EFFECTS OF CASH CONVERSION CYCLE ON PROFITABILITY OF TEA FACTORIES IN MERU COUNTY, KENYA

Harrison Mwangi Muturi

School of Business and Economics, Department of Accounting and Finance

Meru University of Science and Technology, Kenya

hmwangi2012@gmail.com

Abstract

The purpose of this study was to investigate the effect of cash conversion cycle (CCC) on profitability of unlisted tea companies of Meru County in Kenya. Census method was used to collect primary data from all the seven tea factories in the county for a period of five years starting from 2009 to 2013. The correlation and regression analyses were used to analyze and describe the nature of the relationship between (CCC) and the firm's profitability. A lot of literature has pointed out that efficient management of cash has significantly influenced the firm's profitability. This study found out that the CCC significantly negatively affects the tea firm's profitability. There is need therefore for the finance managers to shorten the net cash conversion cycle to improve profitability.

Keywords: Cash Conversion Cycle, Profitability, Working Capital Management, Effects

INTRODUCTION

Most studies in corporate finance have been traditionally focusing on the long term decision making like dividend policy and valuation, capital structure, long term asset mix among others (Garcia & Martinez, 2003 and Filipa, 2011). But the recent global financial crisis has forced many companies to turn to their working capital in search of liquidity (Melita et al, 2010). This shift of focus to liquidity has attracted many researchers to the field of working capital management (WCM). A liquid company has adequate cash to discharge its short term financial obligations. In addition, a more liquid firm has the ability to quickly invest in profitable opportunities to maximize the shareholders' wealth (Deloof, 2003). The term working capital is used to refer to the money needed to finance daily operational activities in the business such as

for paying rent and rates, wages and salaries, purchasing raw materials, or for meeting any other day-to-day expenditure. Efficiency of working capital management as measured by the net working capital is taken to be the excess of current assets over current liabilities (Huynh, 2011).

Smith (1980), efficient working capital management is important and key to the success of a firm because of its effects on the firm's risk and profitability. However maintaining high stock levels reduces the risk of possible interruptions in the manufacturing process or loss of business due to the scarcity of goods for sale, reduces ordering costs and cautions against inflation or price changes. On the other hand, extending trade credit to customers increases the firm's sales as trade credit acts as price cut as well as incentives to customers to buy goods when the demand is low. It also allows customers to test and confirm the quality of the goods before paying for them and helps the firm to solidify long term relationship with its customers.

Tharshiga (2013) noted that working capital management is a critical element of corporate finance because of its direct effects on both the liquidity and profitability of the company. There are two dimensions of working capital; the gross working capital which is the firm's investment in current assets and net working capital which refers to the difference between current assets and current liabilities (Pandey, 2011). Working capital management is a key strategic aspect of a firm because of a number of reasons. For instance, the investment in current assets of a typical manufacturing firm is very significant. (Raheman et al 2007, Marco 2014 and Sadia et al 2013) elucidate that the cash conversion cycle is the most important aspect of working capital. The cash conversion cycle (CCC) is the net time interval between cash correction from trade debtors and cash payments for raw materials procured by a manufacturing firm (Pandey, 2011).

Marco, (2014) notes that, cash conversion cycle is a very effective tool for determining the efficiency of working capital management of a manufacturing firm. The cash conversion cycle reveals the firms efficiency in converting inventories in to sales, collecting cash from debtors and paying the trade creditors. The researcher found that the cash conversion cycle does not have statistically significant relationship with profitability. His finding is supported by Senthilmani (2013) who found insignificant effects of (CCC) on profitability. According to this finding, it is therefore not necessary for the cash conversion cycle to be always short. However, some researchers like Azhagaiah & Muralidharan (2005), Gamze et al (2010), Jayarathne (2014), Lazaridis & Tryfonidis (2004) Garcia & Martinez (2004), Julius et al, (2013), Huynh (2010), Raheman et al (2007) and Rehn (2012) among others have found a negative association between CCC and the profitability. This finding contradicts that found by Akoto (2013), Ani et al (2013), Gill, Biger & Neil (2010). All these researchers found a positive relationship between cash conversion cycle and profitability.

Statement of the Problem

It is evident from the above studies that the researchers have not found a clear cut direction of the relationship between the cash conversion cycle and the firm's profitability. The researchers have found conflicting findings. Further, there is no research conducted in Kenya on the effects of cash conversion cycle on unlisted tea companies. Replication of findings from related studies undertaken outside this sector may be impossible because their findings differ significantly. The researcher therefore undertook this maiden research to investigate the effects of cash conversion cycle on the profitability of unlisted tea companies in Meru County.

