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A Causal Linkage of Working Capital Management and Profitability: Empirical Evidence from Consumer Goods Industry in Rwanda

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Abstract:

The main objective of this study is to assess the relationship between working capital management on profitability of consumer goods industry in Rwanda. The problem of the study based on if there is any significant the relationship between working capital management and performance of Bralirwa PLc.

The research findings reveal that there is relationship for only inventory conversion period and CCC with profitability of the industry, therefore there is a very strong correlation between working capital management and profitability of BRALIRWA. In other words, when working capital is effectively managed, profitability in BRALIRWA is improved. The results of the linear regression indicate that R^22=.662 and R^2= .814 this is an indication that there is a strong relationship between Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed and net profit of consumer goods industry in Rwanda with reference of BRALIRWA.

As a conclusion, reference to the findings of the study, it is noted that BRALIRWA experience an effective management of working capital elements like Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle which in return contribute to its profitability.

Keywords: Average Collection Period, Inventory Conversion Period, Average Payment Period, Cash Conversion Cycle

1. INTRODUCTION

The concept of working capital management addresses companies' managing of their short-term capital and the goal of the management of working capital is to promote a satisfying liquidity, profitability and shareholders' value. Working capital management is the ability to control effectively and efficiently the current assets and current liabilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities.

The short-term capital refers to the capital that companies use in their daily operations and it consists of companies' current assets and current liabilities. A well-managed working capital promotes a company's well-being on the market in terms of liquidity and it also acts in favor for the growth of shareholder's value (Jeng-Ren, Li & Han-Wen, 2006).

Working capital management efficiency is vital especially for consumer goods industry firms, where a major part of assets is composed of current assets (Horne & Wachowitz, 2000). It directly affects the profitability and liquidity of firms (Raheman & Nasr, 2007). The profitability liquidity tradeoff is important because if working capital management is not given due considerations then the firms are likely to fail and face bankruptcy (Kargar & Bluementhal, 1994). The significance of working capital management efficiency is irrefutable (Filbeck & 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.

Efficient management of working capital plays an important role of overall corporate strategy in order to create shareholder value. Working capital is regarded as the result of the time lag between the expenditure for the purchase of raw material and the collection for the sale of the finished goods. The way of managing working capital can have a significant impact on both the liquidity and profitability of the company (Shin & Soenen, 1998). The main purpose of any firm is to maximize profit. But, maintaining liquidity of the firm also is an important objective. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Thus, strategy of firm must maintain a balance between these two objectives of the firms. Dilemma in working capital management is to achieve desired tradeoff between liquidity and profitability (Smith, 1980; Raheman & Nasr, 2007). Referring to theory of risk and return, investment with more risk will result to more return. Thus, firms with high liquidity of working capital may have low risk and low profitability. Conversely, a firm that has low liquidity of working capital faces high risk which results to high profitability.

In Rwanda, the consumer goods industrial sector is among the biggest sector like agriculture, transport and communication and wholesale and retail trade. The sector contributed approximately 18% of the Gross Domestic Product (GDP) in 2010 (RSE Handbook, 2011, 2012). As an important sector in the overall economic growth, manufacturing sector requires in depth analysis at industry as well as firm level. Considering the importance of working capital management the researchers focused on analyzing the working capital management and profitability relationship such as Gul, Khan, Rehman, Khan, Khan and Khan (2013); Oladipupo and Okafor (2013); Almazari, (2013); Akoto, Awunyo-Vitor and Angmor (2013); Maradi, Salehi and Arianpoor (2012); Nyabwanga, Ojera, Lumumba, Odondo and Otieno (2012); Sharma and Kumar (2011); Raheman, Afza, Qayyum and Bodla(2010); and Gill, Biger and Mathur (2010) among others.

However, there are a few studies with reference to Rwanda on working capital management and firm profitability, especially in the consumer goods industrial sectors. However, these studies provide no evidence on the relationship between working capital management and profitability of consumer goods industrial sectors in Rwanda. In this context, the objective of the current study is to provide empirical

evidences about the effect of working capital management on profitability for a sample of BLARIRWA Company during the period 2013–2017.

2. STATEMENT OF THE PROBLEM

Even though, manufacturing companies struggle to increase profitability by integrating working capital management in their working environment, yet some institution are found to be in bankrupt due to inappropriate or inadequate integration of working capital management in their operation or due to challenges in working environment.

