

Working Capital Management and Profitability of Firms Listed Under Manufacturing and Allied Sector at the Nairobi Securities Exchange, Kenya

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Abstract: Manufacturing sector remains a critical force in both advanced and developing economies. Globally, production in the manufacturing sectors is estimated by gross value added, and it indicates that this output continues to grow by approximately 2.7 percent every year in advanced economies whereas developing countries experience 7.4 percent growth every year. In Kenya, despite the government's perception that the manufacturing sector would play a critical role in its long term objectives, especially in contributing to economic growth, financial results of listed manufacturing firms have indicated a declining trend in revenues and some companies have issued profit warnings, over the past few years. The general objective of the study was to establish effect of working capital management on profitability of firms listed under manufacturing and Allied sector at Nairobi Securities Exchange, Kenya. The specific objectives were to assess the effect of cash management, inventory management, account receivable management and account payable management on profitability of firms listed under manufacturing and allied sector at Nairobi Securities Exchange, Kenya. The target population comprised of eight firms listed under manufacturing and Allied sector at Nairobi Securities Exchange, Kenya. Secondary data was obtained from specific manufacturing company's audited financial statements. SPSS was used to undertake descriptive analysis, multiple regression and correlation coefficient. The study found that account payable management had negative and statistically significance effect on the profitability ($\beta=-3.898$, $p\text{-value}=0.026$). Cash management had negative but statistically insignificance effect ($\beta=-1.336$, $p\text{-value}=0.117$). Inventory management had positive but statistically insignificance effect ($\beta=0.109$, $p\text{-value}=0.369$). Accounts receivable management had positive but statistically insignificance effect on the profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya ($\beta=1.690$, $p\text{-value}=0.171$). Correlation analysis indicated that cash management ($r = -0.086$, $p = 0.839$), inventory management ($r = -0.149$, $p = 0.724$) and account receivable management ($r = -0.165$, $p = 0.696$) had weak negative correlation that was statistically insignificantly at 5% level of significance. Account payable management ($r = -0.804$, $p = 0.016$) had a strong negative and statistically significant effect. Accordingly, the study concludes that account payable management is the key factor affecting profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya. The study recommends that manufacturing firms' management should come up with credit policy on when and how to pay the creditors and set the credit limit beyond which the company could not stretch. In addition, a policy on efficient and effective cash management with the aim of enhancing liquidity and risks associated with it should be put in place. Moreover manufacturing firms should formulate policy that will assist in effective management of account receivable and inventory to avoid losses emanating resulting from bad debts, spillage, wastage and pilferage.

Key Words: Working capital management, profitability, Nairobi Securities Exchange, cash management, inventory management, accounts receivables management and accounts payable management.

Date of Submission: 18-11-2019

Date of Acceptance: 04-12-2019

I. Introduction and Background to the Study

Manufacturing is among the key pillars to economic development in the country. In Africa, the manufacturing sector is perceived as the ideal industry driver of Africa's development agenda. Africa Progress Panel (2014) identifies manufacturing development as a necessity for sustained and accelerated economic growth across the continent. The continent produces approximately 1.5 percent of the world's manufacturing products (World Bank, 2012). According World Bank (2014), despite the efforts of the Kenyan government to set up policies that seek to improve the manufacturing sector, the sector which is the backbone of vision 2030

has stagnated. In the year 2017 manufacturing was identified by the jubilee government as one of the four key agenda to steer economic development. Bigsten, Peter & Mans (2010), opined that to speed up growth in Kenya's manufacturing sector, substantial investment is required. To achieve the government objectives proper adherence to working capital management by manufacturing companies is essential to ensure that these firms do not suffer from financial distress. According to Akoto, Awunyo and Angmor, (2013), the main objective of working capital management is to make sure that an entity has enough cash flows to continue with its operations. Typically, this is the capital used for daily functions of an entity. "Current" is a one year period, or less (Emery & Finnerty, 2007).

Guthmann and Dougall (1948) view working capital as the difference between current assets and liabilities. Therefore, the focus is geared towards cash, inventory, accounts receivable and accounts payable management. According to Abioro (2013), the main goal of cash management is to make sure that there exists a constant cash flow, hence smooth business operations. Barrett (2015) documents that the main goal of cash management is to have sufficient money wherever they are needed, and that cash management involves sufficient timing of expenditure decisions, banking of revenue, and more so accurate estimation of cash flows. Ahmet (2012) indicates that proper management of efficient accounts receivable helps a firm to increase their profit levels, especially by reducing transactional costs and raising funds. This also reduces the risks associated with accounts receivable which include bad debts and debtors' delinquency which if not well monitored can affect severely on the firm's profits. Brigham *et al.* (2015), asserted that management of inventory affects the amount of raw materials, work in progress as well as finished goods that are vital in sustenance of efficient operations and sales. They observed that inventory management should minimize expenses incurred in inventory handling, carrying and other financial needs. Brigham (2014), Accounts payable management is important as it helps to establish the maximum stretching period to the suppliers that is well aligned with the value of maximization.

Niresh and Velnampy (2014) contend that the goal of most organizations is to maximize their profits. According to Ogbadu (2009), profits are used to measure the performance of a business through different indices. In addition, profitability is also crucial as it determines the risk of a company's insolvency levels. Consequently, businesses that are highly profitable have the ability to benefit their owners through large volumes of return on their ROIs. Despite the essentiality of the manufacturing sector to the Kenyan Economy, its profitability has remained erratic and unstable. Though empirical research has linked working capital management to profitability, it remains unclear if the same has a significant effect on profit levels of the manufacturing firms listed at Nairobi Securities Exchange. Bagchi and Khamrui (2012) found that there exist an inverse relationship between working capital management and the firm's profit levels. Similarly, Ganeshan (2012) studied the Telecommunication industry and found an inverse relationship between working capital and profit levels.

