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# Effects of Working Capital Management On Profitability of Manufacturing Firms Listed in Nairobi Securities Exchange, Kenya

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**ABSTRACT:** *This study examined effect of working capital management on profitability containing twenty manufacturing firms listed in Nairobi securities exchange. Kenya's manufacturing sector has been hit by poor working capital management leading to unstable profits. Despite various scholars conducting studies concerning Kenyan manufacturing firms' working capital, lack of consistence revenues require further examination on what causes these deviations. Current study was piloted by following specific objectives; Influence of inventories, receivable, payable, and cash managements on profitability of manufacturing firms. Theories that guided this study were: agency, transaction cost, and cash conversion cycle. Descriptive statistics was used on analysis especially, minimum, maximum, mean and standard deviation. Mathematical data evaluation involved inferential statistics. In addition, study model quantitative data was presented in tables. The study accepted census sampling method for collecting secondary data from population of 20 companies listed for five years from 2016 to 2020. Secondary details were found in financial statements of manufacturing firms and Nairobi Securities Exchange. Data was collected using checklist. The study recommended that manufacturing companies should estimate desirable quantity of working capital and concluded that increased working capital should match increased expenses, sales and revenue.*

**KEYWORDS:** working capital management, profitability, Nairobi securities exchange, manufacturing firms, Kenya

## INTRODUCTION

Manufacturing business in this world is a major instrument for economic progress. Moreover, only few countries managed to develop without manufacturing sector playing role in sustaining economic growth, employment, tax generation and preventing poverty (Kenya National Bureau of Statistics [KNBS], 2020). Manufacturing firms' goal of managing working capital has increased interest among scholars to devise ways of increasing profitability Hossain (2020)

On global arena Borin and Mancini (2019) stated that Australia manufacturing firm contributes to half of economy and 40 percent on job creation achieved through working capital planning. Studies conducted by Hossain (2020) in Bangladesh stated that manufacturing firms increased countries gross domestic product.

Manufacturing firms has promoted industry gross domestic product across East Africa but have not achieved full potential because of unstable and inadequate profits (Africa Development Bank Group ADBG, 2020). Africa global market share for manufactured products contributes to 1.3 percent which is lower than expected (African Union AU, 2019**).** Braimah et al., (2021) stated that Ghana firms forms 70 percent of gross domestic product but lack of proper working capital management affects profits. Tanzania manufacturing increased at a rate of 6.6 percent an increase from previous 2.9 percent but is less than medium industrialized countries (Moyo et al., 2012). In Nigeria 13% percent of economy is made up of manufacturing firms that generates 23.9 percent of employment and revenue (Agwu & Emeti, 2014).

In Kenya poverty has dropped to 34.4 percent cutesy of manufacturing industries (World Bank WB, 2022). Contrary, local manufacturing has been on decline since year 2016 (Ochieng, et al., 2020). Moreover, manufacturing firm contribution to Kenyan economy stagnated at 10 percent of total gross domestic product (Kenya Association of Manufacturers [KAM], 2018). Manufacturing in Kenya should be competitive although share of manufacturing output on gross domestic product and exports is declining (KNBS, 2020). Kenyan export of manufactured goods is expected to increase to 13.3 percent by year 2025, if factors affecting profits are considered (International Monetary Fund [IMF], 2020)

Social shift of working capital management is ensuring manufacturing firms shareholders wealth, management of liquidity, reduce financial risk, optimal investment and profitability (Arshad, et al., 2022; Kristanto and Hanafi, 2019). Ajayi (2019) stated that investing on working capital increase sales, decrease supply cost, but on other hand it creates financial expenses. Many previous research gave insight on relationship of working capital management and profitability on developing countries but most empirical results are controversial (Sensini, 2020 ;Heru 2022) Identically, Ochieng et al., (2017) demonstrates that manufacturing firms previously faced revenue problems resulting to adoption, restructuring and being deregistered. There contains grey area on constant erratic manufacturing firms profits hence creating gaps and raising concern for evaluating causes of unstable profits. In addition increased short term debt, poor working capital management and financial constrains also forms rationale of this study. Despite various empirical studies having been conducted it raises question why are these firms in the same state. This study covered these gaps by investigating effects of working capital management on profitability of manufacturing firms.