The study on the relationship between working capital management and profitability seems to be scanty yet; Rwanda boasts one of the fastest-growing economies on the continent. According to Masocha and Dzomonda (2016), this economy has in the past experienced exponential growth consumer goods industries. These industries provide a remarkable milestone towards solving the country's development challenges such as unemployment, poverty and income inequality. And yet, several of these entities continue to fail due to their improper management of working capital and a resulting lack of the appropriate financing (Masocha & Dzomonda, 2016; Hence, the dearth in study on working capital management creates a gap between policy makers and practitioners that warrants attention. In attempting to bridge this gap, this study assesses the impact of working capital management and profitability of consumer goods industry in Rwanda using BRALIRWA as a point of reference.

3. OBJECTIVES

This study will consider the following specific objectives:

i. To determine whether there is a significant relationship between Average Collection Period and Profitability of BRALIRWA.
ii. To establish whether there is a significant relationship between Inventory Conversion Period
iii. and Profitability of BRALIRWA.
iv. To ascertain if there is a significant relationship between Average Payment Period and

v. Profitability of BRALIRWA.
vi. To examine if there is a significant relationship between Cash Conversion Cycle and Profitability of BRALIRWA.

4. CONCEPTUAL FRAMEWORK

Figure 1 below presents schematic conceptual framework of the relationship between working capital management measures and profitability of firms.

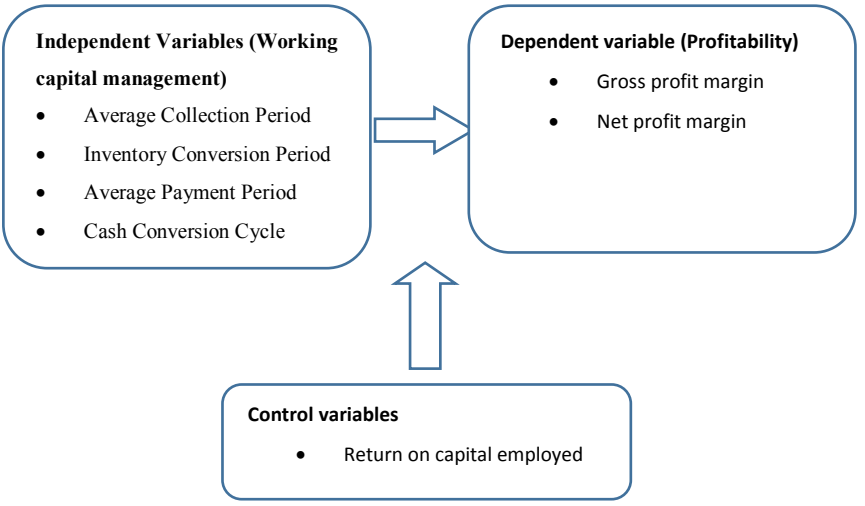


Figure 1: Schematic Framework
Source: Researcher compilation (2018)

5. LITERATURE REVIEW

5.1 Theoretical review

5.1.1 Frictional Theory of Profits

According to this theory there exists a normal rate of profit which is a return on capital that must be paid to the owners of capital as a reward for saving and investment of their funds rather than to consume all their income or hoard them.

In a static economy where no unanticipated changes in demand or cost conditions occur, in long-run equilibrium the firms would be earning only normal rate of profit on their capital and entrepreneurial talent.

Under these conditions economic profits would not accrue to the firms. Frictional theory of profit explains that shocks or disturbances occasionally occur in an economy as a result of unanticipated changes in product demand or cost conditions which cause disequilibrium conditions. It is these disequilibrium conditions that brings into existence positive or negative economic profits for some firms.

Thus, according to frictional theory, economic profits exist for some time because of frictional factors which prevent an instantaneous adjustment of the system to the new conditions. For example, at the time of sharp size in petroleum prices in the 1990 as a result of US-Iraq war many petroleum-refining firms enjoyed handsome economic profits. Similarly, as a result of slowdown in world trade in the years 1999-2001 many Indian firms doing export business suffered losses due to the decrease in the demand for their products in the USA and other countries.

When economic profits are made in the short run, more firms will enter the industry in the long run until all economic profits are driven down to zero (that is, firms will be making only normal return or profits on their capital investment).

Prof. G.J. Stigler, a winner of Nobel Prize in economics sums up the frictional theory of profits in the following words: "Firms in a competitive industry may receive profits because of a state of disequilibrium…. these profits can arise even if all entrepreneurs are identical for disequilibrium can characterize a whole industry. If prices are higher, or costs lower than were anticipated, entrepreneurs will receive a return in excess of the alternative product of their resources.