Teruel and Solano (2005) contends that the concept of working capital management is primarily focused on optimizing liquidity, profitability and shareholders' value. Hence, efficient and effective working capital management revolves around setting policy and implementing it in day to day operations to ensure that the firms do not suffer from financial distress. Brigham (2004), affirmed that working capital policy revolves around policies on target standards for every current assets and more so how these current assets will be financed. This policy aims at enhancing profit levels, liquidity and risks associated with it. The main goal of effective cash management is development of a sustainable structure of cash and marketable securities, consistent with the firm's objectives (Brigham, 2009; Gitman, 2007). According to Attom (2014), the success of enterprises primarily depends on several factors that include sound cash management, accounts receivable management, inventory management and accounts payables management.

Brigham (2009) indicates that cash and marketable securities ought to be managed appropriately to strike and get a balance in the event of a risk of insufficient liquid resources, and the cost of holding them as well as other high level resources. Sharma and Kumar (2011) found that management of receivables is mostly affected by the nature of credit policies and procedures within a firm. According to Deloof (2013), high levels of receivables' ratio on profits may contribute to a negative effect on a business. Brigham (2014) indicates that holding an optimal level of inventory maximizes firms' profitability. This was attributed to reduction of inventory holding cost and carrying cost. Gallinger and Healey (2011) contends that the management of accounts payables helps to ensure that in the bid to stretch accounts payables is maintained at appropriate level. They noted that the objective for firms stretching the repayment period is to fund the investment in current assets from trade creditors and hence reduce the need for external financing.

II. Statement of the Problem

In the recent past, economies from the East, such as China and India have risen into the top ranks of manufacturing as well as in the world's fifteen largest manufacturing giants (McKinsey Global Institute, 2012). In Africa, the manufacturing sector is perceived as the ideal industry driver of Africa's development agenda

(Africa Progress Panel, 2014). It also identifies manufacturing development as a necessity for sustained and accelerated economic growth across the continent. Despite the efforts of the Kenyan government to set up policies that seek to improve the manufacturing sector, the sector which is the backbone of vision 2030 has stagnated (World Bank, 2014). The trend of performance in manufacturing sector in Kenya from Kenya National Bureau of Statistics through an Economic Survey in 2017 noted that the production of Kenya's manufacturing exports has declines significantly in the recent past. It shows that manufacturing recorded a real growth of 3.5% in 2016 compared to a revised growth of 3.6% in 2015. During the same period, the Producer Price Index (PPI) increased marginally by 0.2% in 2016. The report further indicates that credit to the sector decreased by 4.6% from Sh290.9 billion in 2015 to Sh277.4 billion in 2016 cutting down funding for scaling-up operations.

Empirical evidence on working capital management's relationship with profitability is extensive (Raheman& Nasr, 2007; Ching, 2011; Alam, 2011; Bagchi&Khamrui 2012). These studies found that there exist an inverse relationship with the firm's profit levels and a strong correlation between its size, logarithm of sale and the level of profits. Similarly, Ganeshan (2012) studied the Telecommunication industry and found an inverse relationship between working capital and profit levels. Hence the studies reviewed above present contradicting findings and that the nature of industry was quite different compared to manufacturing industry under current assessment thus presenting a contextual gap. Izadima and Taki (2010) explored the effect of working capital management on profit levels of several entities on Tehran Stock Exchange between the years 2001 to 2008. In the study, the return on asset was adopted as the real measure for profits. The study found a significant relationship between cash conversion cycle and assets' returns. Additionally, it established that most inventory investments and receivable accounts lead to a major decline in profit levels. The study failed to consider manufacturing firms at NSE. Mathuva (2010) dwelt on the implications of working capital management on profitability of entities listed in NSE and observed a direct correlation between payable days, inventory days and profitability. This findings deviates from the current study since it does not specifically focus on firms listed under the manufacturing and allied sector, which is the focus of the current study. Consequently, the current study sought to fill the gaps identified by determining the effect of working capital management on profitability of firms listed under manufacturing and allied sector at Nairobi Securities Exchange, Kenya

III. Objectives of the Study

The specific objectives of the study were:

- i. To establish the effect of Cash Management on Profitability of firms listed under manufacturing and allied sector at Nairobi Securities Exchange, Kenya.
- ii. To determine the effect of Inventory Management on Profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya.
- iii. To establish the effect of Accounts Receivable Management on Profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya.
- iv. To determine the effect Accounts Payable Management on Profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya.

IV. Research Hypotheses

The study tested the following null hypotheses:

H₀₁: Cash Management does not significantly affect Profitability of firms listed under Manufacturing and Allied sector at Nairobi Securities Exchange, Kenya.

H₀₂: Inventory Management does not significantly affect Profitability of firms listed under Manufacturing and Allied sector at Nairobi Securities Exchange, Kenya.

H₀₃: Accounts Receivable Management does not significantly affect Profitability of firms listed under Manufacturing and Allied sector at Nairobi Securities Exchange, Kenya.

H₀₄: Accounts Payable Management does not significantly affect Profitability of firms listed under Manufacturing and Allied sector at Nairobi Securities Exchange, Kenya.

V. Significance of the Study

The study findings could give insight that will help in future policy formulation in the manufacturing in Kenya. In addition, different individuals such as managers and administrators of the manufacturing companies listed on the Nairobi Securities Exchange will find the study results and findings relevant in their operations and management of the company. This could further enable them formulate policy that will assist in effective management of working capital for reduced spillage, reduced wastage, reduced pilferage and better profits. Kenya Association of Manufacturers could equally stand to benefit from this study's empirical evidence on the contribution of each component of working capital management to profitability. These will enable them plan on how to manage different components of working capital.

The study outcome will be of significance to various stakeholders in terms of relevant areas of working capital management needs that need to be improved. The results and findings of the study could be ideal to the government in the formulation of policy to ensure that the companies in the listed manufacturing companies are able to avoid losses courtesy of flexible regulations set by the government in the market. Kenya Association of Manufacturers could equally stand to benefit from this study's empirical evidence on the contribution of each component of working capital management to profitability. These will enable them plan on how to manage different components of working capital. Finally, the research findings could be important to other academicians and researcher in comparing the findings. This study could therefore help close the gap between the various studies done regarding the working management.

