

Effects of Working Capital Investment on Company Profitability in Non Financial Firms: Case Study of Selected NSE Listed Firms

Dennis Mutinda Musyoka

Scholar, Master of Science in Finance, Department of Business and Social Science, School of Human Resource Development, JKUAT

Abstract: *This research study sought to establish the effect of working capital investment on company profitability in Kenya, a case study of selected NSE listed non-financial firms. The study was guided by the following four objectives to evaluate the effect of growing sales volume on company profitability, to assess the impact of operational cost on company profitability, to investigate the influence of fixed assets turnover on company profitability and to determine the relationship between working capital investment and company profitability. The rate of working capital investments was measured using Cash Conversion Cycle, Average accounts payable, Inventory turnover and Average collection period. A descriptive research design was adopted in this study and a sample of 18 firms was selected purposively from the total population of all the 42 firms non-financial firms listed at Nairobi Securities Exchange. Secondary data for the 18 firms were obtained from the audited financial statements for the period between 2013 -2017. The Statistical Package for the Social Studies (SPSS) was used to analyse both descriptive and quantitative using regression and correlation models to determine the relationship between the dependent and independent variables. The study established that cash conversion cycle and average payment periods has great effect on firms profitability represented by 46 % and 47 % respectively while inventory turnover period and average collection period have slight influence on firms profitability this is represented by 10% and 18% respectively. The study concluded that it is necessary for the finance managers to manage account payables and sales turnover because they help a lot in establishing the amount of profits a firm can get.*

1. Introduction

1.1 Background of the Study

According to Boczko and Chen, (2008) financial management is broadly concerned with the effective acquisition and use of financial resources in creating corporate value, and its translation into shareholders value. It includes a wide range of strategic financial management techniques and decision making relating to capital investment, capital structure, working capital investment and management of financial risk. A firm's value cannot be maximized in the long run unless it survives the short run (McGuigan & Moyer, 2012). There are no specific set of rules or formulae to determine the optimal working capital requirements of firms (Gitman, 2009). According to Van Horne and Machowitz, Jr. (1997) maximizing profits is said to be the objective of all firms. Efficiency in working capital investment is therefore very vital in all firms. For small firms, current liabilities are the principal source of external financing because these firms do not have access to longer term capital markets while the fast growing and larger firms should also make use of current liability financing. Finance manager should devote a considerable portion of their time to working capital matters. The management of cash, accounts receivables, accounts payable and other means of short term is important in all firms.

Business evolves from one person innovative idea to a large multinational company. Therefore, expansion is usually seen as evidence of entrepreneur subsequent efforts to bring the idea to actualization. When firms grow the finance requirements are likely to increase. The ability to finance increasing demand depends on internal finance. If a company relies completely on internal capital the growth may be restricted and financial managers may forgo

profitable projects (Gupta, 2006). Some of internally generated funds includes, cash inflows from operations, trade creditors, medium term debt from commercial banks. In the event there is a miss match between assets and liabilities and operational costs outperform the sales growth by considerable margin the company may start experiencing financial difficulties, (Sherman, 2007)

1.2 Statement of the Problem

The study of rapid business growth has become a significant global issue that should be addressed appropriately. Through restructuring and reengineering, large multinational firms have been advised to define and focus on their core business, from which they face the challenge on how to grow profitably, (Zook & Allen, 2001). Stakeholders and financial managers are striving to achieve sustainable, profitable growth without success. Attaining justifiable profitable corporate growth remains one of the toughest managerial performances in America (Harvard Management Update, 1996). A study conducted by Gertz (2005) revealed that only 30% of wealth 1000 companies managed 10% annual growth in revenues. Several companies employ huge working capital based on wrong objectives only to undergo long painful losses and eventually embarrassing, costly and sometimes firm dissolution,