5.1.2 Monopoly Theory of Profits:

Another explanation of above-normal profits attributes them to the monopoly power enjoyed by firms. Firms with monopoly power restrict output and charge higher prices than under perfect competition. This causes above-normal profits to be earned by the monopolistic firms.

Joan Robinson, E.H. Chamberlin, M. Kalecki associated super-normal profits with monopoly power enjoyed by some firms. Because of strong barriers to the entry of new firms, monopoly firms can continue to earn economic profits even in the long run. Monopoly power may arise due to sole control over some essential raw material required for the production of a commodity, from economies of scale,

from legal sanction or from ownership patents, from Government restrictions on the import of a commodity.

5.1.3 Innovations Theory of Profits:

This theory of profits explains that economic profits arise because of successful innovations introduced by the entrepreneurs. It has been held by Joseph Schumpeter that the main function of the entrepreneur is to introduce innovations in the economy and profits are reward for his performing this function.

Now, what is innovation? Innovation, as used by Schumpeter, has a very wide connotation. Any new measure or policy adopted by an entrepreneur to reduce his cost of production or to increase the demand for his product is an innovation.

Thus, innovations can be divided into two categories. First types of innovations are those which reduce cost of production. In this first type of innovations are included the introduction of a new machinery, new and cheaper technique or process of production, exploitation of a new source of raw materials, a new and better method of organizing the firm, etc.

Second types of innovations are those which increase the demand for the product. In this category are included the introduction of a new product, a new variety or design of the product, a new and superior method of advertisement, discovery of new markets etc. If an innovation proves successful, that is, if it achieves its aim of either reducing the cost of production or increasing the demand for a product, it will give rise to profits.

Profits emerge because due to successful innovations either cost falls below the prevailing price of the product or the entrepreneur is able to sell more and at a better price than before.

Xerox continued to make large profits until other firms entered the field to compete away these super-normal profits earned by it. Likewise, Bill Gates introduced Windows operating system and MS-office types of computer software and has become billionaire by making huge profit on his innovations.

5.2 Empirical review

Various studies have analyzed the relationship of working capital management (WCM) and firm profitability in various markets. The results are quite mixed, but a majority of studies conclude negative

relationship between WCM and firm profitability. The studies reviewed have used various variables to analyze the relationship, with different methodology such as linear regression and panel data regression. This section presents the chronology of major studies related to this study in order to assess and identifies the research gap. Gul, Khan, Rehman, Khan, Khan and Khan (2013) assessed the influence of working capital management (WCM) on performance of small medium enterprises (SMEs) in Pakistan. The duration of the study was seven years from 2006 to 2012. The data used in this study was taken from SMEDA, Karachi Stock Exchange, tax offices, company itself and Bloom burgee business week. The dependent variable of the study was Return on Assets (ROA) which was used as a proxy for profitability. Independent variables were Number of Days Account Receivable (ACP), Number of Day's Inventory (INV), Cash Conversion Cycle (CCC) and Number of Days Account Payable (APP). In addition to these variables some other variables were used which included Firm Size (SIZE), Debit Ratio (DR) and Growth (GROWTH). Regression analysis was used to determine the relationship between WCM and performance of SMEs in Pakistan. Results suggested that APP, GROWTH and SIZE have positive association with Profitability whereas ACP, INV, CCC and DR have inverse relation with profitability.

Oladipupo and Okafor (2013) examined the implications of a firm's working capital management practice on its profitability and dividend payout ratio. The study focused on the extent of the effects of working capital management on the Profitability and Dividend Payout Ratio. Financial data were obtained from 12 manufacturing companies quoted on the Nigeria Stock Exchange over 5years' period (2002 to 2006). Using both the Pearson product moment correlation technique and ordinary least square (OLS) regression technique, they observed that shorter net trade cycle and debt ratio promote high corporate profitability. While the level of leverage has negative significant impact on corporate profitability, the impacts of working capital management on corporate profitability appeared to be statistically insignificant at 5% confidence level. On the other hand, they observed that dividend payout ratio was influenced positively by profitability and net trade cycle but negatively by growth rate in earnings.

Almazari (2013) assessed the relationship between the working capital management (WCM) and the firms' profitability for the Saudi cement manufacturing companies. The sample included 8Saudi cement manufacturing companies listed in the Saudi Stock Exchange for the period of 5 years from 2008-2012. Pearson Bivariate correlation and regression analysis were used. The study results showed that Saudi cement industry's current ratio was the most important liquidity measure which affected profitability, therefore, the cement firms must set a trade-off between these two objectives so that, neither the liquidity nor profitability suffers. It was also found, as the size of a firm increases, profitability increased. Besides, when the debt financing increased, profitability declined. Linear regression tests confirmed a high degree of association between the working capital management and profitability.

