EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF MANUFACTURING FIRMS LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA

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DECLARATION

This project is my original performance and has not been submitted by anybody else in any other university for degree award.

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This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

This research was dedicated to my family for their unwavering love, support, tolerance, encouragement, understanding and prayers they accorded me to ensure that I acquire this quality education.

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OPERATIONAL DEFINITION OF TERMS

Receivable Management	Refers to debts owed to business by their customer for goods or services delivered to these customers but not yet paid.
Payables Management	This refers to the amount due to vendors or supplier of inventories received that have not yet been dully paid
Cash and cash Equivalents Management	These are the current liquid assets that are found in a business balance sheet.
Cash flow	It's the amount of cash that is used in daily operations of a business entity.
Inventory Management	These are raw materials used for production of finished products then sold for cash or credit to generate income
Manufacturing Firm	Refers to a large company that converts raw materials into finished goods or products.
Nairobi Securities Exchange	This is a Kenyan security exchange that provides an automated avenue used to list and trade companies shares.
Profitability	It is the measure the efficiency of how assets invested generates revenue.
Return on Equity	The ratio measure the percentage of net profits that is available for the shareholders.
Return on Assets	The ratio measures the ability of total assets employed to generate net profit
WorkingCapital Management	This is a business instrument utilized by manufacturing Companies to ensure better use of available assets and therefore maintains cash flows for short-term goals and obligations.

LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	:	Analysis of Variance
AR	:	Account Receivables
CCC	:	Cash Conversion Cycle
CMA	:	Capital Market Authority
COGS	:	Costs of Goods Sold
EBITDA	:	Earning Before Interests Taxes Depreciations and Amortizations
EBITDAR	:	Earning Before Interests Taxes Amortizations and Restructuring
EBIT	:	Earnings Before Interest Taxes
EA	:	East Africa
GDP	:	Gross Domestic Product
KES	:	Kenya Shillings
KAM	:	Kenya Association of Manufacturers
KNBS	:	Kenya National Bureau of Statistics
LTD	:	Limited
NOPAT	:	Net Operating Profit After Tax
NSE	:	Nairobi Securities Exchanges
ROE	:	Return on Equity
ROA	:	Return on Asset
ROI	:	Return on Interest
SME	:	Small Medium Enterprise
WCM	:	Working Capital Management
EABL	:	East African Breweries Limited
BOC	:	British Oxygen Company
BAT	:	British American Tobacco

ABSTRACT

In Kenya, manufacturing sector has been cited by Kenyan government as one pillar of the larger agenda. The Kenyan government aims to increase Gross Domestic Product by 15 percent using effective manufacturing. Manufacturing is instrumental for domestic productivity, economic growth, reducing poverty, foreign exchange and employment. Working capital management acts as a useful instrument for manufacturing firm's profitability. Previous scholars have devised that improved Working Capital Management contained positive results on profitability of manufacturing firms. For the past five years Kenya's manufacturing sector has been hit by poor working capital management that has led to erratic profits. In addition, manufacturing firms are likely to be very profitable, but still have problems with short term operational standards. Most manufacturing firms invest highly on current assets and poor management of short term operating assets causes unexpected revenues. Although various studies have been conducted, lack of consistence revenues requires further examination on how elements of effective Working Capital Management affect profitability and what causes these deviations. This study sought on filling these research gaps by evaluating effect of Working Capital Management on profitability of manufacturing firms listed at Nairobi Securities Exchange, Kenya. Current study was piloted by following specific objectives; Influence of inventories, receivable, payable, and cash managements on profitability of manufacturing firms registered at Nairobi Securities Exchange. Theories that guided this study were: agency, transaction cost, and cash conversion cycle theories. Descriptive statistics was used in analysis especially, minimum, maximum, mean and standard deviation. Mathematical data evaluation involved inferential statistics like, multiple regression and correlation. In addition, study model quantitative data was presented in tables. The study accepted census sampling method for collecting of secondary data from population of 20 manufacturing companies listed for five years from 2016 to 2020. Secondary details were found in the financial statements of manufacturing firms and Nairobi Securities Exchange data base. Data was collected using a check list. Multiple regression statistical assumptions were tested using, multicollinearity, heteroscedasticity, normallity pannel unit test, model specification test and correlation. Model goodness of fit for predictor and dependent variables were tested at 5% significance level and 95% confidence interval. The study revealed that there was significant positive relations between working capital management with profitability of manufacturing firm with (R^2 = 0.21). The study findings revealed inventories and cash management had insignificant positive effect on profitability with (R= 0.0001 P=0.0154) and (R=0.0129 P=0.0376) respectively. Account receivable and account payable had a significant negative effect on profitability with (R=-0.0720, P=0.0116) and (R=-0.0720, P=0.0235) respectively. The study recommends that manufacturing companies should estimate desirable quantity of working capital. The study overall conclusion is that there exists inefficiency of managing manufacturing firms working capital and this leads to erratic profits.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Manufacturing business in this world is a major instrument for economic progress. Moreover, only few countries managed to fully develop without manufacturing sector playing role in sustaining economic growth, employment, tax generation and preventing poverty (Kenya National Bureau of Statistics [KNBS], 2020). Manufacturing firm's goal of managing working capital has increased interest among scholars to devise ways of increasing profitability (Tarik, 2020). In general, manufacturing firms profits will assist on global recovery from the initial economic shock caused by pandemic.

Temtime, (2016) states that social shift includes ability to educate managers with information concerning WCM policies as profits generating tool. Borin and Mancini (2019) stated that Australia manufacturing firm contributes to half of country economy and 40 percent in job creation achieved through working capital planning. Studies conducted by Hossain (2020) in Bangladesh stated that manufacturing firms increased countries GDP including development. In addition, Croci et al, (2015) states that by 2011, WCM investment in US manufacturing companies reached 4.2 trillion dollars representing 18 percent of total assets that contained 24 percent of sales revenue. Indeed, in Europe efficient WCM ensured firms generated profits during times of recession as from 2006 to year 2014 (Robles, 2016).