A large number of business failures have been contributed by financial manager's inability to put down the necessary groundwork before undertaking aggressive investment of working capital. This requires managers to carry out candid assessment of strengths and weakness of the company. Therefore sound management skills to identify the key or future markets opportunities the firm would like to capture is very vital. The firm should develop structures and processes that will enhance the organisation's fundamental

capabilities. Once these structures and processes are identified and long range planning completed then the company will have a direction on key strategies for building future business, (Koshner, 2007). Markman and Gartner, (2002) on their study on effects of hyper growth on firm profitability found out that there was no relationship between hyper growth in sales and employment and profits.. Gupta, (2006) did a study on the institutionalizing innovation for growth and profitability and found out that innovation must be included in the long term plan as a standard process in order to achieve sustainable profitable growth. The turnaround company will continue to grow profitably rather than to look for continual cash flows through creative financing. Producing innovative products and services is the most valuable creative tool to ensure superior return on investment to shareholders, (Gupta, 2006)

2. General Objective

The general objective was to determine the effect of aggressive investment of working capital on company profitability in non-financial sector firms and the following specific objectives

- To establish the effect of rapid sales capacity on company profitability
- To determine the effect of working capital investment on company profitability
- To establish the effect of operational cost on company profitability
- To determine the effect of fixed assets investment on company profitability

2.1 Agency Theory

The agency theory suggests that the separation of corporate ownership and control potentially leads to self-interested actions by managers who might expand their firm more or less to increase their own benefits such as more prestige, better pay, and stock options. An agency relationship is created when a person hires another and gives him or her decision making authority over something. The agency relationship creates an opportunity for abuse by the agent who has the control over the assets of the principal. In general managers are the agents of the shareholders, (William, 2011). The agency theory explains the relationship between the organisation owners and its managers, who under the contract law act as agents for the organisation owners. However the main issue of agency problem arise when managers perform transactions and decision making on their behalf in an effort to maximise shareholder's utility preference (Mitnick, 2011).

Therefore it is possible for managers to maximise short term profits in the expense of long term profits. The relationship of Agent and principal arises when shareholders employ chief executive officer (CEO) to represent them on business transaction. The agent (CEO) is expected to present the best interests of the principal (shareholder) without self-interest of benefiting from the business transactions. In the event the CEO incentives are based on firm's growth in size and profits, the agent (CEO) may not perfectly act in the principal's (Shareholders) best interest. The self-centred interest of the agent (CEO) may become source of conflict.

These conflicts between the CEO and shareholders may cause inefficiencies and financial losses to the company, (Boczko and Chen, 2008) This theory explains the rationale for injecting more working capital and establish the link between the working capital injection into the company and managers responsibility of maximising shareholders .

2.2 Markowitz Portfolio Theory

Markowitz (1953) developed the portfolio model in order to understand risk-return trade-off. This model includes the level of risk for a particular return. Markowitz assumed the following about investment behaviour; given the same level of expected return, an investor will choose the asset with the lowest amount of risk. Investor measure risk in terms of an asset's variance or standard deviation, therefore each investment, the investor can quantify the asset's expected return and the probability of those returns over a specified period. Investors seek to maximize their utility they make decision based on an investment's risk and return, therefore, an investor's utility curve is based on risk and return. According to the risk-return trade-off, invested money can render higher profits only if the investor is willing to accept the possibility of losses. Higher risk is associated with greater probability of higher return and lower risk with a greater probability of smaller return.

Financial managers are expected to be geared to maximization of shareholders wealth, whereby working capital investment is very important. Working capital investment is prone to liquidity risk and opportunity loss. Liquidity risk is non-availability of cash to pay company's current obligations that fall due. A firm that is in illiquidity condition may lose favourable credit terms and risk of not being able to sell more due to lack of enough funds to support higher inventory and book debts. Therefore financial managers should strike a balance between risks and return while considering working capital investment decisions to avoid cash traps (Hawawini and Viallet, 2011)

2.3 Cash Cycle Concept

Gitman (2004) describe working capital as important tool for firms' growth and profitability. If the levels of working capital are not enough it could lead to shortages and problem with day to day operations. Working capital is also called net working capital and is defined as current assets less liabilities. Gitman (2004) introduced the Cash Cycle Concept also known as Cash Conversion Cycle. CCC is a crucial element in working capital management. The total cash cycle is defined as the number of days from the time the firm pays for its purchases of inventory to the time the firm collects for the sale of its finished product. Cash Conversion cycle is calculated by adding Inventory turnover period to Average collection period and then subtracting Average payment period. When CCC shortens, cash becomes free for other usages such as investing on equipment, smoothing manufacturing and selling operations and reducing total investments in current assets. This in turn results to higher profitability. Longer CCC on the other hand, ties more funds to operating activities leaving little chance for other investments from the cash flow. This lowers profitability and in such case cash conversion cycle is

said to have a negative relationship with profitability (Gitman, 2004)

