CASH CONVERSION CYCLE AND FIRM PROFITABILITY IN MALAWI MANUFACTURING SECTOR

Byson Beracah Majanga*

Abstract *The composition of a business' current assets and liabilities provides an indication of the business liquidity position. It is advisable for a company to maintain a good amount of readily liquid assets as compared to its current liabilities which may be payable on demand. The business liquidity position determines its ability to survive in the short term and of late most companies have had critical financial problems regardless of posting profits in some cases. Manufacturing companies pile up more current assets in form of inventory which is considered to be an illiquid asset and therefore liquidity for manufacturing companies differs from that of service organisations, such as banks. The purpose of this study is to establish the relationship between a company's liquidity, measured by the length of the cash conversion cycle, and its profitability, measured by return on capital. Using a correlation and regression test, the study used data from sample of twelve Malawian manufacturing firms from 2007 to 2015. The study finds that there exists an inverse relationship between the cash conversion cycle and the company's return on investment and return on equity, and provides evidence that the cash conversion cycle, a measure of business liquidity, has an impact on a firm's performance.*

Keyword: *Cash Conversion Cycle, Working Capital, Profitability, Current Assets, Liquidity, Financial Management*

INTRODUCTION

One key decision which makes part of financial management is that of ensuring an optimal balance of liquid resources in the firm. Liquidity has been considered key to the success or failure of a number of firms regardless of having reported huge profits from their books of accounts. It is argued, however, that firms with liquidity problems struggle to survive and they are likely to wind up if no improvement on their working capital is made. Likewise, firms with health liquidity situations are claimed to advance smoothly in their operations and that most of such firms do have strong potential of survival and growth even in turbulent economic environments. The liquidity position of a firm is materially impacted by the levels of accounts receivable, inventories and short-term debt (Lyroudi & McCarty, 1993), and therefore a proper management of these components may lead to a firm attaining a good liquidity and profitability situation. In ascertaining the firm's liquidity, the current and quick ratios have been recognised traditionally as appropriate measures of the liquidity position of a firm, the former being the expression of firm's total current assets in comparison with its total current liabilities; while the latter being the expression of highly convertible current assets in comparison with total current liabilities (Watson & Head, 1998). Recently, financial analysts as well as scholars such

as Appuhami (2008) and Anser and Malik (2013) applaud another measure of a firm's liquidity, the cash conversion cycle, which is said to be one of the most commonly used measures to evaluate and measure the risks and returns associated with liquidity management. The cash conversion cycle is defined as the time period between a firm paying out cash for its costs of production and receiving cash from the sale of its goods. The measure of the cash conversion cycle highlights how the firms or the entire industry are performing in addition to revealing the areas where further improvement may be required (Padachi, 2006) by indicating the extent of working capital financing required for particular level of operations. Managers therefore need to appropriately evaluate the working capital needs and identify the basic elements of liquidity in order to efficiently and effectively decide over the firm's operation and be able to balance between liquidity and profitability (Manoori & Muhammad, 2012). Determining the important factors affecting working capital management, as identified in Lyroudi and McCarty (1993), would help managers to determine the optimal level of investment in current assets as well as the appropriate sources to finance them, and this will make them well prepared and ready for unpredicted situations that have unexpected effects on firms'performance. Mathematically, the cash conversion cycle (CCC) is defined as the sum of the receivables collection period (RCP) plus the inventory

* Faculty of Commerce, University of Malawi, The Polytechnic, Blantyre, Malawi. Email: bmajanga@poly.ac.mw

conversion period (ICP), minus the payment deferral period (PDP).Theoretically, the smaller the cash conversion cycle the quicker the firm can recover its cash from the sales of its products, and the more cash the firm will have, the more liquid it will be. Contrariwise, if the cash conversion cycle is high, it means that the company takes longer to recover cash back into its system. Thus, a high cash conversion cycle would indicate a liquidity problem. This is in agreement with Gattis (2009) who argues that it is important to view the cash conversion cycle in a trend; where a downward trend is positive, indicating that the operating cycle is shortening, while an upward trend is negative, indicating that the cycle is lengthening, hence cash is tied up for a longer period.

Definition of Variables

In this study, profitability is taken as a dependent variable, whereas liquidity is taken as an independent variable. Profitability is considered a compound variable comprising of components which include:

Return on Investment (ROI)

This is considered one of the best measures of company performance in terms of profitability (Botchkarev & Andru, 2000). It is calculated as a percentage of operating profit before tax to the total investment made in the businesses, that is, equity and long term borrowings.

Return on Equity (ROE)

This represents the profits attributable to equity shareholders of a company for a particular financial year. It is calculated as a percentage of profit after interest and tax (PAT) to total equity of the company.