Akoto, Awunyo-Vitor and Angmor (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from2005-2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between Profitability and Accounts Receivable Days. However, the firms' Cash Conversion Cycle, Current Asset Ratio, Size, and Current Asset Turnover significantly positively influence profitability. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivable to 30 days. It is further recommended that, enactments of local laws that protect indigenous firms and restrict the activities of importers are eminent to promote increase demand for locally manufactured goods both in the short and long runs in Ghana.

Omesa, Maniagi, Musiega and Makori (2013) examined the relationships between WorkingCapital Management and Corporate Performance of manufacturing firms listed on the Nairobi securities exchange. A sample of 20 companies whose data for 5 years from 2007-2011 was selected. For analysis Principal components analysis (PCA) is used due to its simplicity and its capacity of extracting relevant information from confusing data sets. From the results using PAC and multiple regression, working capital proxies Cash Conversion Cycle (CCC), Average Collection Period (ACP) and control variables Current Liabilities (CLTA), Net Working Capital Turnover

Ratio (NSCA) and Fixed Financial Ratio(FATA) were significant at 95% confidence (p values are < 0.05) to performance as measured by Return on Equity (ROE). Further, ACP was found to be negatively related to ROE while CCC, CLATA, NSCA and FATA.

Maradi, Salehi and Arianpoor (2012) compared working capital management of two groups of listed companies in Tehran Stock Exchange (TSE), which comprised of chemical industry and medicine industry. In chemical industry, 34 companies and medicine industry, 30 companies were selected and information related to these companies was gathered over 10 years (2001-2010) and analyzed using OLS multiple regression. The results show that, in medicine industry compared to chemical industry, debt ratio makes more impact on reduction of net liquidity. But examination of impact of LEV over WCR indicate that, in chemical industry, debt ratio makes more impact on reduction of working capital requirements, compared to medicine industry.

Nyabwanga, Ojera, Lumumba, Odondo and Otieno (2012) assessed the effect of working capital management practices on the financial performance of SSEs in Kisii South District. A sample of 113SSEs comprising 72 trading and 41 manufacturing enterprises was used. Pearson's correlation coefficients and multiple regression analysis techniques were used to analyze data. Consequently, the findings of the study were that, working capital management practices were low amongst SSEs as majority had not adopted formal working capital management routines and their financial performance was on a low average.

The study also revealed that SSE financial performance was positively related to efficiency of cash management (ECM), efficiency of receivables management (ERM) and efficiency of inventory management (EIM).

Gakure, Cheluget, Onyango and Keraro (2012) analyzed the relationship between working capital management and performance of 15 manufacturing firms listed at the Nairobi NSE from 2006 to2010 and for a total 75 firm's year observations. They used secondary data from a sample of 18companies at the NSE. A regression model was used to establish the relationship between the dependent variable and the independent variables. Pearson's correlation and regression analysis were used for the analysis. The results indicated that there is a strong negative relationship between firm's performance and

liquidity of the firm. The study found that there is a negative coefficient relationship between accounts collection period, average payment period, inventory holding period and profitability while the cash conversion cycle was found to be positively correlated with profitability. However, the effects of the independent variables except the average payment period were no statistically significant though the overall model was statistically significant.

Sharma and Kumar (2011) examined the effect of working capital on profitability of Indian firms. They collected data about a sample of 263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008 and evaluated the data using OLS multiple regression. The results revealed that working capital management and profitability is positively correlated in Indian companies. The study further reveals that inventory of number of days and numbers of day's accounts payable are negatively correlated with a firm's profitability, whereas number of days accounts receivables and cash conversion period exhibit a positive relationship with corporate profitability.

Raheman, Afza, Qayyum and Bodla (2010) analyzed the impact of working capital managementon firm's performance in Pakistan for the period 1998 to 2007. For this purpose, balanced panel data of204 manufacturing firms was used which are listed on Karachi Stock Exchange. The results indicate that the cash conversion cycle, net trade cycle and inventory turnover in days are significantly affecting the performance of the firms. They concluded that manufacturing firms were in general facing problems with their collection and payment policies. Moreover, financial leverage, sales growth and firm size also had significant effect on the firm's profitability. They study recommended that effective policies must be formulated for the individual components of working capital.