2.4 Target Population

Cooper and Schindler (2006) define population as the total collection of elements with common observable characteristics about which some inferences can be made. The target population for this study comprised of all the 42 non-financial sector firms listed in the Nairobi Securities Exchange.

2.5 Sampling frame and Sample Size

A sampling frame is a comprehensive list of all sampling units, which a sample can be selected, (Kombo and Tromp 2006). The sampling frame was based on the 6 category of firms which are: Agricultural Automobile, Commercial, Construction, Energy and petroleum and Manufacturing and allied sector firms. The study sample size comprised of 18 non-financial sector firms.

2.6 Sampling distribution

The study employed purposive sampling technique in selecting the sample population. Palys, (2008) states that on purposive sampling technique, only case objects that contain information required by the researcher.

Table 3.5.1: Sampling Distribution

Category of Firms	Target pop	Sample pop
Agricultural	6	2
Automobile & Accessories	3	1
Commercial & services	11	5
Energy & petroleum	7	3
Manufacturing & allied	10	5
Construction & Allied	5	2
Total	42	18

Source: nse.org.ke (2017)

2.7 Data Collection instruments

Sekaran (2003) refers population as the entire group of people, events, or things of interest that the researcher wishes to investigate. Secondary data was collected using data collection excel sheets which derived information from company's statement of financial position and statement of comprehensive income. The information collected included; sales turnover, net profit, current assets, fixed assets, current liabilities and total liabilities. The validity and reliability of the data was guaranteed because it was gathered from audited financial statements and chances of misrepresentation were minimal.

3. Data Analysis, Findings and Discussions

The study relied on secondary data only.

3.1 Descriptive Statistic

Descriptive statistics shows the minimum, maximum, mean and standard deviation of the variables of study. These statistics are essential for using all normative and cause-and-

effect statistical techniques effectively including hypothesis testing, correlation and regression analysis. This enabled the researcher to understand better the trends of the variables of study of different companies for the period of study.

Table 4.1.2: Descriptive Statistics for the Averages of Indicator Variables

	N	Minimum	Maximum	Mean	Std Dev
	N	Minimum	Maximum	Mean	Deviation
ACP	18	21.00	167.70	71.47	42.56
ITP	18	3.02	196.47	86.29	56.48
APP	18	26.76	371.46	117.83	89.63
Insa	18	1.58	16.70	12.57	2.90
CR	18	0.59	3.04	1.74	0.76
DR	18	0.03	0.93	0.28	0.26
CL	18	0.07	0.98	0.36	0.19
ROA	18	0.05	0.95	0.34	0.27

The above table shows descriptive statistics for the averages of the variables of the sampled 18 listed non-financial institutions. Average collection period (ACP) was used to measure how many days it takes firms to collect cash from sales. It is then established that from the 18 sampled non-financial institutions that the firms had Average collection period minimum value of 21 days, maximum period of 167days, mean of 71days and a standard deviation of 42 days. The Inventory turnover period (ITP) was used to measure how quickly inventory flows through the company from purchase to sale. The 18 sampled NSE listed non-financial firms had a minimum value of 3days, maximum period of 196 days, mean of 86 days and a standard deviation of 56days. Average payment period (APP) was used to measure the average number of days it takes 18 sampled NSE listed non-financial companies to pay its invoices. The sampled institutions had Average Payment Period minimum value of 26 days, maximum period of 371days, mean of 117days and a standard deviation of 89 days, Sales turnover was represented by natural logs of sales, it had a minimum value of 1.58, maximum value of 16.70, mean value of 12 and a standard deviation of 2.90. The larger the sales volumes the more profitable it is, this can be attributed to benefits that comes with economies of scale. Current Liabilities to Total Assets ratio was used to measure working capital investment of selected non-financial firms. It had a minimum of 7%, maximum of 9%, mean of 36% and a standard deviation of 19%. This confirms finding established by (Kilonzi 2012) where he established that companies with more aggressive financing policies rely much on current liabilities and short term debts to finance their operations.