Net Profit Margin (NPM)

This is the expression of the business' operating profit before interest and tax (PBIT) as a percentage of total revenue generated over a financial period. Researchers such as Torghabeha, Parsian and Koloukhi (2014) and Steiger (2008) used the PBIT, also known as the EBITDA, to explain its relationship with company value and stock price.

Asset Turnover (ASTO)

This variable shows the level of business performance as measured by the revenue generated from the total capital employed in the businesses, the higher the asset turnover ratio the more profitable the entity, in terms of revenue generation. It is calculated as sales as percentage of capital employed.

The variable of liquidity, which is the independent variable, also consists of components which are:

Receivable Collection Period (RCP)

This variable measures on average the number of days it takes for a company's trade debtors to pay their dues. It is advisable that for a company to have a suitable liquidity position, the RCP must be as lower as possible (Leitch & Lamminmaki, 2011).

Inventory Conversion Period (ICP)

This is a measure of how long a company ties its funds to inventory or stocks. When a business holds too much stock for too long, its liquidity position gets compromised. Inventory makes a big component of current assets especially for manufacturing entities and the longer it is held, the more funds are tied up thereby paralyzing the operations.

Payment Deferral Payment (PDP)

This liquidity component measures the length of time in days the company defers payments to its suppliers and other creditors. It is argued that a business can improve its liquidity by delaying payments to suppliers and creditors. However, it is advisable that businesses should take caution for fear of losing its reliable and key suppliers for non payment.

Cash Conversion Cycle (CCC)

This is argued to be the true measure of liquidity as it shows the length of time in days the business takes to recover its cash after it was initially invested in production. This paper emphasises on the CCC to establish if it is directly associated with the firm's profitability. A company with low CCC is able to realise its cash and use it for other cash generating activities, hence improving the liquidity position.

Current Ratio (CR) and Quick Ratio (QR)

These two ratios assess the composition of current assets as a proportion of current liabilities. The expectation is that a company's current assets should be able to cover current liabilities more than twice.

The purpose of this study is to examine the impact of the cash conversion cycle as an indicator of the company's liquidity, on a manufacturing firm's profitability in Malawi and determine the nature of the relationship. To accomplish this objective, the paper is divided into five sections. The next section of the paper reviews the literature while the third section describes data and the methodology used. The fourth section presents the results and the analysis. Finally,

there is a summary and conclusion section

LITERATURE REVIEW

Since the initial presentation of the issue of cash conversion cycle by Hagar (1976) numerous researchers have been interested in the issue especially in the components of the cash conversion cycle, its impact on firm's profitability and the overall liquidity challenges faced by firms of whatever size and how to overcome such challenges. In assessing a firm's working capital management, which in essence emphasises on liquidity, financial analysts use, according to Largey and Stickney (1980), the measures of current ratio (CR), quick ratio (QR), and due to its ability to provide dynamic insights, Richards and Laughlin (1980) suggest that the CCC should be used to supplement the traditional liquidity measures. The traditional liquidity ratios are based on the balance sheet data and show liquidity at some point in time (Majeed, Makki, Saleem, & Aziz, 2013) while the dynamic CCC measures liquidity on an ongoing basis (Lyroudi & Lazaridis, 2000).The CCC has been used in various studies as an explanatory factor to establish its impact on a number of different dimensions on a firm. Researchers have earlier explored different variables representing liquidity and their effect on profitability, and most of them examined the relationship between PDP, RCP, ICP, and CCC with profitability, providing different results with regard to how the length of the cash cycle has been affecting profitability using different measures of profitability (Raheman & Nasr, 2007; Raheman, Afza, Qayyum, & Bodla, 2010 and Mathuva, 2010). Shagir (2014) studied the relationship between CCC and its components, and the firm value and found that there exists a weak relationship between CCC, together with its individual components, and firm value. In their study to investigate the relationship between CCC and firm's profitability Lyroudi and McCarty (1993) found that the cash conversion cycle and the quick ratio are significantly and positively related to all three profitability ratios, namely, return on investment (ROI), return of equity (ROE), and net profit margin (NPM). Related to this study, Quayyum (2011) conducted a similar study on corporations enlisted with the cement industry of the DSE over a period from 2005 to 2009 and found the existence of a significant level of relationship between the profitability indices and various liquidity indices as well as working capital components. Using a panel sample of 255 companies listed on the Stock Exchange of Thailand from 2007 through 2009, Napompech (2012) found out that although industry characteristics have an impact on gross operating profits, managers can still increase the profitability of their firms by shortening the cash conversion cycle, inventory conversion period, and receivables collection period. Sin andSoenen (1998) found significant impact of efficient cash cycle conversion management on profitability and liquidity of companies.

