreciation) / Total Assets*	NOP
Average Collection Period	*Accounts Receivable / Net Sales*365*	ACP
Inventory Turnover in Days	*Inventory / Cost of Goods Sold*365*	ITID
Average Payment Period	*Accounts Payable / Purchases*365*	APP
Cash Conversion Cycle	*ACP +ITID – APP*	CCC
Net Trading Cycle	*ACP+ (Inventory / Net Sales*365) - (Accounts Payables /Purchases*365)*	NTC
Gross Working Capital Turnover Ratio	*Net sales / Current Asset*	GWCTR
Current Assets to Total Assets Ratio	*Current assets to Total assets*	CATAR
Current Liabilities to Total Assets Ratio	*Current Liabilities / Total assets*	CLTAR
Financial Debt Ratio	*Total Financial Debt / Total Assets*	FDR
Size of firm using Log of Sales	*Natural Logarithm of Sales*	LOS
Sales Growth	*(Current year N. sales-Last year N. Sales) / Last year's N.Sales*	SG
Current Ratio	*Current Assets / Current Liabilities*	CR

6. Empirical Analysis

The results for different measures of working capital management and corporate financial performance including average collection period, inventory turnover in days, average payment period, Cash Conversion Cycle, Net Trading Cycle and other explanatory variables for Tea firms are presented in the following section. First, the descriptive analysis is presented followed by the Pearson's correlation analysis to see the association between Net Operating Profitability and all independent variables. Panel data analysis using fixed effect model is also used in order to see the impact of working capital management on corporate financial performance of overall tea firms.

6.1 Descriptive Statistics

The mean, median, minimum and maximum values with standard deviation of different variables in the model during the period 2005 to 2012 are presented in the Table 2. Tea firms on average have 52 days of Cash Conversion Cycle and 78 days of Net Trade Cycle with standard deviation of 141and 101 days respectively. The

firms have an Average Collection Period of 39 days, Inventory Turnover in Days of78 days and Average Payment Period of 64 days. The sample firms have on average about 50% of the total assets in current form and sales growth of almost 17% annually while on average 62% of the assets are financed with debt. The performance measure used in the analysis is Net Operating Profitability of the firms, which is on average 14% with a standard deviation of 0.12.The median values for almost all the variables are near to mean values except average collection and average payment periods.

Table 2: Descriptive Statistics of Variables for tea sector

Variables	Mean	Std. Dev	Median	Minimum	Maximum
ACP(in days)	39	58	20	0	730
APP(in days)	64	103	28	0	960
ITID(in days)	78	78	60	0	947
CCC(in days)	52	141	57	-348	910
NTC(in days)	78	101	61	-666	1048
CATAR(ratio)	0.48	0.22	0.46	0.00	1.00
CLTAR(ratio)	0.45	0.26	0.42	0.01	3.34
CR(ratio)	1.35	1.27	1.08	.04	20.16
FDR(ratio)	0.62	0.38	0.58	.02	5.80
GWCTR(ratio)	2.92	2.02	2.37	.03	22.02
LOS(ln)	20.82	1.57	20.64	13.13	26.58
SG	0.14	0.74	0.08	-0.98	16.35
NOP	0.17	0.12	0.13	-.20	1.50

The sample firms has its own characteristics and policies, therefore, on overall, tea firms has relatively high standard deviation for almost all the variables.

6.2 Correlation Analysis

Correlation matrix of all variables included in the analysis is presented in Table 3 which is calculated based on data of 6 firms with 60 firm's year observations. The table shows that Operating Profitability is negatively associated with measures of working capital management (Average Collection Period, inventory turnover in days, Average Payment Period, Cash Conversion Cycle and Net Trade Cycle). The correlation coefficients for all measures of working capital management are significant except for Cash Conversion Cycle. These results are consistent with the view that making payment to suppliers, collecting payments form customers earlier and keeping product or inventory in the stock for lesser time are associated with increase in profitability. A negative relation between Average Payment Period and Net Operating Profitability suggest that less profitable firms wait longer to pay their accounts payables. These three variables jointly form Cash Conversion Cycle and there exists negative relationship between CCC and operating profitability but it is not significant. It might not be a surprise because all the three components of CCC has negative association with the profitability and Average Payment Period is subtracted from sum of ACP and ITID to form Cash Conversion Cycle. Similar result was found for study conducted by Deloof (2003) for Belgian firms. Another measure of working capital management is the Net Trade Cycle which has also a significant negative relationship with profitability. It implies that if a firm is able to reduce the Net Trade Cycle period, it can enhance the profitability for the firm and will ultimately create value for the shareholders.