Objective of the Study

To determine the effect of net cash conversion cycle on the profitability of tea factories.

Study Hypothesis

Ho: There is no significant effect of the net cash conversion cycle on the tea factory's profitability.

LITERATURE REVIEW

Deloof (2003) regards the cash conversion cycle as a popular measure of WCM. Cash conversion cycle is the measure of the time lag between the point of expending money for procuring raw materials and the receipt of money from customers for the sale of finished goods. Huynh (2011), elucidates that short-term operating activities of a firm such as buying inventories, paying money for supplies, paying cash for manufacturing expenses, marketing and selling the finished goods and collecting cash from customers create unsynchronized and uncertain patterns of cash inflows and cash outflows. They are unsynchronized because the payment of cash to creditors or suppliers of raw materials does not occur at the same time as the receipt of cash from customers to whom the firm sells finished goods on credit.

The general formula for calculating the cash conversion cycle (CCC) is to deduct the number of days account payable (accounts payable period) from the gross operating cycle. The gross operating cycle is given by inventory conversion period (raw material conversion period plus work in progress conversion period plus finished goods conversion period) plus receivables conversion period. CCC is then got by deducting the payables deferral period from the gross operating cycle (Pandey, 2010).

Gill et al. (2010) investigated the relationship between the WCM and the firm's profitability for a sample of 88 American manufacturing companies listed on the New Yolk Stock Exchange for the period of three years from 2005-2007. Their study used co-relational and non-experimental

research design. The result of this research was significant positive relationship between the cash conversion cycle and the company's profitability. This implies that the higher the cash conversion cycles the higher the profitability of the firm. Their measure for the cash conversion cycle was consistent with that of (Huynh, 2011). Cash conversion cycle was measured as the number of day's accounts receivable plus number of days inventory minus number of days accounts payable. However, the two researchers differed on the measure of the dependent variable. While the later used the dependent variable as the profitability measured as :(sales – cost of sales)/(Total assets – Financial assets), the former divided the operating income by the non-financial assets to get the proxy for the dependent variable – the profitability. It is not appropriate to disregard the financial assets in the denominator because of the following reasons: firstly, some of the financial assets could have been financed by short term finances and secondly, some of the financial assets may include short term investments such as commercial papers and treasury bills. In addition, it is wrong to exclude financial income like what all these researchers have done because of these reasons: first of all, all the income of the firm is earned by all assets of the firm through synergy and it is difficult to separate finance and non-finance profit. Second of all, some finance income could have earned by short term investments. Sales minus the cost of sales is not the same thing as operating profit as the later equals gross profit minus operating expenses which include administration expenses, selling and distribution expenses and depreciation. Therefore, the two researches disagree on the measurement of the return on assets (ROA) which most researchers use as the proxy for the profitability. This research is intending to proxy the dependent variable as profitability measured as (PBIT /TOTAL ASSETS) 100%. Where PBIT means profit before interest and tax which includes financial income. No research has used this measure to proxy the profitability of a company.

As regards the effects cash conversion cycle on the company's profitability, (Huynh, 2011) finds exactly opposite of the results found by Gill et al (2010). Huynh (2011) investigated the influence of working capital management on profitability of listed companies in the Netherlands. The study focused on 62 non-financial companies listed on Dutch and applied Pearson correlation analysis to analyze the effect of working capital on company's profitability. The result indicated a negative relationship between cash conversion cycle (CCC) and profitability. This finding is inconsistent with the results provided by other scholars such as Gill et al 2010) and Akoto et al (2013), who found a positive relationship between working capital management and company's profitability.

Jayarathne (2014) conducted a research on the impact of working capital management on profitability of listed manufacturing companies on Colombo Stock Exchange in Sri Lanka.

The study explored the effects of working capital management on 20 listed manufacturing companies based on data during the five year period ranging from 2008 to 2012. The study applied pooled ordinary least squares regression analysis. The result was that the cash conversion cycle was negatively correlated with the return on assets, the measure of the profitability. This implies that the shorter the cash conversion cycle, the higher the profitability and the reverse is correct. Deloof (2003) found a negative relationship between cash conversion cycle and the profitability in a similar study conducted on 1637 Belgium firms which covered the period between 1991-1996. However, this negative relationship was not significantly different from zero. The argument put forward by this researcher to explain this behavior between cash conversion cycle and profitability is that the longer the cash conversion cycle, the larger the investment in working capital. A longer cash conversion cycle might cause the profitability to increase as it results to more sales. However, profitability might also fall with cash conversion cycle in case the cost of higher investment in working capital increases faster than the gains of holding inventory and extending more trade credit to debtors.