VI. Literature Review

a. Theoretical Review

The study was anchored on the cash conversion cycle, financing advantage and stakeholders theories. Cash conversion cycle theory was formulated by two scholars that is Richards and Laughlin's (1980). They operationalized the cash cycle concept into the cash conversion cycle theory. The theory states that at 'ceteris paribus' short cash conversion means efficient working capital management which promotes the profitability, liquidity of the firm as well as improves the value of the firm. Gitman (2009) contends that cash conversion cycle is concerned with the time firm's resources are tied up. On the other hand, the opposite is true that long cash conversation cycle reduced profitability and lowers the value of the firm. According to Corey et al., (2013), it is prudent to manage cash conversion cycle because when the cash collection mechanisms are not as effective the debtors will not pay as promptly as possible which brings about a lag in the growth of the firm. In such a case firm will have reduced liquidity which could lead to financial distress. The cash conversion cycle theory is viewed as the ultimate measure for working capital since it gives an accurate time lag between expenses while buying different raw materials and the collection of sales as compensation for the processed goods (Padachi, 2006). Cash conversion cycle is essential to this research study since it largely impacts the liquidity and amount of profits earned by a firm. This theory deals with both current assets and liabilities.

Financing advantage theory was put forward by Schwartz (1974) and guides managers in setting up an effective receivables management strategies. The theory asserts that contemporary suppliers tend to have an advantage over conventional lenders by carrying out the assessment of clients' credit worthiness, monitoring the repayments and forcing repayment of credit in case of default (Gul, Khan & Khan, 2017). The theory proposes that supplier in the manufacturing sector are more advantaged in financing the manufacturing firms than financial institutions for they can offer various strategies to reduce cost of supplying credit (Gul, Khan & Khan, 2017). A firm should therefore set up creditors management policies that will ensure the recovery of the credit offered. The current study finds the financing advantage theory relevant because it supports the need to put up measures to ensure that there is management of receivables.

Stakeholder Theory suggests that firms have both stock and stakeholders who play different roles (Donaldson & Preston, 1995). This theory argues that firms have obligations toward these members in the form of owners, shareholders or equity holders. This function has been taken over by the view that other significant stakeholders should be considered by the welfare of a company. Freeman and Reed (1983), observed that a wide definition of stakeholders should comprise of different individual who affect the achievement of the company's goals or that person or group of persons influenced in one way or another through a company' diverse activities, and such groups include public interest groups. According to Belkaoui (2002), stakeholders' perception regarding an entity requires the use of value added as a measure of the created total wealth to determine the company's profitability incurred and created in favor of all stakeholders. This theory supports profitability as a means of increasing the stakeholder's wealth.

b. Empirical Review

Working capital management is defined as efficient management of assets and liabilities (Pandey, 2011). Working capital management can further be divided into two categories which include gross and net working capital. Gross working capital refers to the investment in the current assets whereas net working capital involves the difference between current assets and liabilities. Teruel and Solano (2005), indicated that both gross and net working capital concepts are critical to the achievement of efficient management of working capital since the gross working capital approach is often concerned with how to boost investment in current asset as well as how this should be financed while net working capital is a concept that shows the position of the liquidity and suggests the extent to which working capital needs may be financed by long-term capital. Saba (2015) examined the influence of working capital management on the level of profits of several Nigerian firms from 2009 to 2012. The study established an inverse association between inventory turnover period and profitability of the listed companies in Nigeria. Iyewumi (2015) investigated the influence of working capital Management on the profitability of different firms on oil sector in Nigeria from 1995 to 2011 where secondary

data was collected. The findings indicated that the working capital management such as average days resources are stored, time consumed by payables and average days of receivables affected the performance of oil products in Nigeria.

Yahaya (2016) assessed the effect of working capital management on capital trends of the Nigerian pharmaceutical firms. The study found that there was significant and positive relationship between financial performance and the average payment period. Madugba and Ogbonnaya (2016) explored the impact of working capital management on financial performance of companies. The study found a positive correlation between the payments and the profitability of companies and an inverse relationship between working capital management and performance of a company. The study found an insignificant relationship between cash management and performance of institutions, firms. Wongthatsanekorn (2015) assessed the effect of payable deferral, cash conversion cycle time, receivable, and resource or inventory conversion time on corporate profit levels of listed private hospitals in Thailand stock exchange. The study observed cash-to-cash cycle, time inventory and receivable conversion periods had an inverse relationship with assets turnover. The study indicated that receivable conversion period was inversely related to asset turnover period.

Manufacturing industries refers to those industries involved in the manufacturing and processing of goods, and indulge in the creation of new commodities or in value addition. The final products can either be sold as finished product or be used as an intermediate product for further processing of other products (Lawrence & Chad, 2012). Manufacturing sector requires a deeper analysis and assessment because of its relevance to the overall economic impact to the country (World Bank, 2014). According to the World Development Indicators (2013), the production of Kenya's manufacturing exports has declines in the recent past. Nevertheless, there remains room for expansion in the Kenyan manufacturing sector (Klynveld Peat Marwick Goerdeler, 2014). This study therefore aims to establish effect of working capital management on profitability of firms listed under manufacturing and Allied sector at Nairobi Securities Exchange, Kenya.

Nyabwanga, Lumumba, Oondo and Otieno (2016) sought to assess the impact of working capital management on the financial status of 41 manufacturing and 72 trading firms that were selected from Kisii region, Kenya. The study showed that cash management, account receivable management and inventory management had huge implications on the relations in SSE's financial performance. The reviewed study concentrated on the manufacturing in Kisii region whereas this study mainly focuses on manufacturing and allied companies listed at Nairobi Securities Exchange, Kenya. Mungai (2013) sought to explore the nature of the association between working capital management and profitability of Kenyan private hospitals. The study observed a strong correlation between the management of inventory and profit levels. The study further found a negative and significant relationship between average accounts payable and profitability of private hospitals in Kenya. The study presents conceptual gap and contextual gap in that Mungai concentrated on private hospitals financial performance and the current study have concentrated on profitability of manufacturing and allied companies at Nairobi Securities Exchange, Kenya.