Table 4.1.3: Descriptive Statistics for Return on Assets (ROA)

Year	Min Minimum	Max Maximum	Mean Mean	Std dev Deviation
2013	0.04	1.09	0.37	0.27
2014	0.04	0.97	0.31	0.25
2015	0.04	0.98	0.34	0.27
2016	0.04	1.51	0.35	0.33
2017	0.04	0.97	0.29	0.26

The above table shows the descriptive statistics for return on assets (ROA), it is established from these findings that the minimum value of ROA for the five years was at 4 %

throughout the highest value of maximum returns on asset was at 151% in 2016. The Mean value was highest in 2013 at 0.37 and lowest in 2017 at 0.29 the standard deviation was lowest in 2015 at 25% and highest in 2016 at 33%. From these findings it is established that maximum returns from the Assets was achieved once at over 100% this may be attributed to good business environment therefore the above findings agree with the findings established by Mogere (2003) who established that Maximum returns on company's Asset can only be achieved when all factors favouring good business environment is at play.

Table 4.1.4: Descriptive Statistics for Average Collection Period (ACP)

Year	Min	Max	Mean	Std dev
Year	Minimum	Maximum	Mean	Deviation
2013	23.27	173.89	71.92	43.67
2014	26.31	206.68	74.32	44.65
2015	23.90	241.35	73.91	53.15
2016	16.90	183.70	70.54	42.66
2017	18.67	153.32	68.49	45.19

3.2 Correlation Analysis

Spearman's correlation analysis was also used to determine the degree of association between the Average Account Payables, Inventory Turnover Period, Average Account Payables, Sales volumes and Firms profitability measured using returns on assets (ROA), the results below were obtained.

Table 4.2.1: Correlations Analysis Matrix

	ACP	ITP	APP	Log sales	CR	DR	CL	ROA
ACP	1							
ITP	0.078	1						
APP	0.256	0.241	1					
Lg sales	0.142	-0.167	-0.004	1				
CR	.478	-0.06	-0.047	-0.083	1			
DR	0.133	0.239	0.152	0.27	-0.410	1		
CL	-0.332	0.124	-0.142	0.023	-0.333	0.363	1	
ROA	-0.258	-0.226	0.474	0.356	0.126	-0.054	0.347	1

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

The table above illustrates the results obtained from the correlation analysis for the 18 sampled non-financial firms for the period of study between 2013 and 2017 at $\alpha=5\%$. The result shows negative correlations between return on assets with average collection period and inventory turnover period with correlation coefficients of -0.258 and -0.226 at $\alpha=5\%$ respectively. This implies that collecting payments from customers within the shortest time possible and reducing the period of ordering raw materials can significantly increase firm's profitability. The results also indicate a positive correlation between return on assets and average payment period with a correlation coefficient of 0.474. This implies that if firm's can delay making payments to their suppliers without affecting its reputation then this can lead to increased profitability. The result shows a positive correlation between firm's profitability and sales volume with a correlation coefficient of 0.356 implying that the larger the sales volume the higher the profits it could be making this result confirms results established by Nyakundi (2003) who established that the volumes of sales capacity, and the ability to hold payments to creditors for

some time can lead to increased profit margins, Finally the result shows a positive correlation between return on asset and current liabilities to total assets ratio this has a correlation coefficient of 0.347 and it implies the higher the ratio the more profitable the firm is therefore the higher working capital investment thus could lead to significant levels of profit this confirms the findings established by Mathuva (2009) who established that the higher the levels of investment of working capital thus can lead to significant profit margins.

3.3 Regression Analysis.

In order to understand and compare the effect of Cash collection cycles, Account collection period Inventory turnover period, Average payment period comprehensive measure of working capital indicators on firm's profitability, the researcher used the model shown below.