Manufacturing firms has promoted industry GDP performance across the East Africa but have not reached its 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 and it is lower than expected (African Union AU, 2019). Braimah et al., (2021) stated that Ghana firms forms 70 percent of GDP but lack of proper working capital management affects profits. Tanzania manufacturing increased at a rate of 6.6 percent as from 2.9 percent but was less than medium industrialized countries (Moyo et al., 2012). In Nigeria 92.2 percent of economy is made up of manufacturing firms that generates 50 percent 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, 2020). Moreover, manufacturing firm contribution to Kenyan economy stagnated at 10 percent of total GDP (Kenya Association of Manufacturers [KAM] 2018). Kenya has been hit by external shocks contractions caused by pandemic however, economy is strongly recovering and manufacturing could form an avenue for recovery (International Monetary Fund IMF, 2020). Manufacturing in Kenya should be very competitive although share of manufacturing output in GDP and exports is declining (KNBS, 2020). Kenyan export of manufactured goods GDP is expected to increase with 13.3 percent by year 2025 if factors affecting profits are considered (IMF, 2020)

Abor (2017) further stated that WCM components such as current asset, and current liabilities includes items such as inventories, payables, cash, and receivables organized in best manner to facilitate profitability. Mwangi et al., (2014) further demonstrated that company's profit depends on manager's ability in managing working capital. Muller (2019) concluded by defining that total operating assets is illustrated using the difference between short-term assets and liabilities. Anchored in agency theory Gulia (2014) stated that inadequate profits were linked to firm bad WCM policies. Studies conducted by Ajao and Nkenchinyere (2013) in Nigeria, concerning WCM devised that financial strategy explained negative relationship of WCM and profits.

Bulle (2017) stated that WCM was a crucial organizational tool used to achieve competitive profits reason being that current assets forms more than half of industries total assets and increase in production resulted to increase in labour related expenses. Further, Harris (2015) reported that investment on inventories reduced profits, although less investment may lead to inability on settling short term accounts payables. Further, Sadiq (2016) made it clear that manufacturing firm's may have enough profits, but they will undergo receivership process if they don't pay their accounts payable. Identically, Ong'era et al., (2017) demonstrates that manufacturing firms previously faced revenue problems resulting to their adoption, restructuring and being deregistered. Constant erratic manufacturing firms profits created gaps that raised concern of evaluating the reasons that caused unstable profits during the study period. This study filled these gaps by analysing WCM and profitability.

1.1.1 Working Capital Management

Effective WCM reflects balance between organizational short-term assets, and liabilities. Further, WCM requires several functions like short-term investments, granting credit, managing cash and debt recovery (Ochieng et al., 2020). According to Singh and Kaur (2017) they stated that firms with good working capital policies increased sales, profits, assets and market share. In addition, if companies do not have funds for paying current liabilities, it might lead to liquidation, acquisition or restructuring by selling permanent assets (Maverick, 2019). Due to growing concern on matters of competition and demand for profits, managers who used effective WCM as source of short-term funding maintained maximum profits (Aminu et al., 2015). Based on agency theory WCM refers to management of short-term financial goals used in creating operating capital that increases firm revenue and shareholders (Makori & Jagongo, 2013). WCM's well-balanced rating has been written by Aktas et al., (2015) concluding that equilibrium working capital will improve stock performance, revenues and income. Most firms viewed working capital as a simple corporate equation of current assets minus current liability (Wangige, 2016). Studies conducted on WCM showed usefulness of proper balancing of working capital like reducing expenses and fast cash recovery (Njuguna, 2018).

Inventories management forms part of broader WCM like raw materials turned into products later sold on cash or credit becoming cash and accounts receivables respectively (Mwendwa, 2018). 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). Inventories represent moving average current assets and liquidity is negatively affected if finished products take long to sell (Mathuva, 2013). Conversely, Ajayi (2019) demonstrated that if inventory turnover is very high, it indicated that stock was not sold due to low demand or over production. Therefore, various scholars elaborated that inventory turnover was a vital part of working capital because it affects cash, account receivable, liabilities and profitability deducting the importance of cash conversion cycle theory.

Receivable management is an important tool used for determining profitability of manufacturing firms simply because it is an avenue for cash generation used to pay current liabilities and buy inventories (Ajao & Nkencinyere, 2013) This was clearly emphasized by Uyar (2014) explaining that if an entity does not manage account

receivable well, they face multiple financial deficits that leads to operation problems. Sadiq (2016) states that if firm has debts, it shows there is low liquidity ability as a result of uncollected cash. In conclusion accounts receivable turnover is measured by dividing net credit sale with aggregate accounts receivables (Enqvisit, 2019). The cash ratio also referred as cash asset ratio which does not include accounts receivable, inventories and short term investments. This ratio incorporates liquid assets such as cash or cash equivalents and measures firm's ability in responding to current emergencies (Muller, 2019). Cash ratio was evaluated through division of cash and cash equivalents by current liability therefore a ratio above one indicates a firm can fast pay its current liabilities. High cash amount on the balance sheet indicates that firm did not make profits because of unutilised funds (Kimondo, 2014). According to Braimah et al., (2021) cash is a monetary component that includes coins, notes, cash equivalents, bank accounts and marketable securities with maturity of less than 90 days. As a result of this it was clear evidence that even most profitable firms should have cash reserves used in responding to unforeseen contingencies because money represents immediate purchase power, hence creating need for keenly managing cash by making sure that debts were collected on time and transaction cost theory is fully applied.

Account payable management is another sensitive source of revenue for industries therefore, delaying payment to creditors and holding large amounts of arrears often provides alternative low-cost operating cash (Yazdanfar et al., 2016). In contrast, theoretical literature highlights concerns associated with additional periods of commercial liability noting that expansion affected assumption of transaction costs theory and cash flows obtained by extended payable time creates expenses that affects revenue (Njoroge, 2015). For example, Dary and James (2019) argued that decision to extend trade credit could lead to higher expenses that arise from real opportunity cost and loss of trade discounts. Firms putting pressure on customers to make quick payments and in contrast, delaying payments to creditors creates financial problem (Singh & Kaur, 2017). As illustrated by Nhuhiu et al., (2017) these delaying efforts may reduce short-term cost, but later suppliers and buyers deviate to competitors. Therefore, it's important for organizations to plan effectively concerning accounts payments because this affects cash flow, inventory purchase, suppliers' relationships and profitability. Account payables ratio is computed by dividing average purchases with average inventory (Siraj et al., 2019).