**Working Capital Management**

Working capital management refers to management of short-term financial goals used in creating operating capital that increases firm revenue and number of shareholders (Makori & Jagongo, 2013). Further, working capital management requires management functions like short-term investments, granting credit, managing cash and debt recovery (Ochieng et al., 2020). Due to growing concerning competition and profits demand, using working capital management as source of short-term funding maximizes profits (Isik, 2017).

Inventories management forms part of broader working capital management like raw materials turned into products later sold on cash or credit becoming cash and accounts receivables respectively (Mulumba (2016) Inventories management is measured by total sales divided by aggregate inventories therefore it's used in measuring rate of stocks conversion relating to sales (Muturi & Wachira, 2015). Receivable management is used for determining profitability of manufacturing firms (Adembo, 2017). Delaying payments to suppliers' provides short term financing but very costly due to foregone discounts and bad credit reputation (Adejuwon & Nurudeen, 2022). Cash ratio is evaluated through division of cash and cash equivalents by current liability (Heru, 2022). Account payables ratio is computed by dividing average purchases with average inventory (Siraj et al., 2019).

**Profitability of Firms**

The major goal of business is earning profit and maintaining minimal reserves of current assets (Akenga, 2017). Specifically, Braimah (2021) stated that profits shows usefulness of corporate managers in effectively using available assets for maximizing returns. According to Isık (2017) profitable firms contributes to country's gross domestic product. In line with agency theory, firms goal is maximizing profits by providing efficient working capital (Al-Jafari & Samman, 2015). Current study used accounting proxy return on assets for measuring and operationalizing of working capital management. Manufacturing firms in Kenya have faced erratic profits for the period of five years since 2016 to 2020 and this is evidenced in table 1.1 below.

**Table: 1 Five Year Statistical Trend of Return on Assets**

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Combined Profit After Tax in Billions | 21.1 | 10.6 | 24.9 | 8.6 | 12.9 |
| Return on Assets | 9.3 | 8.7 | 8.4 | 7.9 | 7.6 |
| Contribution to Employment | 26.6 | 26.4 | 26.6 | 24.3 | 23.1 |
| Domestic Economy Contribution | 0.5 | 0.5 | 0.7 | 0.7 | 0.6 |
| Kenya Industry Growth | 5.8 | 2.9 | 4 | 4.8 | 5 |

**Source, (Manufacturing Financial Statements 2016-2020; World Bank 2022; Central Bank of Kenya CBK, 2020)**

Table 1 shows that despite various studies conducted involving working capital, combined manufacturing firms profits indicates unstable trend that creates gaps on factors influencing manufacturing firms' profitability.

**Manufacturing Firms Listed in Nairobi Securities Exchange**

In history Nairobi securities exchange (NSE) organization have reputation of being fourth exchange in Africa on sector of trading volume and number five in Africa concerning capital markets (Iraya & Musyoki, 2013). The NSE maintains a secured security exchange on debts, equities, trading, clearing and control of securities that gives authority to list or delist firms. According to capital Markets Authority (CMA) regulates NSE and facilitates development, mention orders and enables market (Capital Markets Authority, 2020).

Daily price list provided by NSE enables investors track their assets value and indicates firms with profitability problems. In conclusion, NSE requests companies to provide periodic financial reports ensuring healthy management of corporate financial activities. Manufacturing firms registered at NSE are: [B.O.C, B.A.T, Characid, E.A.B.L, Mumias, Unga, Eveready E.A ltd, Kenya Orchards, Frame Tree, Bamburi, Crowns Paints Kenya, ARM cement, E.A Cables, E.A Portland, Olimpia Capital Holdings, Sasini, Transcentury, Eaagads, Williamson Tea Kenya and Kapchorua Tea Kenya].

**Statement of the Problem**

Failure to make profits or fluctuating profits creates revenue gaps (Dary & James, 2019).. Industries in most counties including Kenya, profitable firms provide employment, increases gross domestic product, government tax revenue and growth (Kenya Association of Manufacturers [KAM], 2018). Based on agency, cash conversion, and transaction cost theories firms aims are to maximize return on assets. For example, manufacturing sector in Kenya gross domestic product contribution was 3.6 percent in 2018 decreased to 2.6 percent and deteriorated to -0.1 percent in year 2020 (CBK, 2022). Eccentric combined profit after tax based on firms financial statements was 21.1billion in 2016 decreased to 10.6 billion in 2017, further it increased to 24.9 billion during year 2018.