Gul, Khan, Khan and Khan, Rehman (2017) attempted to comprehend the relationship between practices involved in working capital management and their respective performance in the Pakistan market from the beginning of 2006 to 2012. Return of assets was the study's dependent variable and it was used as the ultimate measure of the firms' profitability. Independent variables included the cash conversion cycle, the number of days account receivable, inventory and account payable management. From the study's outcome, growth account payable had a strong correlation with profitability. On the other hand, cash conversion cycle, account receivable and inventory had an inverse association with the profitability. Majid, Yasir and Yousaf (2014) explored the implications of cash conversion cycle on the performance of several companies. Data was collected from 16 cement companies in Pakistan. The period under consideration was 2007 to 2012. The finding of the study revealed that there is strong relationship between cash conversion ratio and the profitability of cement firms in Pakistan.

VII. Research Methodology

This study used a causal research design to achieve the set specific objectives. In causal research, this design is mainly used to establish the exact implications or effect of a particular on an existing norm and assumptions. Kothari (2011) clarifies that a majority of the social researchers tend to use causal explanations that show different tests for hypotheses (Kothari, 2011). A census was conducted for all the eight firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya. Mugenda and Mugenda (2003) argue that a census sampling design is adopted when the population in a study is of substantial size and it is desirable to incorporate the whole target population.

Data collected was fed into statistical software and coordinated to help in deducing the intended output that could enhance data interpretation and conclusion. Descriptive statistics was used to describe the populations. In addition, trend analysis was conducted to presents the nature of relationship between variables at specific time period. Inferential statistics was used to test the relationship between independent and dependent

variables. Linear multiple regression analysis was used to depict the model where profitability was expressed as a function of cash management, inventory management, accounts receivables management and accounts payable management as shown

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it}$$

Where:

Y_{it} – Profitability of firm i at time t , β_0 – Intercept, X_{1it} – Cash management of firm i at time t , X_{2it} – Inventory management of firm i at time t , X_{3it} – Accounts receivable management of firm i at time t , X_{4it} – Accounts payable management of firm i at time t , $\beta_1 - \beta_4$ = coefficients
 ϵ = Error Term.

VIII. Results And Findings

c. Manufacturing firms by total revenue

The analysis shows eight manufacturing firms total revenue comparative figures for year 2013 to 2018. Descriptive statistics in Table 4.1 are further presented in figure 4.1 where the analysis and interpretation are given.

Table 4.1: Manufacturing firms by total revenue

Firms	2013	2014	2015	2016	2017	2018	Mean
B.O.C Kenya Ltd	1,242,602	1,296,679	1,186,420	1,076,719	967,626	966,543	1,122,765
B.A.T	30,925,000	21,032,333	22,257,182	36,676,249	34,467,704	36,495,757	30,309,038
Carbacid	952,836	826,360	809,719	831,761	757,051	753,164	821,815
E.A.B.L	59,061,875	61,292,176	64,420,458	64,322,220	70,247,065	73,456,832	65,466,771
Mumias Sugar	11,957,823	13,075,912	5,531,357	6,285,917	2,091,751	1,379,223	6,720,331
Unga Group	15,142,017	17,002,302	18,723,250	18,947,944	19,528,785	19,982,070	18,221,061
Kenya Orchards	470,905	580,622	609,743	645,865	736,914	722,392	627,740
Flame Tree Group	16,013,567	17,648,477	22,831,519	25,446,285	29,035,468	30,535,169	23,585,081

Source: Research data, 2019

The trend analysis shows that East African Breweries Ltd registered the highest overall revenue which depicts a gradual increase over the years. Similarly, Unga Group Ltd registered a gradual increase in revenue over the same period. Flame Tree Group Holdings Ltd maintained relatively small improvement of revenue. British American Tobacco Kenya Ltd registered a decline in total revenue from year 2013 to 2014 followed by an upward trend up to year 2016. Mumias Sugar Co. Ltd registered a downward trend in total revenue from the year 2014 to 2018. BOC Kenya Ltd, Carbacid Investments Ltd and Kenya Orchards Ltd registered the lowest revenue over the years compared to other companies considered by the study. Figure 4.1 shows the variations of total revenue of eight manufacturing firms