Mathuva (2010) in his study on the influence of working capital management on corporate profitability found that there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers and profitability. He explained that the more profitable firms take the shortest time to collect cash from the customers. The study further revealed that there exists a highly significant positive relationship between the inventory conversion period and profitability. It was explained that firms, which maintain sufficiently high inventory levels reduce costs of possible

interruptions in the production process and loss of business due to scarcity and products. Finally, the study established that there exists a highly significant positive significant positive relationship between the average payment period and profitability. He held that the longer a firm takes to pay its creditors, the more profitable it is. In this study, a sample of 30 firms listed on Nairobi Stock Exchange for the periods1993 to 2008 was used. Both the ported OLS and the fixed effects regression models were used.

Gill, Biger and Mathur (2010) analyzed the relationship between working capital management and profitability of 88 American firms listed on New York Stock Exchange for a period of 3 years from2005 to 2007 was selected. The data was analyzed using Pearson Bivariate Correlation Analysis andWeighted Least Squares (WLS) Regression techniques. They found statistically significant relationshipbetween the cash conversion cycle and profitability, measured through gross operating profit. It followed that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

Although studies on working capital management have been carried out by various scholars suchas Gul, Khan, Rehman, Khan, Khan and Khan (2013); Oladipupo and Okafor (2013); Ahmad (2013);Akoto, Awunyo-Vitor and Angmor (2013); Omesa, Maniagi, Musiega and Makori (2013); Maradi,Salehi and Arianpoor (2012); Gakure, Cheluget, Onyango and Keraro (2012); Sharma and Kumar(2011); Mathuva (2010); and Gill, Biger and Mathur (2010, it is instructive to note that there is still ambiguity regarding the appropriate variables that might serve as proxies for working capital management. These studies do not provide clear-cut direction of the relationship between working capital and firm's profitability. Further examination of these studies reveals that there is little of empirical evidence on the working capital management and its impact on the firm profitability in case of consumer goods industry sectors of Rwanda. Therefore, the present study is an attempt to fill this gap and estimates the relationship between working capital management variables (Average Collection Period, Inventory Conversion Period, Average Payment Period and Cash Conversion Cycle) and firm profitability of consumer goods industry in Rwanda.

6. RESULTS AND DISCUSSION OF FINDINGS

6.1 Descriptive statistics

Table 1: Descriptive statistics of variables

The table 1 shows the level of application of working capital management, the results indicate different level according to the items due to the financial statements results in the different of mean and standard deviation.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Interpretation
Inventory Conversion Period	8	118.16	191.91	151.6613	27.15452	Very High mean with homogeneity of the responses
Average Collection Period	8	43.66	74.93	57.3013	9.01375	High mean with Homogeneity of responses
Average Payment Period	8	93.35	152.60	132.1025	21.61007	Very High mean with homogeneity of the response
Cash Conversion Cycle	8	29.57	109.46	76.8588	38.44567	High mean with Homogeneity of responses
Return on Capital Employed	8	8.43	89.48	42.8175	32.03216	High mean with Homogeneity of responses
Gross Profit Margin	8	.29	.60	.4136	.11875	Neutrality with Homogeneity of responses
Net Profit Margin	8	.02	.29	.1583	.09835	Neutrality with Homogeneity of responses

This table 1 shows the Level of application of Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed as elements of working capital management indicates that the fact appears more whereby highest mean indicated was Inventory Conversion Period at 151.6613 with standard deviation of 27.15452 which means there was high mean with Homogeneity of responses. This indicating that Blarirwa manager's main focus in working capital management at high level to make their objectives be achieved. This implies that as working capital is effectively managed, mostly influencing consumer goods industries to have good performance as evidenced by the above results.

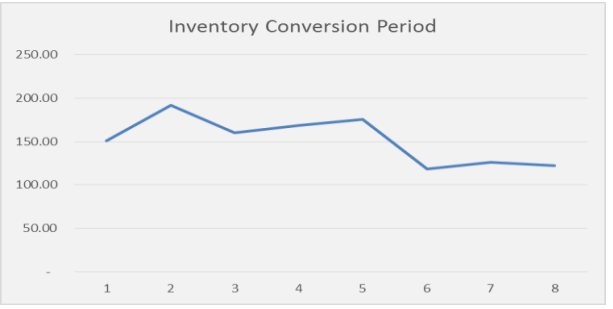
6.2 Trend analysis

The trend analysis has been carried out using the graphs, the researcher indicates the changes on the variables used in this research and trends used to indicate the increase and decrease of these variables that occurred during the period of 2010-2017 which is the period of this research.