The general problem is that Kenyan manufacturing firms are facing unstable profits leading to business closure. Specific problem is that poor working capital management causes profitability problems (Mache & Omodero 2021). Working capital management affects manufacturing firms profits yet there are complexities concerning unstable profits. Production firms listed at Nairobi securities exchange in Kenya have previously faced erratic profitability challenges evidenced by them facing financial restructuring, being acquired or subsequently deregistered (Ochieng, et al., 2020). According to Capital market authority (2020) these companies operate with improper operating costs and debts are greater than current assets. In addition, these revenue problems are brought by mismanagement of short term working capital. Isik, (2017) explains that gaps in working capital management leads to delays on debt collection, decreased expansion funds, increased prices due to high demand and overdue payables.

If good working capital management methods are not implemented Braimah et al., (2021), states that short term financing will reduce, inadequate profits, less development, unemployment and prevent adoption process. Therefore, manufacturing firms faces problems like unstable profits, high debts burden and lack of proper records. Current study addressed these problems of poor working capital management.

**Purpose of the Study**

Purpose of this quantitative research was to examine effect of working capital management on profitability of manufacturing firms listed at Nairobi securities exchange, Kenya.

**Objective of the Study**

Primary objective of this study was to establish effect of working capital management on profitability of manufacturing companies listed at Nairobi securities exchange, Kenya.

**Hypothesis of this study were;**

**$H_{01}$:** Inventory management has no significant results on profitability of firms listed at Nairobi securities exchange, Kenya
**$H_{02}$:** Receivables management has no significant results on profitability of firms listed at Nairobi securities exchange, Kenya
**$H_{04}$:** Cash management has no significant results on profitability of firms listed at Nairobi securities exchange, Kenya
**$H_{03}$:** Payables management has no significant effects on profitability of firms listed at Nairobi securities exchange, Kenya

**Significance of the Study**

First, this research will be useful to researchers or academics in field of effective financial management and profits. Secondly, research will help managers on understanding working capital policy. Thirdly, findings will assist shareholders in forming plans of managing profits. Fourthly, study findings will help firms increase output through update of manufacturing firms value addition. Further, research would be useful to financial institutions in assessing credit worthiness. In addition, this research will assist lenders by enabling cross section comparison for individual business. This research would assist government decision makers to have effective plan of fostering firms returns. Meanwhile security exchange may use this study results to regulate and register new entries.

## SUMMARY OF LITERATURE REVIEW

**Theoretical Reviews.**

In conducting research studies, use of theory is critical because every research requires certain solid theoretical foundation and methods that explain structural composition enabling researchers understand underlying research problems (Udo-Akang, 2012).

**Agency Theory**

Agency theory was devised by Jensen and Meckling (1976) and demonstrates coexistence of principal with agent via an agreement that principal or owner contracts another person to manage business. According to Institute of Chartered Accountants based at England and Wales (2005), agency's view explains that managers' personal interest makes shareholders not have guarantee in trusting them. The agency's view was consistent with study because it provided insight into how corporate profits were determined by ways corporate management executives perform their duties. Further, relevance of working capital management accountability theory represents financial manager, who is an agent representing principals and entrusted in making decisions regarding to receivables, payables, inventories, and cash managements (Williamson, 1985).

**Transaction Cost Theory**

Concept of transaction costs was clearly elaborated by Williamson (1981) where it outlined that company gains profits by organizing activities in a way that reduces operating cost. Profitable business can be efficient using; multidisciplinary business, establishment of effective funds management and corporate governance. Concerning working capital management manufacturing companies should manage their trade activities at a minimum cost. Analysing credit worthiness for new and existing customers makes firms eliminate extra cost of using external resources such as credit agencies (Bellouma, 2014). Manufacturing firms should ensure that customers pay their bills on time thus reducing costs of hiring debt collectors and debts write off (Dary & James, 2019). Lastly, theory was applicable to inventories receivables management and payables management.

**Cash Conversion Cycle Theory**

This view expressed by Richards and Laughlin (1980) explained that managers should maximize time on working capital management, involving activities like managing of working capital. Therefore, company should maximize daily operation profit in order to pay their litigations rather than liquidating existing assets. Cash conversion cycle (CCC) was introduced as means of evaluating usefulness of financial management system. According to Aminu and Zainudin (2015) monetary cycle consists of; inventories, debtors' management and accounts payables management. As a results CCC acts as link to this study because they affect functional components in manufacturing firms' profits.