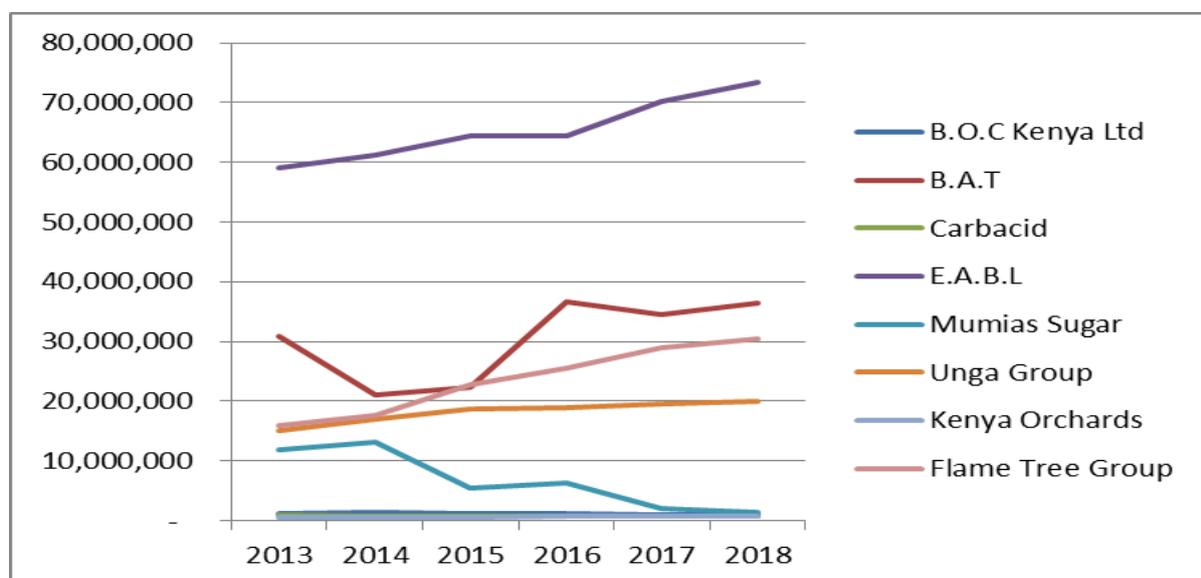


Figure 4.1: Manufacturing firms by total revenue

Source: Research data, 2019

d. Manufacturing firms by profit after tax

The analysis shows eight manufacturing firms profit after tax comparative figures for year 2013 to 2018. Descriptive statistics in Table 4.2 are further presented in figure 4.2 where the analysis and interpretation are given.

Table 4.2: Manufacturing firms by profit after tax

Firms	2013	2014	2015	2016	2017	2018	Mean
B.O.C Kenya Ltd	202,636	229,625	148,600	126,323	39,379	69,572	136,023
B.A.T	4,199,000	4,255,314	4,976,256	4,234,334	3,336,006	4,866,943	4,311,309
Carbacid	475,541	490,641	393,863	375,568	352,300	298,526	397,740
E.A.B.L	6,522,200	6,858,608	9,574,905	10,270,813	8,514,568	7,255,555	8,166,108
Mumias Sugar	1,660,406	2,706,595	(4,644,801)	(4,756,591)	(6,773,934)	(15,735,609)	(4,590,656)
Unga Group	338,196	474,494	621,866	508,816	(7,039)	783,203	453,256
Kenya Orchards	24,153	(252,615)	289,156	37,631	57,346	88,861	40,756
Flame Tree Group	1,490,474	1,531,262	1,788,481	1,449,805	397,545	337,851	1,165,903

Source: Research data, 2019

The trend analysis shows that East African Breweries Ltd registered the highest overall profit after tax which depicts a gradual increase between the year 2013 and 2016 followed by decrease. British American Tobacco Kenya Ltd registered a slight improvement of profit before tax from year 2013 to 2017 followed by an upward trend in the year 2018. Similarly, Unga Group Ltd depicted similar trend over the same period. Flame Tree Group Holdings Ltd, BOC Kenya Ltd, Carbacid Investments Ltd and Kenya Orchards Ltd registered the lowest profit after tax over the years compared to other companies which reported profit. Mumias Sugar Co. Ltd registered a loss even after computation of tax the year 2014 to 2018. Figure 4.2 shows the variations of profit after tax of eight manufacturing firms

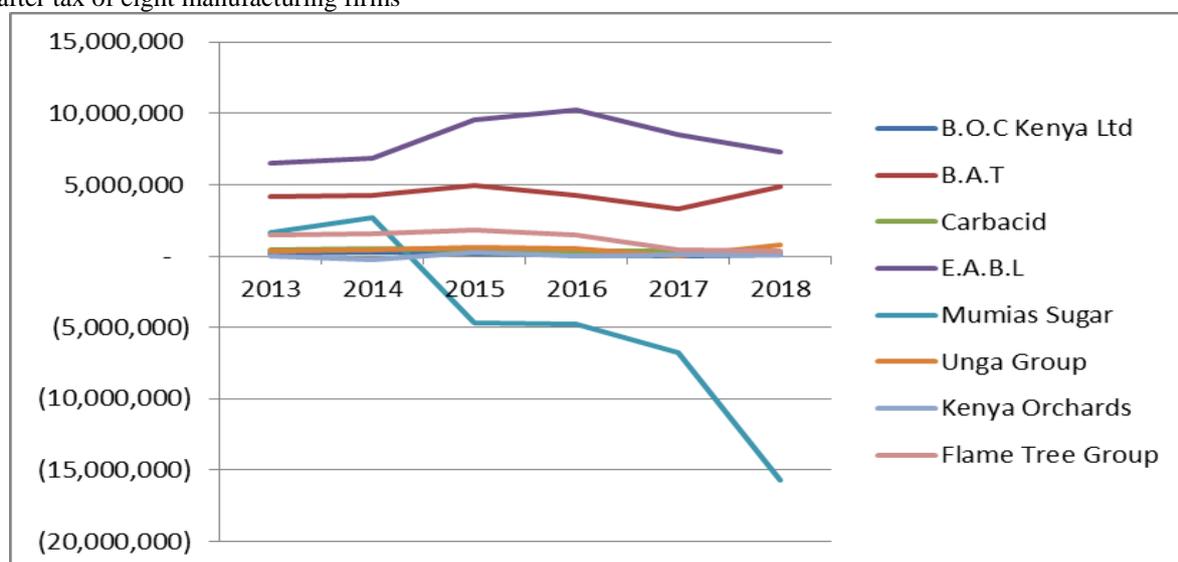


Figure 4.2: Manufacturing firms by profit after tax

Source: Research data, 2019

e. Trends in growth performance of listed manufacturing companies

The key parameters used to monitor the trends in the growth performance of listed manufacturing companies' financial statements are total assets, total revenue, profit before tax, profit after tax, inventory, accounts payable and accounts receivable. Table 4.3 shows an analysis of the trends in the key growth parameters of listed manufacturing companies for the last six years derived from annual audited reports

Table 4.3: Trends in growth of listed manufacturing companies

Key parameter	2013	2014	2015	2016	2017	2018
	Kshs' 000					
Total assets	134,293,393	128,567,979	133,743,242	136,800,134	141,444,434	139,703,407
Revenue	135,766,625	132,754,861	136,369,648	154,232,960	157,832,364	164,291,150
Profit before tax	17,765,779	16,002,677	18,447,935	16,748,944	9,901,452	9,859,718
Profit after tax	14,912,606	16,293,924	13,148,326	12,246,699	5,916,172	(2,035,098)
Inventory	18,670,317	20,698,524	22,611,048	19,826,476	18,805,210	20,647,438
Accounts payable	32,795,317	30,662,784	34,226,326	42,175,288	43,447,298	48,580,608
Accounts Receivable	24,203,805	21,367,300	23,737,532	23,156,750	20,170,869	22,065,781