1.1.2 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 indicated usefulness of corporate managers in effectively using available assets in maximizing returns. According to Isık (2017) profitable firms contributes to country's GDP and increase employment levels concluding that profitability is measured with returns on assets ROA involving operating expenses. In addition, excellent profit growth attracts more investments in the same business (Ajayi, 2019). In line with agency theory, firms goal is maximizing profits by providing efficient working capital (Al-Jafari & Samman, 2015). Profitability is the ability of firms to generate profits from resources employed and ROA is a profitability ratio that defines company ability to generate profits from capital assets utilized (Adjirackor et al., (2017).

Examples of other ratios used in measuring profits are; net profit margins, operating profit margin, gross profit margin, cash flow margin, ROCE, NOPAT, EBIT, EBITDA, EBITDAR, operating expense ratio, and overheads ratios, ROA and Return on equity ROE (Mshelia 2016). ROA measures earnings earned by firm management through operations calculated by dividing net profit before tax with total assets Nizigiyimana (2014). Return on equity ROE is used to measure ability of invested capital to generate shareholders returns and its computed by dividing net profit after tax with shareholders 'equity Karadag (2015) Gross margin explains the percentage of sales that turns into gross profit and is calculated by dividing gross profit over sales (Akenga , 2017). Further, the study states that net profit margin shows percentage of sales that is used to generate net profit computed by dividing net profit after tax over sales.

Hossain (2020) argued that higher ROA yields higher returns on shareholders wealth and increases firms' financial value. As a result of this current study used accounting proxy return on assets in measuring and operationalizing of WCM. This study used ROA because most manufacturing firms contain tangible current assets enabling efficiency on measuring of WCM parameters. Furthermore, manufacturing firms hold half of assets in terms of inventories, receivable and cash making ROA an ideal formula for this survey. Finally, data for ROA calculation comes from firms financial statements providing necessary information for calculating different kinds of ratios.

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 1.1 Five Year Statistical Trend of ROA

	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 2018; OECD 2021; Central Bank of Kenya CBK, 2022)

Table 1.1 above shows that combined profits of manufacturing firms had unstable trend indicating there are gaps with factors that influences manufacturing firms profitability. In addition, manufacturing contribution to domestic economy GDP has stagnated during 2016 and 2017 slightly increased in year 2018 and then dropped.

1.1.3 Manufacturing Firms Listed at Nairobi Securities Exchange

In history Narobi 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 based on GDP (Iraya & Musyoki, 2013). Therefore, it's also a key stake holder in African securities exchange association. In July 2011, the name changed from Nairobi stock exchange to Nairobi securities exchange hence supporting full security services which enhances trading of equities, debts and similar instruments (NSE, 2014). The NSE maintains a secured security exchange on debts, equities, trading, clearing and control of securities therefore it's authorized to list or delist firms.

According to Musiega (2013) the Capital Markets Authority (CMA) regulates NSE and was established in year 1990 to facilitate development, mention orders and enable market efficiency in Kenya. The NSE is tasked to buy, sell and set rules for tradings that protects investors from toxic brokers, thus restoringcustomer confidence. The NSE provides its customers with a structure that liquidates their shares at a low cost and these acts as major investment incentive (NSE, 2014). The daily price list

provided by NSE enables investors track their assets value, therefore these reports clearly indicates firms with profitability problems. In conclusion, NSE requests companies to give periodic financial reports ensuring healthy management of corporate financial activities. Current study scrutinized these NSE reports to collect secondary data and analyse effect of WCM on profitability.

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]. During previous financial periods, manufacturing firms were riddled with a decrease in profits and some even making loss (NSE, 2020). This notes that these companies have challenges of WCM leading to poor profitability. In addition, this industry trends makes current study relevant in giving clear guidelines on handling WCM as a proxy of profitability. Managers are paid to achieve set organizational goals; however, profit is part of firm's overall strategy and supports agency, transaction cost, and CCC theories.

1.2 Statement of the Problem

Industries in most counties including Kenya, generates employment, increases GDP, government tax revenue and growth (KAM, 2018). Based on agency, cash conversion, and transaction cost theories the aim of organizations is to maximize profitability ROA. Failure to make profits or fluctuating profits creates gaps. For example, manufacturing sector in Kenya GDP contribution was 3.6 percent in 2018 decreased to 2.6 percent and deteriorated to -0.1 percent in year 2020 (CBK, 2020). Eccentric combined profit after tax that was based on firm's financial statements was 21.1billion in 2016 then decreased to 10.6 billion in 2017, further it increased to 24.9 billion during year 2018. Production firms listed at NSE in Kenya have previously faced profitability challenges evidenced by the fact that most industries have faced financial restructuring and some are acquired or subsequently deregistered (Ong'era, et al., 2017). According to CMA (2020) these companies operate with improper operating costs meaning that debts are greater than current assets. Ochieng, (2020) explains that several studies was conducted by various scholars but profitability of firm's keeps on deteriorating and empirical results showed that WCM affects firm's

profitability. In addition, these revenue problems are brought by mismanagement of short term working capital. Manufacturing firms nature of having working capital components like inventory, cash, receivables and payables needs efficient management strategies (Maverick, 2019). Makori and Jagongo (2013) explains that working capital is period taken as from when raw materials are bought until when cash is generated. Further the study explained that WCM gaps leads to delays in collecting accounts receivables, decreased sources of expansion funds, increased prices due to high demand and overdue accounts payables. The gap is that managers of manufacturing firms may not have access to factors that affect profitability relationship with working capital (Aktas et al., 2015, Shah et al. 2015). If good WCM methods are not implemented Braimah et. al., (2021), states that there will be decline of short-term financing, reduced profits, less development, unemployment and firms will face adoption process. In addition, Karadag (2015) argues by using WCM as driver for profits, is a timely respond to address problems causing receivership and acquisition. This study therefore addressed these problems of poor WCM and profits. Researcher explored industries listed on NSE Kenya using five variables to solve these gaps. In conclusion, WCM together with profit management was important phenomenon in firm competition therefore making current research an ideal test model.