Napompech (2012) however, argues that profitability cannot be increased by lengthening the payables deferral period. This shows that, according to the findings of Napompech (2012), decreasing the CCC by decreasing the ICP and the RCP and not increasing the PDP has a positive effect on firm's profit. Following thefindings of their study on nine listed manufacturing companies on Nairobi Securities Exchange, Nzioki, Kimeli, and Abudho (2013) were quick to recommend to managers to focus on reducing the cash conversion cycles and trying to collect receivables as soon as possible. In their findings, the length of the CCC has a direct effect on the profitability of the firm. Their findings are corroborated by Banomyong (2005) who argues that a company with a lower CCC is more efficient because it turns its working capital over more times per year, and that allows it to generate more sales per money invested which eventually lead to profitability. Uyar (2009) also found significant association and linkage of working capital management with liquidity and profitability and concluded that the firm size is negatively linked and related to cash conversion cycle and a negative and oppositely moving linkage of cash conversion cycle with profitability was observed. In another study, using secondary data collected from 20 listed firms in Karachi Stock Exchange for the period of 2001-2011 in order to investigate relationship between profitability, and working capital management, Shah and Chaudhry (2013) conclude that there is a moderate relationship between working capital management and profitability in the textile sector in Pakistan. Similarly, using multivariate regression analysis on data set consisting of firms listed in the Cyprus Stock Exchange for the period 1998-2007, Charitou, Elfan, and Lois (2010) find that the cash conversion cycle and all its major components; namely, days in inventory, days sales outstanding and creditors payment period, are associated with the firm's profitability.From a sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007, Gill, Biger, and Mathur (2010) found a statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. From their findings, they recommend that managers cancreate profits for their companies by properly handling the cash conversion cycle and by keeping accounts receivables at an optimal level. This relationship between the CCC, together with its individual components on profitability was also supported by Yasir, Majid, and Yousaf (2014) who in order to find out the relationship between cash conversion cycle (CCC) and firm's performance they examine the impact of different component variables of cash conversion cycle (CCC) which includes receivables collection period (RCP), inventory conversion period (ICP) and payables deferral period (PDP). Their findings revealed a negative relationship between firms' cash conversion cycle and profitability, implying that a firm's profitability increases as its CCC decreases.

METHODOLOGY

The purpose of this research is to contribute to the important aspect of financial management regarding liquidity, especially the cash conversion cycle, and how it relates to a company's profitability. The research shows the relation between the cash conversion cycle and profitability of manufacturing companies in Malawi from the year 2007 to 2015. The selection of the manufacturing firms was constraint by the fact that very few manufacturing companies are listed on the stock Malawi Stock Market and therefore the financial reports of most companies were not easily accessible. The relationship between CCC and profitability is tested by panel data methodology.

FINDINGS AND ANALYSIS OF RESULTS

The results of the relationship between CCC and profitability are presented in the following section. First, the descriptive analysis is presented followed by the Pearson's correlation analysis to see the association between CCC and other liquidity variables, and profitability. Further, the data are subjected to a regression analysis in order to see the effect of CCC on company profitability for manufacturing companies in Malawi.

Descriptive Statistics

Table 1 shows the detail of descriptive statistics of variables of profitability and liquidity of manufacturing companies in Malawi from 2007 to 2015. Return on Investment, which is key among the profitability dependent variable ranges from -24.96 to 158.6 with a mean value of 28.156 and a standard deviation of 38.169. The main explanatory variable is the cash conversion cycle with a mean value of 95.297

and standard deviation of 129.798. Quick ratio is the second explanatory variable with a mean value of 0.997 and a standard deviation of 0.627. Receivables collection period is the other explanatory variable with a mean value of 42.397 and a standard deviation of 31.753. Inventory conversion period shows a mean value of 133.791 and a standard deviation of 120.506; and payment deferral period shows a mean value of 80.891 and a standard deviation of 34.076.

Correlation Analysis

A correlation matrix of all the variables included in the analysis is presented in Table 2 which is calculated based on data of 69 observations. The table shows that return on investment is slightly positively associated with receivables collection period, but negatively associated with inventories conversion period, payables deferral period, cash conversion cycle, current ratio, and quick ratio. All correlation coefficients are significant at 0.05 level (2-tailed).

The data reflects significant negative correlations between Quick ratio and asset turn over (-0.314), cash conversion cycle and return on equity (-0.180), and between current ratio and return on investment (-0.146). These findings agree with those of Napompech (2012) who also established a relationship between profitability and liquidity.

The ROI/CCC relationship was further tested using a regression model where CCC was used as an independent variable while return on investment as a dependent variable. The regression statistics is shown in Table 3.