**Empirical Literature Review**

Empirical literature scaled past studies with aim of answering research hypothesis and answering research gaps identified.

**Inventories Management and Profitability**

Ajayi (2019) examined working capital management and operational profits of listed cement industries in Nigeria. Descriptive research was conducted from year 2010 to 2019 using pooled least of square random effect model. Sample of three cement companies was carried out using panel data. To sum up, study results indicated that inventory conversion time contained negative significant result. The study was conducted on foreign country settings. Therefore, current examination addressed contextual gaps by involving manufacturing firms registered in Kenya.

Mache and Omodero (2021) analysed issue of working capital management on consumer goods firms profitability in Nigeria. Secondary data from 2014 to 2019 was examined using panel least of square regression, and Pearson correlation. Data was collected from published annual report. Study results shows that inventory conversion period had significant negative relationship. This study covered contextual gaps by analysing Manufacturing firms in Kenya.

Oyieko, (2018) examined impact of working capital management on financial performance of tea factories in Kenya. Study used descriptive statistics to examine 269 tea employees. Data was collected using questionnaire and stratified sampling. Study results revealed that inventory control had significant positive relationship with financial performance. However, current study

covered contextual gap by examining manufacturing firms instead of tea factories. In addition, current study utilized check list hence covering methodological gaps.

**Receivables Management and Profitability**

Onchangwa (2019) examined effect of working capital management concerning profit for non-financial organization registered at Nairobi securities exchange, Kenya. Descriptive research design incorporated 41 firms and employed census method. Secondary data from 2007 to 2016 was studied. Study findings showed that receivables had significant negative results on organizations revenue. However, it focused on non-financial companies thus covering contextual gap.

Kakeeto et al., (2019) tested effect of account receivable management on organizational profit in Uganda. Descriptive method used a case study consisting samples of 181 staff members taken from total population of 345 and collected data using likert questionnaire. Research outcome elaborated that account receivable had positive impact on organization profit. Study was conducted in foreign state Uganda. Therefore, this study contained Kenyan context which covered contextual gaps. This study used a check list hence bridging methodological gap above.

Adembo (2017) studied impact of accounts receivables on profits of manufacturing allied firms registered by Nairobi securities exchange, Kenya. Secondary data was collected from 25 firms during study period from 2008 to 2012 and was evaluated using Pearson's integration. In conclusion, it was noted that trade receivables, debt collection period and lastly accounts receivable turnover made a significant impact on income. This prevalent study analysed variables named receivables, cash, inventory and payables thus giving remedy for this conceptual gap.

Yusuf and Sani (2018) established working capital management and revenues of food and beverage companies found in Nigeria. Descriptive design was employed using secondary data which sampled ten firms. In addition, data analysis adopted regression showing that no significant connections related to receivable collection time and returns. In contrast, research focused on food and beverage companies' in Nigeria, thus current study was limited particularly indexed manufacturing firms hence addressing the contextual gap.

**Cash Management and Profitability**

Yameen (2019) examined effectiveness of liquidity on returns of pharmaceutical companies found in Bombay stock exchange, India. Balanced panel data was used involving 82 companies between 2008 to 2017 employing data extraction Prowess integrated quotient database. Lesson finding revealed that current ratios and quick ratios contain significant positive activity based on return on assets. However, the study did not consider manufacturing therefore present evaluation included manufacturing companies in Kenya addressing current business environment and covering contextual gaps indicated. This study also bridged methodological gaps by using checklist for data collection.

Kafeel, et al., (2022) examined working capital management and firms' profitability in Pakistan. Study utilized fixed random effect model to evaluate data from 2007 to 2018. Data for 35 firms were collected from financial statement. Descriptive statistics was utilized. Results showed that

cash conversion cycle had negative relationship with profitability. Study covered contextual gaps by examining manufacturing firms in Kenya.

Okoror et al., (2022) evaluated working capital and firm financial performance on listed manufacturing firms in Nigeria. Data was analysed using arellano and bond dynamic panel estimation method. Ex-post facto and positivism research designs were used to evaluate sample of 31 manufacturing firms. Data was obtained from annual report from 2010 to 2019. Study results stated that cash conversion cycle had positive significant relationship. Study was conducted in foreign setting therefore current study was conducted in Kenya covering contextual gaps.