Table 3: Pearson Correlation coefficients between Variables of 6 firms (60 observations)

		NOP	ACP	ITID	APP	CCC	NTC	CATAR	CLTAR	GWCTR	FDR	LOS	CR	SG
NOP	Pearson Correlation Sig. (2-tailed)	1												
ACP	Pearson Correlation Sig. (2-tailed)	-.128** .000	1											
ITID	Pearson Correlation Sig. (2-tailed)	-.148** .000	.068** .002	1										
APP	Pearson Correlation Sig. (2-tailed)	-.248** .000	.232** .000	.144** .000	1									
CCC	Pearson Correlation Sig. (2-tailed)	-.012 .602	.599** .000	.631** .000	-.655** .000	1								
NTC	Pearson Correlation Sig. (2-tailed)	-.125** .000	.533** .000	.689** .000	-.135** .000	.729** .000	1							
CATAR	Pearson Correlation Sig. (2-tailed)	-.217** .000	.240** .000	.265** .000	-.017 .447	.071** .001	.295** .000	1						
CLTAR	Pearson Correlation Sig. (2-tailed)	-.194** .000	.020 .356	.061** .006	.261** .000	-.084** .000	-.030 .176	.247** .000	1					
GWCTR	Pearson Correlation Sig. (2-tailed)	.135** .000	-.378** .000	-.446** .000	-.143** .000	-057** .010	-.475** .000	-.400** .000	.094** .000	1				
FDR	Pearson Correlation Sig. (2-tailed)	-.334** .000	-.030 .183	-.022 .317	.297** .000	-.134** .000	-.133** .000	-.144** .000	.712** .000	.227** .000	1			
LOS	Pearson Correlation Sig. (2-tailed)	.312** .000	-.167** .000	-.215** .000	-.109** .000	-.018 .427	-.259** .000	.169** .000	-.003 .880	.098** .000	-.134** .000	1		
CR	Pearson Correlation Sig. (2-tailed)	.119** .000	.146** .000	.046* .039	-.140** .000	.017 .440	.170** .000	.308** .000	-.371** .000	-.260** .000	-.390** .000	-.067** .002	1	
SG	Pearson Correlation Sig. (2-tailed)	.073** .001	-.020 .373	-.022 .315	.023 .298	-.016 .472	-.058** .008	.014 .519	.040 .069	.043 .054	.064** .004	.052* .019	-.030 .181	1

**.Correlation is significant at the 0.01 level of confidence (2-tailed).
*. Correlation is significant at the 0.05 level of confidence (2-tailed).

Data reflects high correlations between different measures of working capital management. The correlation between Net Trade Cycle (NTC) and Cash Conversion Cycle (CCC) is (0.729), NTC and ITID is (0.689), CCC and APP is (-0.655), CCC and ITID is (0.631), CCC and ACP (0.599) and (0.533) between NTC and ACP. This has been taken into account in the regression analysis to avoid multi-linearity problem.

The correlation coefficient between leverage i.e. financial debt ratio and net operating profitability has a significant negative relationship which implies that increase in debt utilization by the firms will reduce profitability. Similarly, the current liabilities to total assets ratio has a negative relationship with the operating profitability of the firm. The size of the firm, measured in terms of natural logarithm of sales, has a positive relation with the profitability of the firm. It implies that the size is associated with increase in the performance of firm. Similarly sales growth is also associated with increase in the profitability of the firm because increase in sales is associated with increase in profits. One of the relationships between Current Ratio and Net Operating Profitability is contradictory to the traditional belief which shows a positive association between Current Ratio and profitability.