6.2.1 Inventory conversion period

The figure 2 shows the variation in inventory conversion period for the period of 8 years from 2010 to 2017.

Figure 2: Inventory conversion period



The results in figure 2 revealed that there is mostly a constant inventory conversion period for every year. For instance, the year 2011 and 2014 knew a few days of conversion comparing to the remaining years. The constant trend with sometimes few days of conversion indicates a quick conversion in stock which should imply an increase in profit.

6.2.2 Average collection period

The figure 3 indicates the period in which the cash from credit sales is collected.

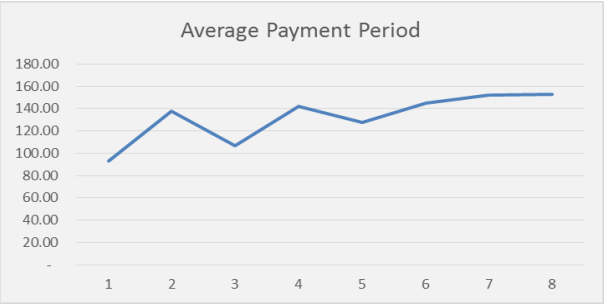
Figure 3: Average collection period

As hereto designated, the average collection periods tend to decrease as far as the years going, except in the year 2013 which knew high trend in collection of receivables; the scenario seems to be good since the average collection period is less than the average payment period. As so, the company's liquidity to settle the debt is available for longer.

6.2.3 Average payment period

This figure shows the trend of paying the debt owed by the company toward the outsiders

Figure 4: Average payment period

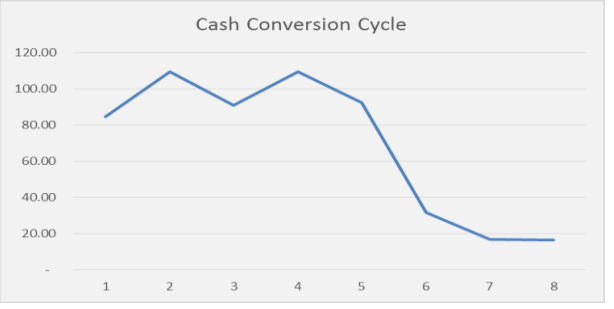


The figure 4 presents the situation of the payment period for the debt owed by the company for outsiders, the trend indicates a positive increase in payment period; this is to indicate that the payment period increase year to year. This is good since the company has sufficient period to collect the cash for settlement purpose. The year 2011 and 2013 recognized few period days of payment comparing to other years but still it is higher than the collection period which is good.

6.2.4 Cash conversion cycle

The CCC situation present a combination of ICP+ACP-APP

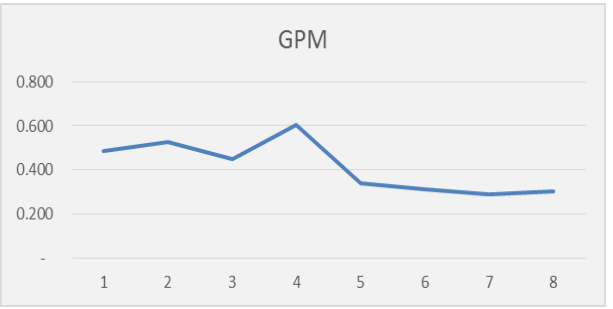
Figure 5: Cash conversion cycle



6.2.5 GPM

The figure hereto present the movement of GPM as far as the year increased from 2010 to 2017

Figure 6: GPM

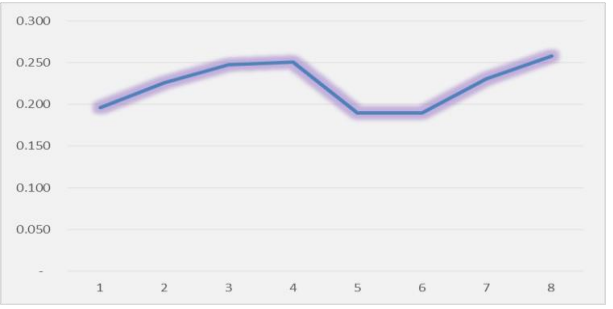


The gross profit margin of BRALIRWA tend sometimes to increase and other time decrease, but whatever the case does not impact the net profitability since you can have high level of GPM but if the level of operating expenses is high, the Net profit become not efficient. So, it is good to have look of GPM with effective management of operating expenses so as to have high profitability level.