1.3 The Study Objectives

Current study was directed by both general and specific objectives.

1.3.1 The General Objective

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

1.3.2 Specific Objectives

Specific objectives of the current study includes: -

i. To examine effect of inventories management on profitability of firms listed at NSE, Kenya.
ii. To examine effect of debtor's management on profitability of firms listed at NSE, Kenya.
iii. To examine effect of cash management on profitability of firms listed at NSE, Kenya.

iv. To examine effect of payable management on profitability of firms listed at NSE, Kenya.

1.4 Hypothesis of the Study

Current research tested the null hypotheses named below;

H_{01}: Inventory management has no significant results on profitability of firms listed at NSE, Kenya

H_{02}: Receivables management has no significant results on profitability of firms listed at NSE, Kenya

H_{04}: Cash management has no significant results on profitability of firms listed at NSE, Kenya

H_{03}: Payables management has no significant effects on profitability of firms listed at NSE, Kenya

1.5 Significance of the Study

First, this research might be of use to researchers or academics in field of effective financial management and profits thus serving as reference point for students to improve their knowledge and facilitate learning. Secondly, finding of this research could be of help to managers in understanding working capital policy that will boost financial firms performance. Thirdly, findings will also assist shareholders and firm management in forming effective plans of managing profits hence fostering realization of vision 2030. Fourthly, study findings would also help to increase output through update of manufacturing firms value addition and boosting economic growth. Further, research would be useful to financial institutions as a tool of assessing firms credit worthiness, by apprehending on the significance of working capital efficiency and revenues. In addition, this research might be of use to lenders by enabling cross section comparison for individual business. This research would assist government decision makers in having an effective plan for enabling improvement of firm's returns. Meanwhile security exchange may use this study results to regulate and register new entries. In addition (Hossain, 2020; Kakeeto et.al, 2019; Phuong & Hung, 2020;) examined data from manufacturing industries of Vietnam, Baghdadi and Uganda respectively therefore, this study added new knowledge through examining current Kenyan listed firms. This research project contributed to learning of good WCM and corporate profitability policies on Kenyan companies.

1.6 Scope of the Study

Contextual scope of this research was to establish the effect of WCM on profitability of manufacturing firms registered by NSE, Kenya. The WCM factors considered included; inventory, cash, receivable and payable management where by, it's possible that these variables form manufacturing firm's problems because of skills needed for generating asset-liability mix. The dependent variable profitability was tested using ROA. The study was only confined to twenty firms and covered a period of five years from 2016 to 2020. The study period was appropriate for examination based on the fact that most manufacturing firm's profits were not consistent. In addition, the study embraced descriptive research design. The study was conducted at this period because within this study period most manufacturing firms faced financial problems and some were at verge of closure. In addition the study utilized descriptive method. According to Lach (2014) descriptive model enables researcher in testing of study statistical measurements concerning hypothesized connection between WCM, and firm's revenue. The choice of variables was justified by Jensen and Meckling (1976) agency theory by Williamson (1981), transaction cost theory by Richards and Laughlin (1980). Effective WCM enables firms to derive maximum profits at a minimal cost and it's anchored on transaction cost, agency and CCC theories (Abor, 2017).

1.7 Limitations of the Study

The Current studies were confined on manufacturing firms registered in NSE Kenya and findings were not same for unlisted small medium enterprises. Further, this study addressed this challenge by evaluating 20 manufacturing companies that had different firm size some of which were similar to unlisted SMEs. This study used historical secondary information available on financial statements reports and as a result of this all other profitability variables which influence firms' profits were not captured in this model. Therefore, this study mitigated these challenges by evaluating model independent variables which accounted for differentiation of firm's profits. Researcher expected to face shortage of literature concerning WCM in manufacturing firms and research data was not expected to be accurate for larger manufacturing population. This challenge was mitigated through searching online for documented journals using Google scholar and Universities repositories. This study used past financial statements in calculating ratios and came up with the study data analysis which were historical in nature. The study mitigated these limitations and compared

ratios against industries cross section data because; ratios cannot be effective unless accessed across all firms. According to Boesch et al., (2013) audited financial statements may not clearly elaborate ability for them to achieve returns in future. With regards to this, this study was confined to only five years which contained insufficient evidence to generalize study findings. Thus, the study covered past activities rather than firms current existing challenges in business environment.

1.8 Organization of the Study

This research enclosed the following segments; study background, objectives, significance, limitations, organization and scope of study that is staged on chapter one. In addition, theoretical, empirical, and conceptual framework is discussed in second chapter. Further, statistical research methodology, research designs, target population, empirical literature model, operationalization and measurements, sample designs, instruments of data collection, data collection process, data evaluation, diagnostic test and research ethics re found on chapter three. Chapter four contains; response rate, descriptive analysis, diagnostic tests, inferential statistics, analysis of variance and hypothesis testing. Finally, chapter five encompassed topics like; conclusions, recommendations, limit of study and social change effects.

CHAPTER TWO

SUMMARY OF EMPIRICAL LITERATURE AND RESEARCH GAPS

2.1 Introduction

This chapter surveyed past studies and various academic related theories administered through various scholars concerning effect of WCM on profitability. In addition, this chapter reviewed research empirical literatures presented by various authors in regards to this study.

2.2 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). Theoretical review under this study included Agency theory, Transactions cost theory and Cash conversion cycle (CCC). Theories provided framework defining pragmatic relationship between WCM variables as a proxy of profitability.