6.3 Empirical Models

Impact of working capital management on corporate financial performance for the tea firms is also estimated using panel data analysis. A classical test for the panel data is one of random effect model versus fixed effect model. In random effect model, it is assumed that there is a single common intercept and it varies from firm to firm in a random manner. In fixed effect model, it assumes firm specific intercepts and capture effects of those variables which are specific to each firm and constant over time. Regression coefficients were estimated by both fixed and random effects to determine which of these two models is appropriate. Using Hausman test, decision is taken to use fixed effect model.

Referring to model 3.1, where WCM is used as a vector of ACP, ITID, APP, CCC and NTC, estimated results of panel data using fixed effect model for 6 firms (60 observations) are presented in following Table 4.

Table 4: Impact of Working Capital Management on Corporate Performance of Tea firms (2005 to 2012)

Dependent Variable :	**Net Operating Profitability**				
Regression Model	**Fixed Effect model**				
Models	**1**	**2**	**3**	**4**	**5**
	ACP	**ITID**	**APP**	**CCC**	**NTC**
Constant	-0.30114	-0.18819	-0.3158	-0.30268	-0.33548
	(0.0001)	(0.0142)	(0.0000)	(0.0001)	(0.0000)
LOS	0.014842	0.01113	0.015358	0.015187	0.015473
	(0.0001)	(0.0027)	(0.0000)	(0.0000)	(0.0000)
FDR	-0.06347	-0.05756	-0.06398	-0.06255	-0.06472
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CATAR	0.242844	0.237686	0.247927	0.245561	0.261272
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CATAR	0.242844	0.237686	0.247927	0.245561	0.261272
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CLTAR	-0.0361	0.014363	-0.0384	-0.04238	-0.0353
	(0.0132)	(0.0097)	(0.0089)	(0.0034)	(0.0128)
GWCTR	0.022071	0.017916	0.022395	0.020915	0.016352
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
SG	0.009116	0.008472	0.009043	0.008726	0.0023
	(0.0005)	(0.0011)	(0.0006)	(0.0008)	(0.3591)
CR	0.001591	0.002136	0.001554	0.001965	0.0023
	(0.5361)	(0.4003)	(0.5455)	(0.441)	(0.3591)
ACP	0.000017	-	-	-	-
	(0.8153)	-	-	-	-
ITID	-	-0.00031	-	-	-
	-	(0.0000)	-	-	-
APP	-	-	0.000079	-	-
	-	-	(0.2267)	-	-
CCC	-	-	-	-0.00018	-
	-	-	-	(0.0000)	-
NTC	-	-	-	-	-0.00016
	-	-	-	-	(0.0000)
R-Square	0.598506	0.608596	0.598815	0.605206	0.610428
Adjusted R-Square	0.552163	0.563417	0.552508	0.559637	0.565461
F-statistics	12.91467	13.47092	12.93129	13.28089	13.57504
Prob(F-statistic)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Hausman Test	(0.0065)	(0.0014)	(0.0003)	(0.0000)	(0.0083)

The *P-values* are shown in parentheses.

In models 1 to 3, individual components of Cash Conversion Cycle are included with other variables. These individual components are Average Collection Period (ACP), Inventory Turnover in Days (ITID) and Average Payment Period (APP), while other variables include gross working capital turnover ratio (GWCTR), current assets to total assets ratio (CATAR), current liabilities to total assets ratio (CLTAR), financial debt ratio (FDR), and natural logarithm of sales (LOS), sales growth (SG) and Current Ratio (CR).

In ACP model, Net Operating Profitability is regressed on the Average Collection Period as a measure of collection policy. The coefficient of Average Collection Period is negative but insignificant by using firm specific intercept in fixed effect model. The coefficients of other variables included in the model are highly significant except for Current Ratio (CR). The gross working capital turnover ratio has significant positive impact on Net Operating Profitability which implies that as a firm is able to increase the working capital turnover, it will enhance the profits of the firm as well. To check the working capital investment policy and financing policy, two variables as current assets to total assets ratio and current liabilities to total assets ratio are also included in the regression. The first variable current assets to total assets show a significant positive relationship with the profitability which show that firms in general following the conservative policy of working capital management. On the other side current liabilities to total assets ratio is also showing a significant negative relationship with profitability. It implies that the firms in the Tea firms in general follow the conservative policy of financing working capital which implies that it would be better for firms if they finance the working capital by medium term loans rather than short term loan. It will enhance their profitability. Financial debt ratio is negatively associated with Net Operating Profitability which means increase in the financial leverage leads to decrease in the operating profitability of firm. The result is highly significant. This finding is in support of Myers and Majlof (1984), Rajan and Zingales (1995), shin and Soenen (1998) and