6.2.6 NPM

The 7 character show the faction of NPM in BLARIRWA

Figure 7: NPM



Reference to the figure 7, the NPM of BRALIRWA has a positive trend for like whole years except year 2015 and 2016. The high level of profitability of BRALIRWA implies it capacity in performance for all corners

6.3 Correlation analysis

The correlation coefficient indicates the relationship between the element of working capital as independent variable and profitability of BRALIRWA plc

This section analyzes how working capital management contribute to profitability of consumer goods industry. The results were detailed in the below table. In correlating using analysis of Spearman's Correlation, the research got the table as follows:

Table 2: Correlation matrix

	Inventory conversion Period	Average Collection Period	Average Payment Period	Cash Conversion Cycle	Return on Capital Employed	Gross Profit Margin	Net Profit Margin
Inventory Conversion Period	1.000						
Average Collection Period	-.071	1.000					
Average Payment Period	-.524	.643	1.000				
Cash Conversion Cycle	.881**	-.167	-.643	1.000			
Return on Capital Employed	.119	-.262	-.762	.286	1.000		
Gross Profit Margin	.690	-.095	-.595	.714*	.524	1.000	
Net Profit Margin	.643	-.095	-.619	.714*	.619	.929**	1.000

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

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

From the table 2, there is only great relationship between Cash Conversion Cycle and profitability of BRALIRWA, therefore, there is a positive and very strong correlation between NPM and CCC (r=.88, p=0.05). In other words, when working capital is effectively managed, profitability in BRALIRWA is improved. This is correlated at high level where correlation is found in exact sciences. This helps to confirm that there is relationship between management of working capital and profitability of consumer goods industry in Rwanda with reference of BRALIRWA.

6.4 Regression analysis

The linear regression analysis models show the linear relationship between the dependent variable which is profitability of consumer goods industry and independent variables which are Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed.

Table 3: Model of NPM

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.814[a]	.662	.211	.10545

a. Predictors: (Constant), Return on Capital Employed, Inventory conversion Period, Average Collection Period, Average Payment Period

As indicated above, the coefficient of determination R2 shows the degree of association between Variables and consumer goods industry in Rwanda. The results of the linear regression indicate that R2=.662 and R= .814 this is an indication that there is a strong relationship between Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed and net profit of consumer goods industry in Rwanda with reference of BRALIRWA.

Table 4: Model of GPM

The table 4.4 of indicate the relationship between Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed and Gross profit of BRALIRWA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.922[a]	.849	.649	.05828

a. Predictors: (Constant), Return on Capital Employed, Inventory conversion Period, Average Collection Period, Average Payment Period

The coefficient of determination R2 shows the degree of association between Variables and consumer goods industry in Rwanda. The results of the linear regression indicate that R2=.849 and R= .922 this is an indication that there is a strong relationship between Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle, Return on Capital Employed and net profit of consumer goods industry in Rwanda with reference of BRALIRWA.

Table 5: ANOVA for NPM

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.058	4	.014	4.233	.033[b]
	Residual	.010	3	.003		
	Total	.068	7			

a. Dependent Variable: Net Profit Margin

b. Predictors: (Constant), Return on Capital Employed, Inventory conversion Period, Average Collection Period, Average Payment Period

The table 5 indicates there was positive gradient which reveals that an effective working capital management lead to increased profitability of consumer goods industry in Rwanda.

Table 6: ANOVA for GPM

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.065	4	.016	1.469	.039[b]
	Residual	.033	3	.011		
	Total	.099	7			

a. Dependent Variable: Gross Profit Margin

b. Predictors: (Constant), Return on Capital Employed, Inventory conversion Period, Average Collection Period, Average Payment Period

The tables 6 show the results of ANOVA test which reveal that the working capital management have significant effect on profitability of consumer goods industry in Rwanda. Since the P value is less than 5% level of significance. This is depicted by linear regression model: GPM = ß0+ B1X_1+ B2X_2+ B3X_3+ B4X_4+ B5X_5+£, the P value was 0.039 and 0.03 implying that the model GPM = ß0+ B1X_1+ B2X_2+ B3X_3+ B4X_4+ B5X_5+£, is significant.