2.2.1 Agency Theory

Agency theory 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. This fact enables them to address problems of devising ways which align to their interests for purposes of reducing agency and principal's conflict. Managers opportunistic behaviour can lead to scanty profits thus this theory acts as a proxy concerning critically addressing ROA problems. The agency's view was consistent with study because it provided insight into how corporate profits were determined by various ways that corporate management executives performed their duties. Agency theory outlines that managers might put their personal interests ahead of shareholders by engaging in business activities that benefits them and this reduces profitability. When discussing agency theory Wang (2010) suggested that in order to reduce agency conflict, managers should be given an opportunity of becoming firms' shareholders hence this lures them

into making critical decisions of investing on viable business activities that effectively utilizes working capital policy and benefits them as major shareholders. This theory is anchored on point that agent manager being business owner is assigned tasks by principals to manage assets-liability policies of manufacturing firms. In addition, these managers are entitled to salaries inform of cash incentives which motivates them in adopting effective WCM strategies that prevents corporate conflicts. Further, relevance of WCM accountability theory can be elevated on this angle of financial manager, who is usually an agent representing principals and entrusted for making decisions in regards to receivables, payables, inventories, and cash managements (Williamson, 1985). The agency's view clearly analysed WCM as part of revenue tool and therefore provided measures for profit maximization through management of production, distribution of goods, cash management, debt payment and collection of debts (Ajayi, 2019). For this reason, agency's vision was linked to all WCM and profitability variables because manager's work is to increase profits through proper use of WCM policies that operates financial management system.

2.2.2 Transaction Cost Theory

Concept of transaction costs theory was clearly elaborated by Williamson (1981) where it outlined that company gains profits by organizing activities in a way that reduces operating cost. The proponent went on further to explain that there are three ways profitable business can be cash efficient like: multidisciplinary business, establishment of effective funds management and corporate governance. Concerning WCM manufacturing companies should manage their trade credits at a minimum cost. Therefore, analysing credit worthiness for new and existing business customers makes firms eliminate extra cost of using external resources such as credit reference bureau to evaluate firms for extra sourcing of investing funds and increasing debt collection methods such as threatening to end existing supply (Bellouma, 2014). The transaction cost claims that production activities is to be handled in a way that utilizes minimal operation cost involved in manufacturing (Muchina & Kiano, 2011). According to Williamson (1975) transfer of goods through transaction becomes major part of evaluation in transaction cost theory and instrument which transactions becomes firm's outcome. In management of effective working capital policy, four items that involves cash, debtors, stock and creditors emerged as major concerns involving complex planning and firm's resource commitment. Manufacturing firm

may prefer pilling obligations like creditors and repay them on monthly term rather than every moment goods are ordered. Therefore, this separates payments cycle from their ordering cycle hence reducing cost (Williamson, 1981). Manufacturing firms should ensure that customers pay their bills on time thus reducing additional costs for hiring debt collectors and debts write off cost (Dary & James, 2019). In addition, they should maximize use of trade discounts or commissions offered by their inventory providers while carefully monitoring their profitability. The major view of this theory was that company's operations were to be performed in a manner that minimizes production cost (Hassan & Mberia, 2017). This study supported the notion concerning operating transaction cost and ensured there existed proper WCM tactics that enhanced profitability. Therefore, this concept was chosen as an anchor in this study. Lastly, the theory was applicable to inventories and receivable management, payable management and an example is where firms buys raw materials in bulk and enjoy trade discounts hence reducing cost. Further, firms which collect payables on time avoid employing agents to collect debts hence reducing cost.

2.2.3 Cash Conversion Cycle Theory

This view expressed by Richards and Laughlin, (1980) further explained that managers should maximize time on WCM, involving activities like managing of account receivables, monitoring cash flow, negotiating for better credit terms and sourcing for some extra cash to finance inventories (Aminu & Zainudin 2015). The argument was clear that firms should not rely on business corporate governance such as current asset acid test because this standard estimates business closure rather than their daily working capital operations. Therefore, company should maximize their daily operation profit in order to pay their litigations rather than liquidating existing assets. This CCC monetary cycle was introduced as means of evaluating usefulness of financial management system. Therefore CCC is defined as level of cash flows required for certain amount of sales. According to Gitman (1974) CCC is computed by adding inventory conversion period to accounts receivable and subtracting accounts payable. This focuses on working days concerning inventories purchases and revenue generated from sales. According to Aminu and Zainudin (2015) CCC consists of; inventories, debtors' management and accounts payables management. As a result variables act as link to this study because they affect functional components in

manufacturing firm's profits. Mathuva (2014) emphasized that CCC was key theoretical element for explaining use of effective WCM in realization of profits.

2.3 Empirical Literature Review

Empirical literature scaled past studies with aim of answering research hypothesis and answering research gaps identified in this study. The study researched on effect of WCM on profitability of manufacturing firms listed at NSE, Kenya

2.3.1 Inventories Management and Profitability

Ajayi (2019) examined WCM and operational profits of listed cement industries in Nigeria. Descriptive research was conducted from year 2010-2019 using pooled least of square random effect model. Sample of three cement companies was carried out using panel data. To sum up, the study results indicated that inventory conversion time contained negative significant result at 5% significance level. However, the study did not encompass the entire population of manufacturing companies in Nigeria. In addition, the study was conducted on foreign country settings. Therefore, current examination addressed contextual gaps by involving manufacturing firms registered in Kenya.

Mulumba (2016) analysed the issue of inventories management and revenues of Agro-chemical industries in Kenya. Utilizing descriptive method 65 firms and collected data from the operations, procurement managers and analysed it using statistical descriptive methods. Apparently, the results stated that ROE improved generally due to inventories management. The estimation contained non-manufacturing industries hence making deduction for this outcome difficult in analysing manufacturing sector, further two model variables of firms' measurements was utilized. Current lesson covered conceptual gap by including more variables of firm's governance and studied the context of manufacturing firms indexed at NSE.