In Pakistani, Sadia et al (2013) used correlation and regression analyses on a sample of 32 manufacturing companies to examine the impact of cash conversion cycle on company's performance. They found a negative relationship between cash conversion cycle and profitability. This finding is consistent with other researches like Gil et al, (2010), Raheman et al (2010), Raheman and Nasir (2007). Marco (2014) used a sample of 4226 manufacturing firms in Italy's SMEs to investigate the influence of cash conversion cycle on firm's profitability. The finding was non-significant association between the two variables. This means that we cannot use the cash conversion cycle to predict profitability. The researcher concluded that a firm can be efficient and solvency so long as it can be able to sell its product and collect cash from debtors. The length of the cash conversion cycle does not matter as far as profitability is concerned.

Akoto et al (2013) investigated the effects of working capital management practices and profitability of Ghananian listed manufacturing firms. They used secondary data collected from all the thirteen listed manufacturers in Ghana covering the period from 2005-2009. The researchers used panel data methodology to find a significantly positive effect of cash conversion cycle on profitability. This result was inconsistent with those of Gill et al (2010), Lazaridis & Tryfonidis (2004) Garcia & Martinez (2004), Julius et al, (2013), Huynh (2010), Raheman et al (2007) and Rehn (2012) who found a negative relationship between working capital management and company's profitability.

Profitability

This is the dependent variable in this research. Profit is not the same thing as profitability. While profit is the excess of revenue over revenue expenditure in a given trading period, say in a calendar year, profitability means the measure of the ability of the firm to earn profit (Huynh, 2011). According to Bodie et al (2004), there are five different measures of profit the use of which depends on the purpose for which such measure is computed. These include: gross profit, operating profit, profit before interest and tax (PBIT), profit before tax (PBT), and profit after tax (PAT).

According to IIdiko & Tamas (2009), profitability is expressed as a ratio measuring the rate of some profit which is benchmarked against some base measurement or variable of reference such as total assets, equity, non-financial assets, gross profit, investment, net capital employed and other appropriate variables. Therefore Profitability is given as (profit/Base measurement) 100%.

This research used profitability as the dependent variable. Contrary to other researchers such as Huynh (2011), Filipa and Garcia (2011), Melita and Elfani (2010), and many others, profitability was measured as (PBIT/TOTAL ASSETS) 100%. Huynh (2011) used operating profit as the numerator in calculation of return on non-financial assets. Senthilman (2011) used gross operating profit margin to measure profitability. Other researchers such as, Biger et al (2010) and Lazaridis (2006) used gross profit as numerator in calculation of return on assets thus failing to deduct operating expenses from gross profit. The researcher decided to use net profit or PBIT because the main purpose is to measure the effect of CCC on the company's profitability but not operating profit only.

RESEARCH METHODOLOGY

This study was ex- post facto in nature since it sought to investigate the effects of independent variable on the dependent variable after occurrence. The study used descriptive research design and applied quantitative analysis to describe the effects of working capital management on the profitability.

This descriptive design was chosen because it is applicable in studies containing large amount of qualitative and quantitative data (Huynh, 2011). In addition, the descriptive design was an effective tool for application of cause-effect statistical methods such as regression and correlation analysis that were used to examine and describe the effect of cash conversion cycle on company's profitability.

Data Collection

This study relied on primary data collected from the companies' financial records by use of questionnaire as none of these companies was listed at the stock market by the time this study was undertaken.

Empirical Model

The simple linear regression model was used to study the effect of the (CCC) on the profitability measured by return on assets (ROA). The following is the formula for the linear regression model.

$$ROA = \alpha + \beta\ CCC + e$$

Where:

α = the constant

β = slope coefficient for independent variable CCC

CCC= cash conversion cycle

ε = error term

Pilot Testing

Prior to administering the questionnaire to collect the data from the field, the researcher conducted a pilot study in Gatanga Sub County in Murang'a County which is outside the targeted population to test the validity of the instruments. The researcher applied the internal consistency method to assess the reliability in data.   According to this approach, scores obtained from different items in the questionnaire were correlated and then Cronbach's Coefficient Alpha was calculated to determine correlation between items by use of the formula given as Alpha= Nr/(1+r(N-1)), where r is the mean inter-item correlation and N is the number of items in the scale. This technique, which required application of the Kunder-Richardson (K- R) 20 formula produced a reliability coefficient of 0.807 which indicates that the items in the questionnaire were highly correlated. This implies that there is a high degree of consistency between the items.