Deloof (2003) who predicted a negative relationship between leverage and profitability. The natural logarithm of sales is used for size in the regression model as this log transformation reduces the hetroskedasticity and influences of outliers in the regression model. Size is positively related to profitability and is significant which implies that larger size seems to favor the Generation of profitability therefore larger firms are more profitable. Sales growth is also included in the model to see the impact of growth on the performance. It indicates a firm's business opportunities. This variable is also significantly affecting the performance of firm in a positive way. The growth in sales of firms increases the performance of firms. Shin and Soenen (1998) and Deloof (2003) also concluded that sales growth had a positive relation to changes in accounting measure of profitability. The Current Ratio which is a theoretical measure of liquidity has no significant impact on profitability in case of Kenya's tea firms.

In ITID model, we have same set of independent variables as in ACP model, except for substitution of Average Collection Period (ACP) with Inventory Turnover in Days (ITID). ITID has significant negative impact on Net Operating Profitability (*P-value* = 0.0000). This implies that profitability can be improved by reducing the Inventory Turnover in Days or by keeping inventory for lesser time can improve profitability of firm. Most of the studies found a significant negative impact of Inventory Turnover in Days on the profitability of firms.

In APP model, Inventory Turnover in Days (ITID) is replaced with Average Payment Period (APP). The coefficient of Average Payment Period is positive which implies that lengthening the payment period increase the profitability. This result is not significant but positive sign does make economic sense because longer a firm takes time to make payments to credit suppliers, the higher level of working capital it reserves and use to improve profitability.

In CCC model, Cash Conversion Cycle is included with other variables. This model provides a strong evidence of negative relationship between Cash Conversion Cycle (a comprehensive measure of working capital management) and corporate profitability where the coefficient is negative and highly significant. It is consistent with the view that decreasing the Cash Conversion Cycle will generate more profits for the company. It also implies that firms can create value for their shareholders by keeping the Cash Conversion Cycle to minimum.

In NTC model, another comprehensive measure of the working capital management which is Net Trade Cycle is used as included by Shin and Soenen, (1998). We have included Net Trading Cycle instead of Cash Conversion Cycle in this model, while all other variables are same as in the previous models. The results of this model provide a strong evidence of negative relationship between Net Trade Cycle and profitability of firms as the coefficient of NTC is negative and highly significant. It implies that a firm with relatively shorter NTC is more profitable. Further, by reducing NTC to increase the efficiency of working capital management results in increased operating income. Therefore, it can be said that by reducing NTC firm can create additional value for the shareholders. All other variables have similar type of results as in the previous equations.

The results of all regressions models suggest that managers can increase the Net Operating Profitability by increasing the gross working capital turnover ratio, current assets to total assets ratio, sales growth and size of the firm. On the other side it decreases with increase in inventory turnover in days, Cash Conversion Cycle, Net Trading Cycle, current liabilities to total assets and financial debt ratio. The adjusted R-Square is between 55 to 57% in all five fixed effect model and F-statistics is significant. In the fixed effect model using firm specific intercept improves the explanatory Power of the models.

We have also estimated these models using ordinary least square method (OLS). The results of these models using OLS can be seen in Appendix-I. The major difference between Using fixed effect model and ordinary least square method is for the Average Collection Period and Average Payment Period. The coefficient of ACP which was negative and significant in OLS at 0.01 levels loses its significance in case of fixed effect model. This implies that while using fixed effect model, the firms are not efficient in their collection policy. In order to improve their collection policy, firms must concentrate on improving their Average Collection Period. The coefficient for Inventory Turnover in Days is still significant with negative sign which implies that firms are improving their profitability by reducing the inventory turnover in days. The result for the Average Payment Period or payment policy not only loses its significance but also changed the sign of coefficient by using fixed effect model. The coefficient of APP which was negative and significant in OLS at 0.01 level is positive but not significant. This might be possible because there are number of firms from different firms. The differences in the nature of firms might cause this change in sign and significance in Average Payment Period.