3.3.1 Regression model for cash collection cycle

$$ROA = \beta_0 + \beta_1(ACC_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \epsilon$$

Table 4.3.1: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.747	.643	.464	.19432

The adjusted R^2 (coefficient of determination) is 46.4% which is the percentage of variance explained by the independent variables. This implies that 47% variance of the model's variance is explained by cash conversion cycle, while the other indicators like sales volume, and operating expenses account for 53.6%. The model has a standard error estimate of 19%.

3.3.2 Regression Model for Accounts Collection Period

The table below shows the relationship between average collection period and return on assets, $ROA = \beta_0 + \beta_1(ACP_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \epsilon$

Table 4.3.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.603	.347	.187	.27631

Coefficient of multiple determinations (adjusted R^2) 18.7% which is the percentage of variance explained by the account collection period. Therefore the remaining 81.3% of the variance is explained by other indicators of working capital investments like sales volume, inventory turnover period and average payment period. The model also has a standard error estimate of 27%.

3.3.3 Regression Model for Inventory Turnover Period

This model shows the relationship between inventory turnover period and return on assets

$$ROA = \beta_0 + \beta_1(ITP_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \epsilon$$

Table 4.3.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.577	.342	.099	.32454

Adjusted R² also referred to coefficient of multiple determination is 9.9 % which is the percentage of variance explained by inventory turnover period. This implied that 81.9% of variance of the model is explained by other working capital investment indicators. The model has a standard error estimate of 32%

3.3.4 Regression Model for Average payment period

This model shows the relationship between average payment period in days and return on assets for the sampled firms.

$$ROA = \beta_0 + \beta_1(APP_{it}) + \beta_2(Insait) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \epsilon$$

Table 4.3.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of The Estimate
1	.774	.600	.477	.21191

Adjusted R² (Coefficient of multiple determination) is 47.7% which is the percentage of variance explained by average collection period. This implies that 52.3% variance of the model is explained by the other indicators of working capital investments. The model has a standard error estimate of 21 %.

All the above findings establish that all indicators of working capital has significant influence on firms profitability hence this confirm the findings established by Ochieng (2006) who established that working capital investment like sales capacity , fixed asset investments operating cost and cash collection cycles, average collection period and inventory turnover period have can influence firms profit levels significantly.

The table above shows descriptive statistics for average collection period. The 18 sampled NSE listed non-financial firms had highest values of minimum in 2014 at 26 days and lowest in 2016 at 16 days. Maximum was highest in 2015with 241and lowest in 2017 at 153 days. Mean was highest in 2014 at 74 days and lowest in 2017 at 68 days. Standard deviation was highest in 2015 at 53 days and lowest in 2016 at 42 days. All these reflect the number of days within which the firm’s collected receivables from customers. Therefore most companies take longer to collect their receivables hence has an effect on firms profitability this confirms the findings of Mathuva (2009) who established that account receivables are crucial for sustainability of firms profitability and liquidity.

Table 4.1.5: Descriptive Statistics for Inventory turnover period (ITP)

Year	Min	Max	Mean	Stddev
Year	Minimum	Maximum	Mean	Deviation
2013	5.36	223.24	94.19	67.81
2014	3.70	250.56	87.15	61.88
2015	3.52	224.24	82.23	60.39
2016	7.10	183.21	83.72	55.48
2017	5.53	202.31	85.28	55.34

The table above shows inventory turnover period statistics for the 18 sampled non financial firms. The minimum was highest in 2016 at 7days and lowest in 2013 at 3 days.

Maximum was highest in 2014at 250 days and lowest in 2016 at 183days. Mean was highest in 2013at 94 days and lowest in 2015 at 82. Standard deviation was highest in 2013 at 67days and lowest in 2017 at 53 days. All these represented the period of converting inventory to sales therefore from the findings a lot of money is tied up in inventory for longer period hence affecting companies profitability this findings agrees with findings established by Ochieng (2006) which established that when inventories takes longer period to be converted into sales it affects company’s liquidity and hence affect firms potential profitability.