Source: Research data, 2019

The trend analysis shows that the manufacturing firms registered aggregate growth in revenue from the year 2015 to 2018. However, despite the increase in revenue the profit after tax had an overall declining trend leading to a loss in the year 2018. This indicates that firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya are characterized with financial distress if the trend continuous since they will be financially unstable. The risk associated with management of the operating expenses which is measured through cash management in this study. The overall accounts payable tends to increase which indicates an escalating credit purchases due to overall reduction in profit. The total assets tends to depict a slight reduction in the year 2014 followed by gradual increase up to the year 2017 then a reduction in year 2019. Inventory and the receivables were maintained at an average level over the years. This is an implication that there is general decline in profitability of the firms listed under manufacturing and Allied sector at NSE, Kenya. In addition, there has been general increase of account payable during the entire period portraying an inverse relationship between payables and profitability. Figure 4.3 shows the trends in growth parameters of listed manufacturing companies

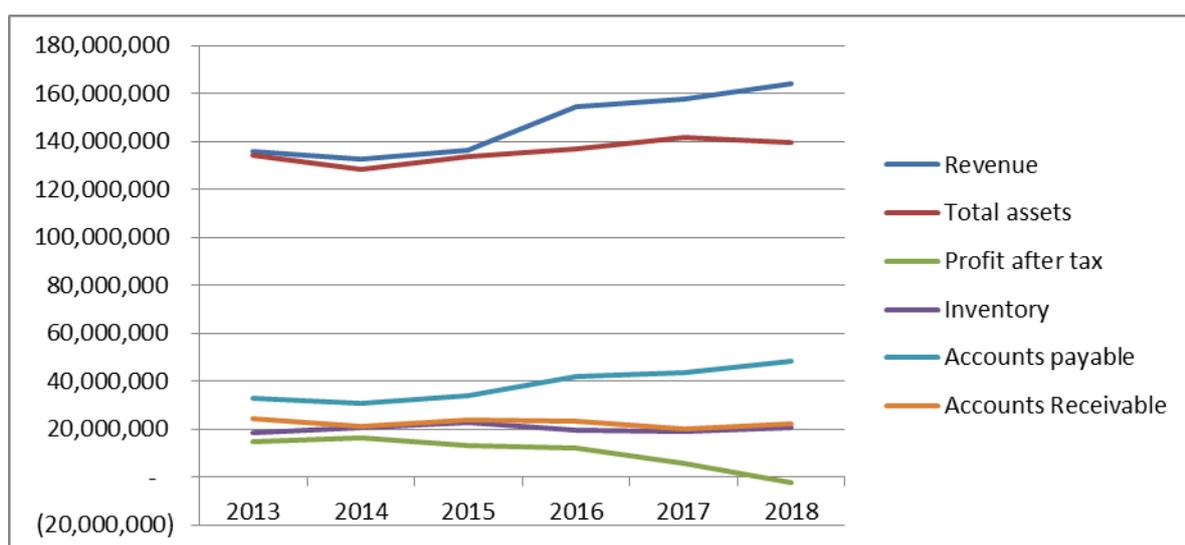


Figure 4.3: Trends in growth of listed manufacturing companies

Source: Research data, 2019

f. Correlation Analysis

According to Mugenda and Mugenda (2003), correlation technique is used to analyze the degree of relationship between two variables. In this study Pearson’s product moment coefficient correlation (r) was used to measure the statistical relationship that exists between the independent and dependent variables. The output is as shown in Table 4.4

Table 4.4: Correlations Matrix

		Profitability	Cash Management	Inventory Management	AR Management	AP Management
Profitability	Pearson	1	-.086	-.149	-.165	-.804*
	Correlation					
	Sig. (2-tailed)		.839	.724	.696	.016
Cash Management	N	8	8	8	8	8
	Pearson	-.086	1	-.123	.548	-.213
	Correlation					
Inventory Management	Sig. (2-tailed)	.839		.773	.160	.612
	N	8	8	8	8	8
	Pearson	-.149	-.123	1	-.523	.141
Account Receivable Management	Correlation					
	Sig. (2-tailed)	.724	.773		.183	.738
	N	8	8	8	8	8
Account Payable Management	Pearson	-.165	.548	-.523	1	.285
	Correlation					
	Sig. (2-tailed)	.696	.160	.183		.493
Account Payable Management	N	8	8	8	8	8
	Pearson	-.804*	-.213	.141	.285	1
	Correlation					
	Sig. (2-tailed)	.016	.612	.738	.493	

N	8	8	8	8	8
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*. Correlation is significant at the 0.05 level (2-tailed).

The results in Table 4:4 indicates that cash management had weak negative correlation that was statistically insignificant at 5% level of significance ($r = -0.086$, $p = 0.839$). The negative relationship implies that profitability of manufacturing firm was adversely affected by the manner in which cash is managed. Inventory management had weak negative correlation that was statistically insignificant at 5% level of significance ($r = -0.149$, $p = 0.724$). A negative relationship indicates that the level of inventory control in the manufacturing firm detrimental on profitability. Account receivable management had weak negative correlation that was statistically insignificant at 5% level of significance ($r = -0.165$, $p = 0.696$). A negative relationship indicates the mode of account receivable management in manufacturing firm adversely effecting on profitability of the firm.