The R and the R-square given in Table 3 are coefficient of correlation, and coefficient of determination respectively. The value of R shown in Table 3 suggests that 0.57 or 57% correlation exists between dependent (return on investment) and liquidity independent variables (receivables collection period, inventory conversion period, payables deferral period,

Table 1: Descriptive Statistics

	Minimum	Maximum	Mean	Std dev	Std Error	Skewness	Kurtosis
RCP	9.0700	140.1300	42.3970	31.7530	3.8230	1.5470	1.4480
ICP	30.48000	561.6500	133.7910	120.5060	14.5070	1.9910	3.1500
PDP	25.6500	252.8900	80.8910	34.0760	4.1020	1.9750	8.5460
CCC	-48.5100	517.2200	95.2970	129.7980	15.6260	1.7140	2.1390
CR	0.4200	3.8000	1.6190	0.8100	0.0980	0.8680	2.1390
QR	0.1500	2.3700	0.9970	0.6270	0.0750	0.5950	-1.0890
ROI	-24.9600	158.6000	28.1560	38.1690	4.5950	2.6570	6.7600
ROE	-33.6700	122.8400	24.6180	30.6060	3.6840	1.9140	4.0560
NPM	-26.7700	83.9700	16.1720	13.7900	1.6600	1.3370	8.4570
ASTO	37.7300	783.5400	176.2660	169.2220	20.3720	2.5610	5.5390

Source: Primary

Table 2: Pearson Correlation Coefficient between Variables of 12 Malawi Manufacturing Companies (69 Observations)

	RCP	ICP	PDP	CCC	CR	QR	ROI	ROE	NPM	ASTO
RCP	1.000									
ICP	0.059	1.000								
PDP	0.355	-0.058	1.000							
CCC	0.206	0.958	-0.230	1.000						
CR	0.162	0.682	-0.237	0.735	1.000					
QR	0.221	0.403	-0.143	0.465	0.885	1.000				
ROI	0.001	-0.150	-0.017	-0.135	-0.146	-0.111	1.000			
ROE	-0.048	-0.186	-0.019	-0.180	-0.132	-0.050	0.962	1.000		
NPM	-0.021	0.262	-0.018	0.243	0.391	0.496	0.380	0.452	1.000	
ASTO	0.135	-0.266	0.104	-0.242	-0.318	-0.314	0.817	0.734	0.022	1.000

Table 3: Regression Statistics

	Coefficient	Std. Error	t	P>t	95% conf interval
Intercept	39.6657	1.030	4.41	1	-2.10 -2.07
RCP	-1.91	4.940	-0.393	0.696	-1.20 - 7.93
ICP	-1.91	4.94	-0.393	0.696	-1.20 – 7.93
PDP	1.94	4.94	+0.393	0.696	-7.90 - 1.18
CCC	1.94	4.94	+0.393	0.696	-7.90 – 1.18
CR	-11.81	16.84	-0.701	0.486	-45.48 – 21.86
QR	12.49	16.84	0.742	0.461	-21.17 – 46.17
F-Statistic = 5.14			Multiple R = 0.57		
R square = 0.33			Adjusted R square = 0.268		

Source: Primary

cash conversion cycle, current ratio and quick ratio), and the value of R square is 0.33 or 33% which shows that 33% variation inreturn on investment is a result the independent variables, that is, R square shows 33% explanatory power of independent variables. The value of adjusted R-square which is 0.268 or 27% also shows the explanatory power ofthese variables in determining the return on investment after taking residual and error terms.

The results from the correlation analysis in Table 1 and the regression analysis in Table 2 suggest that there is a relationship between return on investment and cash conversion cycle and other liquidity measures, confirming that an entity's liquidity situation impacts on its profitability.

CONCLUSION AND SUMMARY

The financial management challenge of balancing the entity's current assets and long term ones may lead to the success or failure of a company if the decision is not carried out cautiously. Similarly, in an attempt to remain highly profitable and expand the scope of operations, a lot of entities have disregarded the need to finance working capital requirements to support the operations. This, unfortunately, has led to overtrading with serious adverse effects on the entity such as accumulation of debts which eventually lead to involuntary liquidation. Looking at working capital management in an entity, managers have to consider establishing ways to minimise as much as possible, the length of time their debtors take to pay and the length of time they hold inventory. These measures are crucial in managing working capital for an entity. In assessing its efficiency in managing working capital, the entity must determine its cash conversion cycle as this reveals the reasonable estimate of the duration within which the business allows its cash to be tied in stocks and receivables. The outcome of this paper reveals that to achieve profitability, the liquidity position of the business needs to be improved, especially the cash conversion cycle. It is therefore recommended that entities must closely watch over the duration of their CCC if they are to be sustainably profitable.

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