Table 4.1.6: Descriptive Statistics for Average Payment Period (APP)

Year	Minimum	Maximum	Mean	Std Deviation
2013	25.65	463.24	134.12	112.82
2014	38.18	421.57	124.15	103.53
2015	16.31	352.60	120.10	92.42
2016	19.04	317.15	104.45	77.42
2017	15.37	423.21	107.33	93.72

The table above shows descriptive statistics for average payment period for the 18sampled non-financial institutions. The minimum was highest in2014 at38daysandlowest in2017 at15. Maximum was highest in 2013 at463days and lowest in2016 at 317days. Mean was highest in2013 at134daysand lowest in 2016 at 104days.Standard deviation was highest in2013 at112days and lowest in 2016at 77 days. These represented the period of settling the supplier’s debts from the findings most of companies sampled takes longer period to pay their suppliers this is a strategy to obtain profitability in the short term this confirms findings established by Nyakundi (2005) who established that temporary delay in meeting account payables can lead to short term profitability however this comes with the risk of poor reputation between the firm and its creditors

3.4 Correlation Analysis

Spearman’s correlation analysis was also used to determine the degree of association between the Average Account Payables , Inventory Turnover Period , Average Account Payables , Sales volumes and Firms profitability measured using returns on assets (ROA), the results below were obtained.

Table 4.2.1: Correlations Analysis Matrix

	ACP	ITP	APP	Log sales	CR	DR	CL	ROA
ACP	1							
ITP	0.078	1						
APP	0.256	0.241	1					
Lg sales	0.142	-0.167	-0.004	1				
CR	.478	-0.06	-0.047	-0.083	1			
DR	0.133	0.239	0.152	0.27	-0.410	1		
CL	-0.332	0.124	-0.142	0.023	-0.333	0.363	1	
ROA	-0.258	-0.226	0.474	0.356	0.126	-0.054	0.347	1

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

The table above illustrates the results obtained from the correlation analysis for the 18 sampled non-financial firms for the period of study between 2013 and 2017 at α=5%. The result shows negative correlations between return on assets with average collection period and inventory turnover period

with correlation coefficients of -0.258 and -0.226 at $\alpha=5\%$ respectively. This implies that collecting payments from customers within the shortest time possible and reducing the period of ordering raw materials can significantly increase firm's profitability. The results also indicate a positive correlation between return on assets and average payment period with a correlation coefficient of 0.474. This implies that if firm's can delay making payments to their suppliers without affecting its reputation then this can lead to increased profitability. The result shows a positive correlation between firm's profitability and sales volume with a correlation coefficient of 0.356 implying that the larger the sales volume the higher the profits it could be making this results confirms results established by Nyakundi (2003) who established that the volumes of sales capacity, and the ability to hold payments to creditors for some time can lead to increased profit margins, Finally the result shows a positive correlation between return on asset and current liabilities to total assets ratio this has a correlation coefficient of 0.347 and it implies the higher the ratio the more profitable the firm is therefore the higher working capital investment thus could lead to significant levels of profit this confirms the findings established by Mathuva (2009) who established that the higher the levels of investment of working capital thus can lead to significant profit margins.

3.5 Regression Analysis

In order to understand and compare the effect of Cash collection cycles, Account collection period Inventory turnover period, Average payment period comprehensive measure of working capital indicators on firm's profitability, the researcher used the model shown below.

3.5.1 Regression model for cash collection cycle

$$ROA = \beta_0 + \beta_1(CCC_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \varepsilon$$

The adjusted R^2 (coefficient of determination) is 46.4% which is the percentage of variance explained by the independent variables. This implies that 47% variance of the model's variance is explained by cash conversion cycle, while the other indicators like sales volume, and operating expenses account for 53.6%. The model has a standard error estimate of 19%.

Regression Model for Accounts Collection Period

The table below shows the relationship between average collection period and return on assets, $ROA = \beta_0 + \beta_1(ACP_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \varepsilon$

Coefficient of multiple determinations (adjusted R^2) 18.7% which is the percentage of variance explained by the account collection period. Therefore the remaining 81.3% of the variance is explained by other indicators of working capital investments like sales volume, inventory turnover period and average payment period. The model also has a standard error estimate of 27%.