Table 4.4 indicates a strong negative relationship between account payable management and profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange that was statistically significantly at 5% level of significance ($r = -0.804$, $p = 0.016$). The negative statistically significantly relationships imply that account payable management practices used by manufacturing firm considered in the study adversely affect their profitability to a great extent. The finding of this study is consistent with Gul, Khan, Khan and Khan, Rehman (2017), who found that the growth of account payable had a strong correlation with profitability. They also found that cash conversion cycle, account receivable and Inventory had an inverse relationship with the profitability of firms listed in Karachi Stock Exchange, Pakistan.

g. Regression Analysis and Discussion

Data was analyzed using panel regression analysis. The results of the regression output are interpreted in line with correlation coefficient, coefficient of determination (R-Square), the coefficient beta values and F ratio at the 0.05 significance level. The output of the regression analysis is Table 4.5 to 4.7

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.930 ^a	.865	.685	1.79162

a. Predictors: (Constant), Account Payable Management, Inventory Management, Cash Management, Account Receivable Management

The R-value from the regression model results represents multiple correlation coefficients. A correlation coefficient of 0.930 indicates a strong positive correlation between cash management, inventory management, accounts receivable management and account payable management collectively on the profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya. The R-square (co-efficient of determination) value was 0.865. The adjusted R-Squared value of 0.685 indicates that working capital management explains 68.5% of profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya

Analysis of variance (ANOVA) was used to evaluate whether statistical model could fitted to a data set from which the data were sampled.

Table 4.6: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	61.714	4	15.429	4.807	.114 ^b
	Residual	9.630	3	3.210		
	Total	71.344	7			

a. Dependent Variable: Profitability

b. Predictors: (Constant), Account Payable Management, Inventory Management, Cash Management, Account Receivable Management

The ANOVA table above indicates that the model was insignificant (F ratio = 4.807, $p = 0.114$) at 5% level of significance. This indicates that in overall, working capital management components do not significantly explain Profitability of the firms studied.

Beta coefficients were used to determine the causal effect of the independent variables on the dependent variable. Table 4:7 below presents the values as extracted from SPSS.

Table 4.7: Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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	B	Std. Error	Beta		
(Constant)	9.111	2.575		3.538	.038
Cash management	-1.336	.613	-.708	-2.179	.117
Inventory management	.109	.103	.320	1.056	.369
Account receivable management	1.690	.942	.735	1.795	.171
Account payable management	-3.898	.951	-1.210	-4.099	.026

a. Dependent Variable: Profitability

The beta values (β) indicate the extent to which each working capital management variable affects the results of profitability when all other predictors are held constant. The regression model for the study is as summarized below:

$$Y = 9.111 - 1.336X_1 + 0.109X_2 + 1.690X_3 - 3.898X_4$$

Where Y = Profitability, X_1 = Cash management, X_2 = Inventory management, X_3 = Accounts receivable management, X_4 = Accounts payable management.

The results in Table 4.7 indicates that cash management has a negative effect on profitability of manufacturing firms at ($\beta_1 = -1.336$). This is an indication that, cash management has an inverse effect on profitability of firms classified under manufacturing and allied at the Nairobi Securities Exchange. The negative beta indicates that the unit change in current cash management decreases profitability of manufacturing firm by 1.336. At 5% significance level account payable management had a p-value of 0.117 which is greater than 0.05, hence an indication of insignificant effect. Therefore, we support the null hypothesis that cash management does not significantly affect profitability of these firms. The finding of the study that the manufacturing do not have sufficient cash to cater for operating expenses is in support of cash conversion cycle theory by Corey et al., (2013), who asserted that the firm that have reduced liquidity makes it difficult for them to achieve its short term financial goals and other monetary objectives. They opined that in the long-run this weighs down the actual value of the firms. Mohammed (2013) assessed the effects of cash conversion cycle on several firms to understand their financial performance. He also found a strong inverse association between the variables. Madugba and Ogbonnaya (2016), also found an insignificant relationship between cash management and performance of institutions, firms.

Attom (2014) contends that the success of enterprises primarily depends on several factors that include sound cash management. Barrett (2015) documents that the main goal of cash management is to have sufficient money wherever they are needed, and that cash management involves sufficient timing of expenditure decisions, banking of revenue, and more so accurate estimation of cash flows. Typically, this is to ensure that there is minimal value of borrowing which is vital in facilitating investment of excess money to attain optimum returns. Cash management is measured by cash conversion ratio. Paul (2013) sought to explore the implications of working capital management on manufacturing firms in Nairobi Stock Exchange profitability. The results indicated a negative and significant relationship between cash conversion cycle and the profit levels for manufacturing entities..

Inventory management had a positive effect on profitability of manufacturing firms at $\beta_2 = 0.109$. This meant that, inventory management has a direct association with profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange. The positive beta indicates that the unit change in current inventory management increases profitability of manufacturing firm by 0.109. At 5% significance level, inventory management has a p value of 0.369 which is greater than 0.05 which indicates an insignificant effect. Hence, we support the null hypothesis that inventory management does not significantly affect profitability of firms listed under manufacturing and allied sector at the NSE, Kenya. The finding of the study assert earlier finding by Mathuva (2010), who focused on the implications of working capital management on profitability of entities listed in NSE and observed a direct correlation between inventory days and profitability. Wongthatsanekorn 2015), assessed the effect of receivable conversion, cash-to-cash cycle time, payable deferral and the duration of inventory conversion on the level of profits in corporate firms in Thailand stock exchange. The study showed that cash conversion cycle, time inventory conversion period, receivables conversion period did not have a significant relationship with assets turnover.

Brigham et al. (2015) indicate that inventory management should minimize expenses incurred in inventory handling, carrying and other financial needs. They noted that management of inventory affects the amount of raw materials, work in progress as well as finished goods that are vital in sustenance of efficient operations and sales. They concluded that holding an optimal level of inventory maximizes firms' profitability. The results from the coefficient tables revealed that account receivable management had the highest positive effect on profitability of manufacturing firms at $\beta_3 = 1.690$. This meant that, account receivable management has a direct relationship with profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange. The positive beta indicates that the unit change in current accounts receivable management increases profitability of manufacturing firm by 1.690. At 5% significance level, account receivable

management has a p-value of 0.171 which is greater than 0.05. Hence, the effect is insignificant. Therefore, we support the null hypothesis that account receivable management does not significantly affect profitability of firms listed under manufacturing and allied sector at the NSE, Kenya. Yahaya (2016) assessed the effect of working capital management on capital trends of the Nigerian pharmaceutical firms. The study found that there was significant and positive relationship between financial performance and the average payment period.