**Payables Management and Profitability**

Novak et al., (2021) studied relationship between working capital and profitability of manufacturing SMEs in Czech Republic. Data was obtained through qquestionnaire from 105 firms from year 2014 to 2018. The research utilized quantitive method was employed. The study results revealed negative relationship between account payable and profitability. However current study covered contextual gap by examining manufacturing firms in Kenya. In addition the study covered methodological gaps through use of check list.

Madugba and Ogbonnaya (2016) tested usefulness of average payment time on profits of Nigerian firms using regression that analysed secondary data. Results indicated that average payment do change earnings per share together with return on capital employed. Results revealed that good average payment keeps the firms in business. Current test was conducted locally as opposed to that one done in foreign field thus fixing contextual situation gap. Further the study examined return on assets and working capital management hence addressing the conceptual gap.

Kungu (2017) tested the impact of liquidity management on revenues of industrial firms in Kenya. Correlational research design examined primary data combined with secondary data using questionnaire and recording sheet. Sample size employed S-stratified and adopted descriptive with inferential statistics. In conclusion, there was positive relationship between payable management and profits. In contrast, the study focused on liquidity rather than working capital management hence this study addressed contextual gap by investigating congruent of working capital management as a proxy of profitability. This study addressed methodological gap by using a check list to collect data.

Siraj et al., (2019) conducted research concerning effective working capital management and returns involving non-financial firms located in Pakistan. Sample of 280 firms were selected. Results showed that accounts payable management had significant effect on firms' revenue. However, researcher identified contextual gap and current study filled the gap by evaluating manufacturing firms listed in Nairobi securities exchange, Kenya.

## RESEARCH METHODOLOGY

This section deciphers underlying methodological format used in this study. Descriptive design was employed and quantitative data was analysed using multivariate inferential statistics.

Historical secondary data of 20 manufacturing firms was analysed from 2016 to 2020. Extraction of data from financial reports was made using checklist and census sampling method was employed. Secondary data incorporated total current assets, sales, total income, current assets, cost of goods sold, purchases, cash and cash equivalents, average inventories and average receivables. Data collection instruments contained published annual reports. In addition, ratios were used in analysis and evaluation. Quantitative data was analysed using descriptive statistics and inferential statistics that included multiple linear equations, correlation and regression. Descriptive statistics conducted included; mean, standard deviation, maximum and minimum values. Study variables where continuous making researcher use inferential statistics and was tested at 5% level of significance. The model is indicated below;

$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \acute{\varepsilon}_{it}$
Y = Profitability
$\beta_0$ = Y –intercept
$\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$ = regressions coefficients.
$X_1$ = Inventory Managements (IM)
$X_2$ = Account Receivables Managements (ARM)
$X_3$ = Cash Managements (CM)
$X_4$ = Account Payables Managements (APM)
$\acute{\varepsilon}_i$= error term

## RESEARCH FINDING AND DISCUSSION

### Introduction

Effect of working capital on profitability of manufacturing firms was subjected to mathematical computations and statistical findings represented in tabular form. Hypothesis subjected to examination were stock turnover, accounts payables turnover, accounts receivables turnover and cash ratio.

### Response Rate

Keen look of complete records for five years 2016 to 2020 contained data availability for only 18 companies. This showed response rate of 90% that was in congruence with Mugenda and Mugenda, (2003) who elaborated that reaction rate of 70% and above is perfectly viable for evaluation and deciphering statistical results. Lack of complete monetary information concerning some of indexed production companies already dictated a sign of destitute profitability results.

**Descriptive Analysis**

Descriptive analysis was directed in testing the statistical properties of data used in this model. The descriptive analysis contained of minimum and maximum values together with mean; adapted to measure central tendency and standard deviation; adapted to measure central deviations.

**Table: 2 Summaries of Descriptive Results**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Inventory Turn Over (X1) | 90 | -306.1820 | 16.3648 | 1.4242 | 59.1146 |
| Receivable Turn Over (X2) | 90 | 0.0074 | 18.0341 | 5.3965 | 4.6467 |
| Cash Ratio (X3) | 90 | -1.3102 | 7.1973 | 0.4986 | 1.3940 |
| Payable Turn Over (X4) | 90 | -4.0372 | 27.3572 | 1.4242 | 4.8353 |
| Profitability Ratio (Y) | 90 | -0.9632 | 27.3572 | 0.0713 | 2.7967 |