EMPIRICAL RESULTS AND DISCUSSION

The major objective of this study was to investigate the effect of CCC on the profitability of the unlisted tea factories in Meru County. A simple linear regression model was used for this investigation. The model was made up of factory's profitability as the dependent variable while the cash conversion cycle was the independent variable.

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Effects of Net Cash Conversion Cycle on the Profitability of Tea Factories

The results of the model ($R=-0.904$) is the simple correlation statistic between net cash conversion cycle and profitability. This is a strong negative correlation between the two variables and follows another finding ($R^2=0.817$) which indicates that we can explain up to 81.7% of the profitability dynamics based on the independent variable, the net cash conversion cycle. This finding is in agreement with Deloof (2003), Huynh (2011), Jayarathne (2014).

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.904(a)	.817	-.755	.04397

a Predictors: (Constant), Net cash conversion cycle

Analysis of variance (Table 2) for this model revealed that the relationship that exists between net cash conversion cycle and profitability of the tea factories in Meru County is statistically significant ($p=0.035<0.05$) and thus this model can be considered a sufficient tool to explain a factory's profitability trend.

Table 2: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.026	1	.026	13.353	.035(a)
	Residual	.006	3	.002		
	Total	.032	4			

a Predictors: (Constant), Net cash conversion cycle

b Dependent Variable: Profitability

From the model coefficients (Table 2), we obtain the information we need from the predictor variable, net cash conversion cycle, to predict the outcome of the factory's profitability. Significance test confirms that net cash conversion cycle significantly ($P= 0.035<0.05$) contributes to the profitability outcome values observed. The hypothesis that CCC does not affect the profitability of unlisted tea companies of Meru County is therefore rejected at 5% level of significance. Indeed, the constant also significantly contributes to the profitability outcome. The constant represents a collection of factors which have not been explained by the model used in this study. Therefore, results imply that there are other factors that contribute significantly to tea factory's profitability.

Further, the linear coefficient (*B=0.029*) between cash conversion cycle and profitability indicates by what linear proportion does the independent variable determines the profitability values. In this case therefore, profitability trend observed is caused by some hidden factors and net cash conversion cycle.

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.759	.234		7.528	.005
	Net cash conversion cycle	-.029	.008	-.904	3.654	.035

a Dependent Variable: Profitability

In the Standardized coefficients column, the value of Beta = -0.904 which is the bivariate correlation coefficient between net cash conversion cycle and tea factory profitability. We identify that this is a strong negative correlation between the two variables. This implies that the longer the net cash conversion period, the lower the profits a tea manufacturing company will realize. This finding conforms to that found by Deloof (2003), Huynh (2011) and Jayarathne (2014). However, Akoto et al (2013) found a positive correlation between the net cash conversion cycle and profitability. These researchers could find conflicting findings because they used different methodologies.

CONCLUSION

The Pearson's correlation coefficient(r=-.94) between the net cash conversion cycle (NCCC) and profitability was significant and negative. Therefore, the NCCC has statistically negative significant effect on the tea factories' profitability. Thus the amount of time a Tea factory in Meru County takes to procure raw materials and the receipt of money from customers for the sale of finished goods processed from those raw materials significantly contributes to the profitability of that factory. The shorter the cash conversion cycle, the higher the profitability and the reverse is correct.

POLICY RECOMMENDATIONS

The factories management should maintain low cash conversion cycle in order to improve their profitability. This is so because the shorter the cash conversion cycle, the higher the profitability

of a tea factory according to findings of this study. Reduction of cash conversion cycle would mean shortening the raw materials conversion cycle, work in progress conversion cycle, finished goods conversion cycle and the receivables collection period. When these four cycles are added together, and the number of days accounts payable is deducted, we get the cash conversion cycle. On this basis therefore, the number of days accounts payable should be increased to optimum level to keep cash conversion cycle short thus improving profitability.

RECOMMENDATIONS FOR FURTHER RESEARCH

A further study should be carried out to identify other factors that play major roles in shaping the tea factories' profitability trends. In addition, researchers should carry out a study to investigate the nature of the relationship between liquidity and profitability of tea factories. Further, a research on other working capital determinants measured by metrics other than cash conversion cycle should be undertaken. This is so because the current study used cash conversion cycle as a measure of working capital management. There are however other metrics of working capital management which may affect the profitability in unknown ways.

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