Mshelia (2016) examined impact of effective WCM on revenues of SMEs in Nigeria. Descriptive research analysed 250 firms in Kaduna north and south. Data was obtained using questionnaires combined with interview guides and analysed using SPSS multiple regression software. In conclusion, results showed that components of WCM were affecting profitability of SMEs positively. The current study was conducted in Kenya therefore, it covered contextual gap elaborated above. This study

covered methodological gaps by using checklist to collect data from financial statements.

2.3.2 Receivables Management and Profitability

Onchanga (2019) examined effect of WCM concerning profit for non-financial organization registered at NSE, Kenya. There was utilization of descriptive research design incorporating 41 firms and employed census method. Secondary data from 2007-2016 was studied. As a result of this study findings showed that receivables had significant negative results on organizations revenue. However, it focused on non-financial companies thus the study finding might not have reflected the current research capacity because of the context involved. However, the study used only three variables, so current study analysed some extra working capital variables and its context involved manufacturing firms.

Kakeeto et al., (2019) tested the effect of account receivable management on organizational profit via studies conducted in Uganda. Descriptive method used a case study consisting samples of 181 staff members taken from a total population of 345 and collected data using likert questionnaire. Therefore, research outcome elaborated that account receivable had a positive impact on organization profit. However, the two corporate governance variables were utilized but may not have been sufficient in obtaining comprehensive conclusion. Further, study was conducted in foreign state Uganda. Therefore, this study applied a wide range of corporate measurement variables containing Kenyan context which covered contextual gaps Questionnaire was employed on collecting data. This study used a check list in bridging the methodological gap above and also combined descriptive with inferential statistics.

Adembo (2017) studied the impact of accounts receivables on profits of manufacturing and the allied firms registered by NSE, Kenya. Secondary data was collected from 25 firms during the period of 2008-2012 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. The study examined three working capital variables ruling out inventories. This prevalent study therefore analysed research variability using four WCM congruent named receivables, cash, inventory and payables thus giving remedy for

this conceptual gap. This study covered the population gap by evaluating 20 manufacturing firms

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

2.3.3 Cash Management and Profitability

Yameen (2019) examined the effectiveness of liquidity on returns of pharmaceutical companies found in Bombay stock exchange. Balanced panel data was used involving 82 companies between 2008-2017 employing data extraction Prowess IQ database. The lesson finding revealed that current ratios and quick ratios contain significant positive activity based on ROA. However, the study did not consider manufacturing firms and employed two variables in evaluating liquidity. Therefore, current research included some more variables of working capital. The study was conducted in India which is a developed country. Present evaluation included manufacturing companies in Kenya thus addressing current business environment covering the contextual gaps showed above. This study also bridged the methodological gaps by using a checklist for data collection.

Kimondo (2014) analysed the effects of liquidity and profits of non-financial companies contained in NSE, Kenya. The study used descriptive design and included 39 companies analysing year 2009-2013. Study combined correlation with regression statistical models. In conclusion, study outcome was established showing significant feeble positive correlation on liquidity and ROA. The sample comprised of non-financial firms that used three corporate measurement variables for evaluating the revenues. Therefore, it implies that the results did not have an effect concerning manufacturing companies business working environment. Current study analysed all the WCM context of manufacturing companies hence it did fill in the existing contextual gap. This study filled in the conceptual gap by investigating the concept of working capital management.

Pandey (2019) studied the way cash management relates with profits of SMEs. The said experiment adopted correlational design and purposive sample approach. In addition, the sample had a number of 80 SMEs in Kirtipur Municipality therefore; business owners were interviewed using Likert scale questionnaires. In addition, examinations using descriptive statistics showed that cash controls had little positive influence on returns. However, previous lesson used three business measurement variables in testing results and therefore current study examined several company corporate measurement variables. Further the study tested SMEs whereas this study analysed manufacturing firms to address contextual gap. Current study covered methodological gap by using checklist for data collection. In addition, current study contained the concept of working capital covering conceptual gap.

Nizigiyimana (2014) evaluated WCM on cement manufacturing companies catalogued in NSE, Kenya. Purposive sampling was used then secondary data was obtained from 2008-2012 and was evaluated using descriptive statistics drawn by using multiple regression. Moreover, results showed that current and quick ratios had positive outcome on ROCE. However, study analysed only cement manufacturing firms hence contextual gap was arising. The current studies examined manufacturing industries using ROA instead of ROCE hence addressing the conceptual gap above. In addition, current study used checklist that covered the methodological gap realized. Current study addressed methodological gap by using census method.

2.3.4 Payables Management and Profitability

Njoroge (2015) studied relationship between liquidity compared to returns of constructions and allied industries registered by NSE, Kenya. Secondary data was examined using regression statistics and study showed that increase in payables compared to equity affected firms returns. However, examination was done on none manufacturing firms making results slightly different from manufacturing firms. This study covered the contextual gaps by examining manufacturing firms. Previous study concept was one of liquidity and current study concept was of WCM hence solving conceptual gap. Therefore, current study added some model characteristics of corporate governance and therefore considered all manufacturing firms registered in NSE addressing contextual gaps.

Madugba and Ogbonnaya (2016) tested usefulness of average payment time on profits of Nigerian firms using regression that analysed secondary data. Results of the studies

indicated that average payment do change earnings per share together with ROCE. The study showed 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 ROA and WCM 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 that also included secondary collected data by use of questionnaire and conjoined with 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 WCM hence this study addressed conceptual gap by investigating congruent of WCM as a proxy of profitability. This study addressed the methodological gap by using a check list to collect secondary data. This study used census method that addressed the methodological sampling gaps.

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

Braimah et al., (2021) studied connections for WCM on profits of SMEs that were based in Ghana. Financial statements collected from year 2007 to 2016 containing 366 SMEs was analysed using generalized least square method. In conclusion, results revealed positivity on trades payables period and profits. Therefore, this study covered contextual gaps above by investigating the existing business environment in Kenya.

2.4 Summary of Empirical Literature and Research Gaps

The summary of literature indicates predictor variables under this study which entailed; (Inventory management, payable management, receivable management, and cash management) and also dependent variable ROA. The research highlighted various studies conducted on local and international levels.