**Source: (Researcher, 2022)**

**Summary of Descriptive Results**

Descriptive results shows operating profits ranged from -0.9632 and 27.3572 and contained mean of 0.0713. Large income standard deviation of 2.7969 indicated that most of the manufacturing firms did not break even. Corporations took an inventory average period of 1 day to process goods. In addition, processing ranged from 16 to -306 and wide standard deviation of 59 days denoting that firms took time in processing. Firms, accounts receivable were collected within average of 5.3965 days with slight deviation of 4.6467 days. Money collection range was 0.0074 to 18.0341 which is acceptable. Average amount of precautionary cash stored by organizations was 0.4986 with ranges of -1.3102 to 7.1973. Statistical widespread deviation of cash 4.8353 indicated that corporations did not keep sufficient money. This deciphers that just enough liquid cash should be kept for daily operations and excess is used for investing. Payable ratio of 1.4242 with a wide spread deviation of 4.8353 shows that industries were eager in making timely payments to their raw materials suppliers.

**Inferential Analysis**

Researcher conducted inferential statistics to evaluate relationships of independent variables on dependent variable. Correlation coefficient showed relationship between variables and does not indicate any causal relationship (Mugenda & Mugenda 2003).

**Correlation Matrix**

Pearson Correlation was conducted in testing strength of linear relationship for dependent and independent variables. Test was conducted at 0.05 level of significant.

**Table: 3 Correlation Matrix**

| | Inventory Management | Cash Management | Receivable Management | Payable Management | Profitability |
|---|---|---|---|---|---|
| Inventory Management | 1.000 | | | | |
| Cash Management | 0.0497 | 1.000 | | | |
| Receivable Management | 0.1925 | 0.1961 | 1.000 | | |
| Payable Management | -0.1707 | -0.1975 | -0.0693 | 1.000 | |
| Profitability | 0.1106 | 0.1073 | -0.0432 | -0.3288 | 1.0000 |

**Source: (Researcher, 2022)**

Inventory management and cash management had weak positive correlation of 0.1106 and 0.1073 respectively to return on assets. Receivable and payable had moderate negative relation to return on assets -0.0432 and -0.3288 respectively. In interpreting linear relationships of study, weak correlation R ranges from 0.1 to 0.29; in moderate correlation, R ranges from 0.3 to 0.49 whereas, in strong correlation it ranges from 0.5 to 0.9 (Goundar, 2012).

**Model Summary**

Study analysed strength of variables. The analysis was used in testing cause and effect of model variables. Regression data should contain at least one continuous predictor variable, and there should be no significant outlier (Cole, 2016). Hypothesis was tested at 5% significant level.

**Table: 4 Model Summary**

| Model | R | R squared | Adjusted R square | Std Error Estimate |
|---|---|---|---|---|
| 1 | 0.4584 | 0.2101 | 0.1729 | 0.1683 |

Predictor: (constant) inventories, payables, receivables, and cash managements.
Independent Variable: Return on Assets.
**Source: (Researcher, 2022)**

Model coefficient of determinant was $R^2 = 0.21$ showing that study model goodness of fit only explained 21% of manufacturing firms profitability. The level of tolerance (1- $R^2 = 79\%$) was

explained by other business factors not explained in model. Adjusted $R^2$ shows coefficient of determinant variations of dependent variables caused by independent variables.

**Analysis of Variance**

Table 4.10 shows statistical results conducted to find if model variables were significant or not.

**Table 5 Analysis of Variance**

| | Df | SS | MS | F | Significance F |
|---|---|---|---|---|---|
| Regression | 4.0000 | 0.6402 | 0.1600 | 5.6524 | 0.0004 |
| Residual | 85.0000 | 2.4068 | 0.0283 | | |
| Total | 89.0000 | 3.0469 | | | |

Dependent variable: Profitability
Independent Variables: (Inventory, receivables, cash, and payables managements).
**Source: (Researcher, 2022)**

Research established that model goodness of fit was significant (F = 5.6524, P = 0.0004 = < 0.05). Calculated (F = 5.6524) exceeds F- critical of 0.05 showing that level of variations between predictor and dependent variables was significant at 95% confident level. In addition it shows that model was fit for explaining variations reasons. Manufacturing firms predictor strength of variation was significant at (P= 0.0004 < 0.05).