3.5.2 Regression Model for Inventory Turnover Period

This model shows the relationship between inventory turnover period and return on assets

$$ROA = \beta_0 + \beta_1(ITP_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \varepsilon$$

Adjusted R^2 also referred to coefficient of multiple determination is 9.9% which is the percentage of variance explained by inventory turnover period. This implied that 81.9% of variance of the model is explained by other working capital investment indicators. The model has a standard error estimate of 32%

3.5.3 Regression Model for Average payment period

This model shows the relationship between average payment period in days and return on assets for the sampled firms.

$$ROA = \beta_0 + \beta_1(APP_{it}) + \beta_2(Ins_{ait}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(CL_{it}) + \varepsilon$$

Adjusted R^2 (Coefficient of multiple determination) is 47.7% which is the percentage of variance explained by average collection period. This implies that 52.3% variance of the model is explained by the other indicators of working capital investments. The model has a standard error estimate of 21%.

All the above findings establish that all indicators of working capital has significant influence on firms profitability hence this confirm the findings established by Ochieng (2006) who established that working capital investment like sales capacity, fixed asset investments operating cost and cash collection cycles, average collection period and inventory turnover period have can influence firms profit levels significantly.

4. Summary of Findings

The study found out that there exist a positive relationship between cash collection cycles and firms profitability this implies that shorter cash collection cycles leads to increase in firms profitability there is also negative relationship between average collection period and firm's profitability among the listed non-financial institutions in Kenya. This implies that an increase in accounts receivables period results to decreased profitability and vice versa. There also exist a negative relationship between inventory turnover period and firm's profitability among the listed non-financial institutions. This implies that an increase in inventory turnover period results to decreased profitability and vice versa.

Investment in current assets is unavoidable to ensure delivery of goods and services to the final consumers and proper management of the same should give the desired impact. However this might increase profitability by raising sales, it may also adversely affect the profitability if costs tied up in working capital exceed the benefits of holding more inventories and granting more trade credit to customers.

5. Recommendations

The study established that high working capital investment can result in increased profitability among the listed non-financial institutions in Kenya. It is therefore imperative for finance managers to clearly understand the relationship between indicators of working capital investments and firms' profitability. Based on the findings the following are the recommendations:

The finance managers should ensure there is shorter cash conversion cycle to ensure that funds tied up in stock are easily available to meet business operations and safeguard liquidity levels and in the end get high profits

The finance managers should strive to reduce the amount of accounts receivables this is to ensure that losses due to defaulted payments are minimized

Finance managers should strive to reduce the inventory turnover period in order to ensure cash from inventories is easily attained and increased sales is achieved hence increased sales volume and increased profits

Finance managers should strive to minimize accounts payable to safeguard firms' reputation but also strive to achieve profits by maintaining significant amounts of account payables. The delay in payment is seen as an internal financing that helps a company to save costs associated with external financing such as bank loan. However a trade-off between the period of delay and damaging of long-term relationship with suppliers must be appropriately set.

References

- [1] Aaker, D., & Day, G. (2006). The Perils of High-Growth Markets. *Strategic Management* 409-421. Retrieved from <http://www.jstor.org/stable/2486057>
- [2] Adeyemi, B. (2011). Bank Failure in Nigeria: A Consequence of Capital Inadequacy, Lack of Non-Performing Loans. *Bank and Bank System*, 6(1), 99-109
- [4] Afza, T., and Nazir, M. (2009). Impact of aggressive asset Management policy on firms' profitability *IUP Journal of Applied Finance*, 15(8), 20-30.
- [6] Baumol, W. J. (2009). Business behavior, value and growth. *New York*, 32.
- [7] Biwott, R. K. (2011). *The relationship between working capital management practices and companies quoted at the Nairobi Stock Exchange* (Doctoral dissertation, UON)
- [8] Brigham, E.F., & Houston, J.F. (2012). *Fundamentals of finance management*. Concise seventh Mason South Western.
- [9] Cant M, Brink A, and Ligthelm AA (2004). "Problems experienced by small businesses in Africa" 16th Annual Conference of Small Enterprise Association of Australia and, 28 September – 1 October 2003.
- [10] Chiliya, N., Herbst, G., & Roberts-Lombard, M. (2009). The impact of marketing strategies profitability of small grocery shops in South African townships. *African journal of business management*, 3(3), 70.