Table 2.1 Research Gaps.

Researcher	Focus to the study	Study Finding	Research gaps	Resolving study gaps
Kangangi, (2020)	WCM activities on returns of SMEs, Kenya.	Conclusions revealed that management activities affect SMEs revenues.	The Study was conducted on SME and business context of SMEs might not the same as manufacturing companies.	This study filled in the context gap by examining manufacturing firms listed in NSE.
Temtime, (2016) US journal	Working capital and returns of manufacturing business in USA	Revealed WCM contains positive impact on revenues.	Context, gaps emerge concerning business environment found in developed countries.	This study was conducted in Kenya and addressed current business environment.
Bulle, (2017)	Financial management and profitability of manufacturing firms	Final analysis found that liquid assets holding has significant effect to profitability	Methodological gaps emerged; hence using a different research design is required for providing new ideas. Past lesson used three corporate measurement variables.	The methodological gap was addressed using descriptive design and inferential statistics.

Robles, (2016) United Kingdom.	Profitability in different business cycles	Found out that liquid assets holding contained significant effect on profits	The study centred on manufacturing firms based in developed countries. The study concept was of business cycles	Current studies evaluated manufacturing firms in Kenya thus addressing contextual gaps, hence addressing Kenyan emerging markets. Also concept was of WCM bridging conceptual gap
Oladimeji & Aladejebi, (2020) Nigeria	Evaluation of WCM on profits of manufacturing companies in Nigeria.	Average payments term and aggregate collection period impacts ROA. Hence management of WC puts firms afloat.	Reearcher identified contextual gap. It was researched in foreign country Nigeria.	Current research addressed the gap by evaluating current Kenyan business environment.
Nucu et al., (2021) Poland.	Relationship between WC and firm profitability.	WCM had a positive result on profits of firms up to a break-even point.	Experiment was conducted in Poland containing a foreign business environment.	The current study analysed current business environment in Kenya. Thus, addressing the contextual gap.
Ratemo, (2018)	WCM and profitability of supermarkets in Nairobi.	Studies explain that working capital turnover and returns relates positively.	Researcher identified contextual gap. Business setup of supermarkets differs with manufacturing	Current study was conducted on manufacturing firms hence addressing the contextual gap.

Kituku, (2019)	WCM practices on performance of food and beverages manufacturing companies.	Found out that working capital management practices improves profits.	There is a contextual gap because the study evaluated food and beverages firms.	This study focused in the manufacturing firms. Because working environment in context of food and beverages is different.
Madugba et al., (2016) Nigeria	WCM and returns of manufacturing companies in Nigeria	Good management of WCM keeps companies afloat	Experiment conducted in foreign Nation which might not be same in Kenya in terms of GDP	The research examined firms in Kenya hence addressing this contextual gap
Ochieng (2020)	WCM and returns on manufacturing and allied category registered in NSE.	The study shows positive association between WCM and revenues	The researcher identified theoretical gap. Theory is applied to research issues hence generating new ideas.	The prior research is an important foundation worthy of recognition. This research covered the gap by applying different theories.
Braimah et al., (2021) Ghana	WCM and profitability of SME in emerging economies Ghana	The study found that there must be efficient minimum WCM to maximize profitability	Study was conducted in foreign business environment which varies from Kenya hence bringing out contextual gap	Current study was conducted in Kenya

Andisi, (2018)	WCM and profits of firms registered under construction and allied in NSE	The study revealed an inverse existence on WCM and revenue.	Detection of contextual gap in the prior studies. The study was conducted on construction firms	This study was conducted on manufacturing firms.
Hossain, (2020) Bangladesh	Evaluation of WCM on returns of manufacturing companies in Bangladesh	Results reveals that efficiently and effectively WCM will increase profitability	The researcher noted a contextual gap because study was conducted in a foreign Nation.	Current evaluation was conducted on organizations in Kenya.
Mukiri, (2018)	Coexistence of WCM and profits in manufacturing organizations registered by NSE.	Results show no correlation on WCM and profits of firms.	The researcher identified theoretical gap concerning correlation of WCM and revenues.	Theoretical gap was explored further to provide a new insight using a different theory.
(Damir & Kontus, (2019) Croatia journal	Management of liquidity on assets in SME	Found that cash was negatively correlated to liquidity.	Lessons experiment was centred on firms in developed country. The concept was of liquidity	This study hypothesis was examined in Kenyan business environment. Conceptual gap addressed WCM on current study.

Mwendwa, (2018)	WCM strategies on returns of manufacturing companies registered in NSE.	The study concludes that WCM contains positive relationship with returns.	Researcher identified method gap in the previous research. It is useful to vary the research methods to generalize the findings.	This study sort to establish a new inquiry in research deigns.

Source: (Researcher, 2022)

2.5 Conceptual Framework

Conceptual framework indicates use of diagrams in explaining relationship of independent variables on dependent variable. Conceptual framework is used for conceptualizing diagrammatically model relationship of current research variables. Current study measured WCM based on four main components which are; receivable turnover, inventory turnover, payable turnover and cash ratio. The dependent variable was profitability measured using ROA.