**Model Coefficients**

**Table 6 Model Coefficients**

| | Coefficients | Std. Error | t. Stat | P-value | Lower 95% |
|---|---|---|---|---|---|
| Intercept (Y) | 0.5061 | 0.0535 | 2.4632 | 0.0441 | 0.3998 |
| Inventory Management (X1) | 0.0001 | 0.0000 | 2.4723 | 0.0154 | 0.0000 |
| Receivable Management (X2) | -0.0078 | 0.0030 | -2.5788 | 0.0116 | -0.0138 |
| Payable Management (X3) | -0.0720 | 0.0235 | -3.0627 | 0.0029 | -0.1188 |
| Cash Management (X4) | 0.0119 | 0.0355 | 0.3362 | 0.0376 | -0.0586 |

a. Predictors (Constants), Inventory, Receivable, Cash and Payable Management
b. Dependent Variables: Return on Assets.
c. $Y_t = 0.5061 + 0.0001X_{1t} - 0.0078X_{2t} - 0.0720_{3t} - 0.0119X_{4t}$
**Source: (Researcher, 2022)**

Study t-statistics of (2.4632; 2.4723; -2.5788; -3.0627 and 0.3367) were greater or less than t-statistics of 1.96 indicating that model was significantly fit. The model constant of 0.5061 shows that independent variables (Inventory management, receivable management, payable management and cash management) if assumed to be zero firms profitability would increase by 51% showing variability of profits growth.

**Analysis of Hypothesis Testing**

Working capital management variables were analysed and hypothetical relationships with profitability of manufacturing firms interpreted.

**Hypothesis Test for Inventory Management**

Study linear regression model for inventory variable denoted as: $Y_{it} = \beta_0 + \beta_i X_{it} + e_{it}$ was fitted as: $Y = 0.5061 + 0.0001X_{it}$

Hypothesis One ($H_{01}$): Inventory management has no significant results on profits of manufacturing industries registered by Nairobi securities exchange, Kenya

Inventory management was significantly positively related to manufacturing firms' profits (B = 0.0001, P = 0.0154<0.05). The model acceptance or rejection format was that if (P>0.05) the $H_{01}$ is rejected and if (P < 0.05) the $H_{01}$ is accepted. The model statistical results shows that (P = 0.0154 <0.05) and this was supported by model t-value of (2.4723>1.96). As a result, study rejected null hypothesis showing that inventory management contains slight significant positive relations on profitability of manufacturing firms at 0.05 significant level. Consequently, study derived that positive slope of significant for beta shows that one unit increase of inventory will predict increase in profits by 0.0001 units ceteris paribus.

Results are similar with that of Oyieko (2018) that states working capital management variables affected profitability positively. In contrast Ajayi (2019) study results showed that inventory conversion time contained negative useful significant result. In addition, Mache and Omodero (2021) found that inventory conversion cycle had significant negative relationship on profits.

**Hypothesis Test for Receivable Management**

The study linear regression model for account receivable variable: $Y_{et} = \beta_0 + \beta_i I_t + e_{at}$ was fitted as: $Y = 0.5061 - 0.0078X_{it}$

Hypothesis Two ($H_{02}$): Account receivables management has no significant results on profitability of manufacturing industries.

Results shows that account receivables was significantly negatively related to profitability with (B = -0.0078, P= 0.0116 < 0.05). Relationship being negative shows that for one unit increase of account receivable will decrease profitability by (-0.0078) The acceptance and rejection criterion was that if computed P-value is greater than 0.05 the $H_{02}$ is rejected and if $H_{02}$ is less than 0.05

null hypotheses is accepted. The study P-value was (-0.0138) so study rejected null hypothesis and concluded that account receivable management was negatively statistically significant at 5% level (P = 0.0116 <0.05). Results were supported by a calculated t-statistics of (-2.5788) which is greater than the critical t-statistic (F-tabulated) of -1.96.

Study results are in congruent with Onchangwa (2019) who found out that receivables had significant negative results on revenue. In contrast, Yusuf and Sani (2018) found no significant connections related to receivable collection time and returns. Further, Kakeeto et al., (2019) found that accounts receivable management had positive impact on organization profit. Lastly, Adembo (2017) noted that accounts receivable turnover made some positive significant impact on return on assets.