Table 7: Coefficients for NPM

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.460	1.263		-.364	.740
	Inventory conversion Period	.002	.002	.638	1.092	.355
	Average Collection Period	.002	.013	.198	.160	.883
	Average Payment Period	.000	.011	.105	.043	.969
	Return on Capital Employed	.002	.005	.615	.359	.743

a. Dependent Variable: Net Profit Margin

$$NPM = -.460 + .002ICP + .002ACP + .000APP + .002ROCE + £$$

Table 8: Coefficients for GPM

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.365	2.285		-.160	.883
	Inventory conversion Period	.003	.004	.639	.729	.519
	Average Collection Period	.002	.024	.151	.081	.940
	Average Payment Period	.001	.020	.213	.057	.958
	Return on Capital Employed	.002	.010	.548	.213	.845

a. Dependent Variable: Gross Profit Margin

$$GPM = -.365 + .003ICP + .002ACP + .001APP + .002ROCE + £$$

7. CONCLUSION

Reference to the findings of the study, it is noted that BRALIRWA experience an effective management of working capital elements like Inventory Conversion Period, Average Collection Period, Average Payment Period, Cash Conversion Cycle which in return contribute to its profitability.

REFERENCES

1. Abdul, R. and Mohamed, N. (2007). *Working Capital Management and Profitability – Case of Pakistani Firms*. International Review of Business Research Papers Vol. 3 No.1. pp.279 –300.
2. Brealey, R.Myers, S&Allen (2006). *Working capital management*, corporate finance, Newyork:Mcgraw Hill.
3. Emery DR, Finnerty JD. (1997). *Corporate financial management,* 2nd ed. Upper Saddle River, Prentice Hall Inc.
4. Falope OI, Ajilore OT. (2009). *Working Capital Management and Corporate Profitability:* Evidence from panel data analysis of selected quoted companies in Nigeria. Research Journal of Business Management.
5. Garcia.T, Pedro.J and Pedro. M.S (2007). *Effects of Working Capital Management on SME Profitability",* International Journal of Managerial Finance.
6. Gill, A., Biger, N., Mathur, N. (2010). *The relationship between Working Capital Management and Profitability:* Evidence from the United States. Business and Economics Journal.
7. Guthman, H.G. & Dougall, H.E. (1948). *Corporate financial policy,* 2nd ed. New York, Prentice-Hall Inc.
8. Ikram ul Haq, Sohail, Zaman, and Alam (2011). *The Relationship between Working Capital Management and Profitability:* A Case Study of Cement Industry in Pakistan.
9. Kasozi, J. (2017). *The Effect of Working Capital Management on Profitability: A Case of Listed Manufacturing Firms in South Africa*. Investment Management and Financial Innovations, 14(2), 336-346. https://doi.org/10.21511/imfi.14 (2-2).2017.05
10. Lazaridis, J; Tryfonidis, D (2006).*Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange.* Journal of Financial Management and Analysis.
11. Mathuva D, (2010).*The Influence of Working Capital Management Components on Corporate Profitability:* A Survey on Rwandan Listed Firms". Research Journal of Business Management.

12. Mohamad, N.E.A.B, Saad, N.B.M (2010).*Working Capital Management: The Effect of Market Valuation and Profitability in Malaysia.* International Journal of Business and Management.
13. Nandom, Y. I., Mubarik, A. M., & Abdul, A. F. (2017). The Impact of Working Capital Management on Corporate Performance: Evidence from listed non-financial firms in Ghana. *European Journal of Accounting, Auditing and Finance Research, 5*(3), 68-75.
14. Nobanee, H., Abdullatif, M., & AslHajjar, M. (2011). *Cash Conversion Cycle and Firm's Performance of Japanese Firms.* Asian Review of Accounting.
15. Rafuse, M. E. (1996). *Working Capital Management:* An Urgent Need to Refocus, Journal of Management Decision.
16. RBS (2011). *Working capital management*. Retrieved from http://mib.rbs.com/docs/MIB/Insight/ Raising capital-and-the-search-for-liquidity/Working- Capital-Management.pdf.
17. Sanger JS. (2001). Working capital: a modern approach. Financial Executive, 69.
18. Sebastian Ofumbia (2012). *Working Capital Management, Liquidity and Corporate Profitability among quoted Firms in Nigeria Evidence from the Productive Sector*, International Journal of Academic Research in Accounting, Finance and Management Sciences.
19. Shin, H.H and Soenen, L. (1998). *Efficiency of Working Capital Management and Corporate Profitability.* Financial Practice and Education.
20. Tuffour, J. K., & Boateng, J. A. (2017). Is Working Capital Management Important? Empirical Evidence from Manufacturing Companies in Ghana.*Review of Innovation and Competitiveness: A Journal of Economic and Social Research*,*3*(1), 5-20.
21. Van Horne, J. C. &Wachowicz, J. M. (2000). *Fundamentals of Financial Management, 11thEd*. New Jersy: Prentice Hall Inc.