Brigham *et al.* (2009) stated that the main aim of credit sales is to encourage sales to grow the market. They outlined that the risks associated with account receivable include bad debts and debtors' delinquency, since they attempt to reduce the returns of investments in account receivables, and if not well monitored can affect severely on the firm's profits. Ahmet (2012) opined that in the event liquidity crisis, proper management of efficient accounts helps a firm to increase their profit levels, especially by reducing transactional costs and raising funds. Sharma and Kumar (2011) found that the management of receivables is mostly affected by the nature of credit policies and procedures within of a firm. Deloof (2013) posits that management of accounts receivables maintain an optimal balance between these accounts' elements. This implies that particulars such as inventory, cash, receivables, and payables are fundamental in creating value.

The findings further indicate that account payable management has the highest negative effect on profitability of manufacturing firms ($\beta_4 = -3.898$). This meant that, account payable management has an inverse effect on profitability of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange. The negative beta indicates that the unit change in current accounts payable management decreases profitability of manufacturing firm by 3.898. At 5% significance level, account payable management has a p-value of 0.026 which is less than 0.05 hence a significant effect. Therefore, we reject the null hypothesis that account payables management does not significantly affect profitability of these firms. Gallinger and Healey (2011) opined that the objective for firms stretching the repayment period is to fund the investment in current assets from trade creditors and hence reduce the need for external financing. Brigham (2014) recommends that management must ensure that in the bid to stretch accounts payables, all costs are quantified since this management is important as it helps to establish the maximum stretching period that is well aligned with the value of maximization. He also noted that the reduction of receivable collection period and widening the period between payables slows down the firm's own payments. The implication was that the high levels of receivables' ratio on profits may contribute to a negative effect on a business.

IX. Conclusion

From the findings, the p-value for cash management was 0.117 at 5% level of significance ($\beta_1 = -1.336$). The study found that cash management negatively affects profitability though the effect was not statistically significant in explaining the profitability. Hence, the study concludes that a unit increase in utilization of cash could lead to a decrease in profitability. The p-value for accounts receivable management was 0.369 at 5% level of significance ($\beta_2 = 0.109$). The findings found that inventory management positively affects profitability though the effect was not statistically significant in explaining the profitability; the study concludes that a unit increase in inventory control and management of the firms studied leads to an increase in profitability.

The p-value for cash management was 0.171 at 5% level of significance ($\beta_3 = 1.690$). The findings found that accounts receivable management positively affects profitability. However, the effect was not statistically significant. The study concludes that a unit increase in accounts receivable management in the manufacturing firm would lead to an increase in profitability. Finally, the p-value for accounts payable management was 0.026 at 5% level of significance ($\beta_4 = -3.898$). The study found that accounts payable management negatively affects profitability and the effect was statistically significant. The study concludes that a unit increase in accounts payable management in the manufacturing firm would lead to a decrease in profitability. This means that the profitability of firms listed under manufacturing and allied sector at the NSE, is highly dependent on account payable management. This indicates that efficient management of accounts payable by ensuring timely payments of trade payables would enhance profitability of manufacturing firms.

X. Recommendation and Policy Implications

A number of recommendations can be made. The study findings show that increase in the manner cash is managed affects profitability negatively though the effect is insignificant. The study therefore recommends that future research should undertake a research on the cash management approaches used by manufacturing firms and their effect on profitability. The study findings show that increase inventory affects profitability positively though the effect is insignificant. The study therefore recommends that a study be conducted to establish the optimal quantity that the firm should maintain to be economically viable. Consequently, a study on effective of the inventory policies adopted by manufacturing firm on profitability was recommended.

The study findings show that increase accounts receivable affects profitability positively though the effect is insignificant. The study therefore recommends a study to investigate the effectiveness of the credit policy on profitability of manufacturing firms. In addition, a study on the effect of account receivable on

profitability of firms in other sectors would be appropriate to evaluate their effect. The study findings show that increase in accounts payable management affects profitability negatively and the effect is significant. The study therefore recommends that management of manufacturing firms should put more emphasis on managing creditors. The creditors may sabotage the business operations in various ways ranging from denying offering goods on credit, taking legal actions, business takeover among others. The management should come up with credit policy on when and how to pay the creditors and set the credit limit beyond which the company could not stretch.

Finally, the management of manufacturing firms should be trained on working capital management to enable them effectively ensure that there is optimal cash balance and economic inventory to mitigate the firms from the dangers of under and or excess working capital. The regulators should adopt a policy of ensuring that the manufacturing firm working capital requirement is evaluated based of the benchmark provided failure to which a firm is put on notice to regularize their accounts and performance. Moreover, the management of manufacturing firms should ensure that there is prudent management of working capital in manufacturing firms since the going concern is mainly affected by firm suffering from financial distress which eventually could lead to liquidation.

XI. Contribution to Knowledge

The study documents new research gaps in the context of the firms studied. In addition, the study provides basis for future reference to the academicians especially on areas pertaining the effect of cash management, inventory management, accounts receivable management and account payable management on profitability of firms listed under manufacturing and Allied sector at Nairobi Stock Exchange, Kenya. The research will be an addition of knowledge in finance theory and bridge the gap that exists in the study working capital management more so on firms listed under manufacturing and Allied sector at Nairobi Stock Exchange in Kenya. The study also makes significant contributions to advance the management of working capital with the aim of enhancing profitability.

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Irene M. Ndumia. "Working Capital Management and Profitability of Firms Listed Under Manufacturing and Allied Sector at the Nairobi Securities Exchange, Kenya." *IOSR Journal of Economics and Finance (IOSR-JEF)* , vol. 10, no. 6, 2019, pp. 23-37.