**Hypothesis Test for Account Payable**

Study linear regression model for account payable variable: $Y_{it} = \beta_0 + \beta_i X_{it} + e_{it}$ was fitted as: $Y = 0.5061-0.0720X_{it}$

Hypothesis Three ($H_{03}$): Account payables management has no significant effects on profit of manufacturing industries registered by Nairobi securities exchange, Kenya.
The study regressed model shows that account payable was statistically negatively related to profitability with (B = -0.720, P= 0.0029). Model coefficient of (P=-0.0029) shows that receivable management is statistically significant at 5% level because (P=0.0029 < 0.05). Rejection or acceptance criteria were that if $H_{03}$ is greater than 0.05 we reject null hypothesis and adopt the alternative hypothesis. Study rejected null hypothesis and concluded that payable management is negatively statistically significant to profitability. In addition, establishment was supported by the t-statistics of (-3.0627) that was greater than critical t-value of 1.96.

Madugba and Ogbonnaya (2016) studies indicated that average payment negatively do change earnings per share together with return on capital. In contrast, Kungu (2017) found positive relationship between payable management and profits. In addition Siraj et al., (2019) results showed accounts payable management had positive significant effect on firms' revenue. Novak et al., (2021) indicate that account payables had positive relationship with firms' profitability.

**Hypothesis Test for Cash Management**

The study linear regression model for cash management variable: $Y_{it} = \beta_0 + \beta_i X_{it} + e_{it}$ were fitted as: $Y = 0.5061+ 0.0376X_{it}$
Hypothesis Four ($H_{04}$): Cash management has no significant result on profit of manufacturing industries registered by Nairobi securities exchange, Kenya.

Results showed that cash management had positive statistical significant on profitability of manufacturing firms with an effect of (B = 0.0129, P= 0.0376 < 0.05). The model coefficient of determination of (P=0.0119 < 0.05) shows that cash was statistically positively significant at 5% level of significance. Study results were supported by t-statistics of (0.3362) which was greater than statistical critical value of 1.96. In addition, it shows that one unit increase of cash would lead to positive increase of profitability with (0.3362) unit holding other factors constant.

Results are in congruent with Yameen (2019) determining that current ratios and quick ratios have significant positive activity on profits. Also, Okoror et al., (2022) found positive significant relationship between cash conversion cycle and profitability of firms. In contrast, Kafeel, et al., (2022) devised that cash conversion cycle had ssignificant negative relationship with profitability of firms.

## SUMMARY CONCLUSIONS AND RECOMMENDATIONS

This study was guided by aid of establishing effect of inventories, cash, receivables and payables on profitability of manufacturing companies listed in Kenya. Results shows that firms predicts inventories with (Mean=1.4242) with high standard deviation of (59.1146).Study (P=0.0154<0.05) shows that inventory is insignificant in explaining profits variations. Therefore managers should understand policies concerning inventories and use efficient inventories tracking software. Firms predicts receivables with (Mean = 5.3965) and standard deviation of (4.6467) and shows negatively significant with (P=0.0116<0.05). Management should ensure that receivables are collected on time and should provide for doubtful debts. Cash prediction mean of (0.4986) and standard deviation of (1.3940) and statistically positively related with profitability (P=0.0376<0.05). Managers should ensure there is cash track to check overheads cost that estimates profit margin effectively. Managers should manage cash appropriately to ensure enough is available for recurring expenses. The study found that payable management had negative significant relationship with profits (P=0.0029<0.05). Negative receivable results shows firms should abolish old practice of delaying credit payments because it ruins business relationship. They should ensure best selection of automated-billing for easy audits and ensuring cash flows that is integrated into accounting systems. Firms should have good software that integrates to other department to cater for external and internal processing.

In addition, lenders should use this research outcome in cross section comparison for individual suppliers. Findings of this study suggest that management should ensure personnel are trained to make satisfactory working capital decisions. Managerial recommendation is that they achieve maximum profitability ensuring corporate responsibility like; creating jobs, paying taxes and pay National hospital insurance fund. Meanwhile security exchange should use these results for regulating and registering new entries. In addition, government should have policies that promote

locally manufactured goods. Lastly growth in manufacturing increases growth in other sectors of economy so government should promote factors that maximize firms' profits. Study findings are different from previous empirical examination because the study utilized different methodologies and context (Pandey., 2019). Manufacturing companies should have optimal level of working capital to maximize returns. In general there exists ineffective management of working capital therefore increased working capital should match increased expenses, sales and revenue.

**Recommendations for Further Research**

To build on this study further research should be conducted for establishing other factors causing manufacturing firms unstable profits like; market demands and pricing policies. In addition directions for future studies should be conducted on debt to equity ratios in order to further explain why profits are still volatile in this sector.

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The researcher(s) declares no conflict of interest in relation to this research authorship and publications.

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