- [11] Chiliya, N., Herbst, G., & Roberts-Lombard, M. (2009). The impact of marketing strategies profitability of small grocery shops in South African townships. *African journal management*, 3(3), 70.
- [12] Caffaso, U. A. (2011). *Relationship between working capital management financing policy*: PHD doctoral dissertation
- [13] Coad, A.; Rao, R.; Tamagni, F. *Growth processes of italian manufacturing firms*. *Struct. Change Econ. Dyn.* 2011, 22, 54–70
- [14] Cooper, D.R., & Schindler, P.S. (2006). *Business Research Methods* (9th edition). USA: McGraw-Hill.
- [15] Christensen, Clayton M., and Michael E. Raynor. *The Innovator's Solution*. Boston, MA: *Harvard Business School*, 2003
- [16] Charlene L. Nicholls-Nixon. (2005). Rapid Growth and High Performance: The Entrepreneur' "Impossible Dream?" *The Academy of Management Executive* (1993-2005), 19(1), 77-89.
- [17] Davies, T., Boczek, T & Chen, J. (2008). *Strategic Corporate Finance*. London MC Graw-Hill
- [18] Deloof, M. (2003). "Does Working Capital Management Affect Profitability of Belgian Firms?" *Journal of business finance and Accounting*, Vol. 30 No 3 and 4 pp. 573-587
- [19] Ecklund, D. K. (2010). Warehousing Efficiency and Effectiveness in the Supply Chain Process. *Supply Chain Management Review*, 15.
- [20] Fields, Edward. *Essentials of Finance and Accounting for Nonfinancial Managers*. New York, NY, USA: AMACOM Books, 2002
- [21] Filbeck, G., and Krueger, T. (2005). Industry related differences in asset Management. *Journal of Business*, 20(2), 11-18.
- [22] Fisher M.L., J. Krishnan, S. Netessine. 2006. Retail store execution: an empirical study. Working paper.
- [23] Fisher M.L., J. Krishnan, S. Netessine. 2007. The impact of payroll planning and execution on retail store performance. Working paper.
- [24] Gartner, W.B. (2009) "When Growth Is the Problem, Not the Solution." *Journal of Management Inquiry*, Vol. 6, No. 1 (1997), pp. 62-68
- [25] Gertz D, Baptista JPA. (2005). *Grow to be great*. The Free Press: New York
- [26] Gitman, L.J. (2004). *Estimating corporate liquidity requirement: A simplified approach*. *Finance Review*, 9: pp. 79-88
- [27] Gupta, P. (2006). *Institutionalizing Innovation for Growth and Profitability*. *The Journal of Private Equity*, 9(2), 57–62. Retrieved from <http://www.jstor.org/stable/43503458>
- [28] Harvard Management Update, 1996. *The Latest thinking on Growth*, No. U9606B
- [29] Hawawini, G., & Viallet, C. (2011). *Finance for executives for value creations*. 4th Edition. Mason, Ohio: South-Western Cengage Learning,
- [30] Hopp, W.J., S.M.R. Irvani, G.Y. Yuen. 2007. *Operations systems with discretionary task completion*. *Management Science*, 53(1) 61-77.
- [31] Ildiko, O., and Tamas, D., *Definitions (Profit - Profitability)*, 4th Aspects and Visions of Applied Economics and Information, 2009
- [32] Jang, S.; Park, K. Inter-relationship between firm

growth and profitability. *Int.J. Hosp. Manag.* 2011, 30,1027–1035

- [33] Johnson,G.(1998) *Rethinking Instrumentalism*. London: Macmillan publishers.
- [34] Johnson,G.,and Scholes, K(2003) *Exploring Corporate Strategy*, 6th Edition. London: PretenceHall Europe.
- [35] Kargar, J. & Blue manthal, R. A. (1994).*Leverage impact on Working capital in small business*. TMAJ,14:46-53