The above analysis includes firms from all tea firms. It is known that significant sectoral effect exists on a firm's working capital investment. Hawawiniet.et. al. (1986) explained that industry/firms benchmarks exist in industry groups, which needs to be kept in mind while setting working capital investment policy.

7. Conclusion

The contribution of tea industry, one largest sectors of the economy of Kenya, plays a significant role in the economic growth of Kenya. In this perspective, the main objectives of the study is to empirically analyze the impact of working capital management on financial performance of tea firms listed at Nairobi Securities Exchange using panel data. Furthermore, the objective is also to find out the degree of aggressiveness in investment and financing policies of working capital for tea firms.

The results shows that for overall tea sector, Working Capital Management has a significant impact on financial performance of the firms and plays a key role in value creation for shareholders as longer Cash Conversion Cycle and Net Trade Cycle have negative impact on Net Operating Profitability of a firm. The Cash Conversion Cycle and Net Trade Cycle offer easy and useful way to check working capital management efficiency. For value creation of shareholders, firms must try to keep these numbers of days to minimum level. The negative association of Average Collection Period with Net Operating Profitability has not been validated using fixed effect model. This shows problems with the collection policy in general for the firms in tea sector. There exists negative association between Inventory Turnover in Days and Net Operating Profitability for the tea firms as a whole, which implies that keeping lesser inventories will increase profitability. Similar to Average Collection Period, the positive association of Average Payment Period with Net Operating Profitability is not proven in case of fixed effect model for the Tea firms in general which also shows the problems with the payment policy of firm.

The Gross Working Capital Turnover Ratio and Current Assets to Total Assets also has the significant positive impact on profitability. The Current Assets to Total Assets Ratio shows that firms in general have lower degree of aggressiveness in working capital investment policy and Net Operating Profitability. The negative sign of Current Liabilities to Total Assets Ratio indicates lower degree of aggressiveness in working capital financing policy and Net Operating Profitability. Leverage is negatively associated with Profitability which implies that increase in debt financing; adversely affect the performance of a firm measured by profitability. Regarding the size and profitability, increase in size (measured in terms of natural logarithm of sales), leads to an increase in the profitability of the firm. Sales Growth has positive association with profitability since growth, as an indicator of firm's business opportunities, is a very important factor which allows firm to enjoy more profits. Theoretically, it is found that there exist a negative relationship between liquidity and profitability of the firms; therefore, the measures of liquidity, Current Ratio should have negative association with the profitability. However, empirical researches have found both positive and negative association between current ratio and profitability. Similarly, in our research negative relationship is not proven between current ratio and net operating profitability. Furthermore, we also found that CCC and NTC measures the liquidity different form conventional Current Ratio.

Several policy implications can be drawn from the above findings of the study which include that working capital management should be the concern of all the Tea firms and need to be given due importance. The collection and payment policies of the firms in tea firms, in general, need to be thoroughly reviewed. It is generally argued that firms need to accelerate their cash collections and slowdown their payments. This can only be possible with some professional advice and supervision. The findings indicate that firm managers/executives can enhance performance of the firms by reducing the number of days in inventories, Cash Conversion Cycle and Net Trade Cycle to a reasonable minimum. This is only possible if the components of Cash Conversion Cycle and Net Trade Cycle (ACP, ITID and APP) may be dealt individually and an optimal / effective policy is formulated for these components. Furthermore, efficient Management and financing of working capital (current assets and current liabilities) can increase the operating profitability of tea firms. For efficient working capital management, specialized persons in the fields of finance should be hired by the firms for expert advice in the tea firms because there are number of firms where there is only one department and one person who is looking after all financial activities of firms including handling of accounts etc.

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