Independent Variables

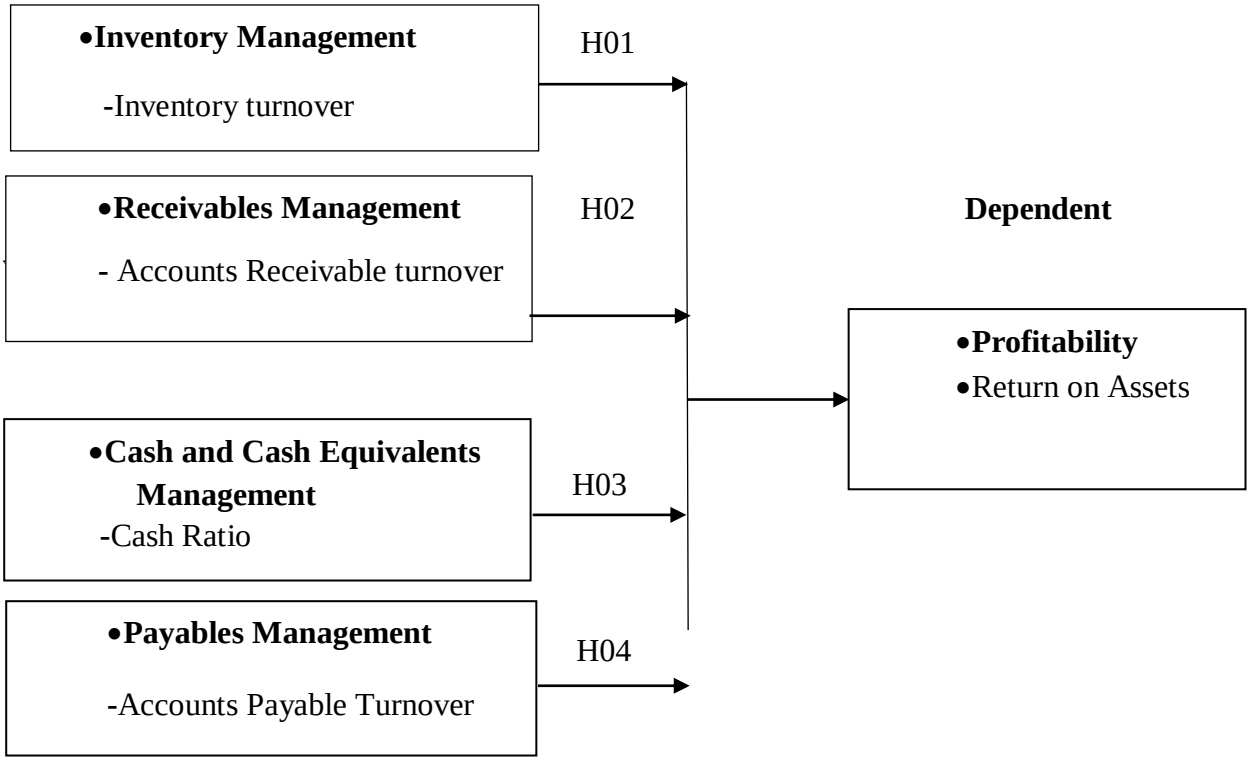


Figure 2.1 Conceptual Framework

Source: (Researcher, 2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section deciphers the underlying methodological format used in this study. Methodologies include: research designs, target populations, empirical models, data collection methods, diagnostic test, procedures of research, data analysis together with ethical consideration. According to Goundar, (2012) research problem hypotheses were used as guidelines for selection of the research methods, designs, populations, samples, together with data collection and analysing methods.

3.2 Research Design

Design reveals general program used on finding results of study hypothesis (Donaldson et al., 2013). Design is further explained by Mugenda and Mugenda, (2003) noting that research design is a framework used for generating answers and analysing research problems. As a result, descriptive design was employed and quantitative data was analysed using multivariate inferential statistics. This Study aimed on collecting secondary data of manufacturing industries registered in NSE from year 2016 - 2020. Extraction of data was made from financial reports that were submitted to NSE. Descriptive research methods was found appropriate because this study utilized periodical statistical data which contains additional details to answer current problems faced by these manufacturing companies. Further, it was suitable to analyse how predictor variables affect the dependent variables.

3.3 Target Population

Study was conducted in Nairobi and included 20 firms listed in NSE Kenya. Population selection was found appropriate because, study relevant information used to answer underlying research hypothesis was publicly available. In addition, panel details from firms provided rich information of duration and length of time selected. The researcher choose manufacturing firms because they hold high rate of inventories raw materials to be processed into finished products sold on credit then converted into accounts receivables and cash. In addition, many manufacturing firms purchase raw material on credit referred as accounts payables.

3.4 Sampling Design Sampling Procedure

Sample design provides framework that serves as the basis for research sample selection and affects basic methodology operations. This study adopted census method because population was small and covered five-year time dating 2016 to 2020. In addition, census method is more precise in dealing with secondary data because it contains historical records. Other studies that used similar methods are Mukiri, (2018) and Odhiambo, (2017). The choice of study period was satisfactory because during this period Kenyan governmentt aimed on increasing manufacturing firm's production GDP by 15% before end of year 2022 (KAM, 2018). In addition, study period was ideal based on conditions that manufacturing firms' profits declined during this five-year time. This study used a total of only 20 production companies registered through NSE, Kenya.

3.5 Data Collection Procedure

The study analysed secondary data that was collected from the NSE and CMA reports. The use of secondary data in this study was appropriate because secondary data is already examined by regulators and gives precise financial position of companies'. Financial statements are used to examine a certain occurrence (Johnston, 2014). The 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. The researcher sought for letter of approval used in collecting secondary data as shown in (appendix, B)

3.6 Data Collection Instrument

Current research analysed secondary data using published financial statements available in NSE and CMA libraries because, these statements contained manufacturing firms' financial information. Secondary data was collected using checklist in evaluating relationship of WCM and profitability. Data that was collected contained fine details of assets, liabilities and profit levels for the period of 2016 to 2020. Data collection instruments contained published annual reports. In addition, ratios were used in analysis and evaluation of business. The audited statements gave very important information on building the study hence answering research hypothesis. According to Johnston (2014) this data collection method was similar to

one used by financial analyst in evaluating public firms results thus making the method relevant.

3.7 Data Analysis and Presentation

Quantitative model data was analysed using descriptive statistics. The method enabled researcher to make effective conclusion about relationship of the dependent and independent variables therefore it was an ideal tool in testing basic concepts of this research. Inferential statistics included multiple linear equations, correlation and regression. Descriptive statistics conducted included; mean, standard deviation, maximum and minimum values. According to Kothari (2009) regression analysis shows how one or more variables changes affecting other variables. Study variables where continuous making researcher use inferential statistics tested at 5% level of significance.

Current lesson tested the effect WCM variables against ROA of firms registered in NSE, Kenya.

$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \acute{\varepsilon}_{it}$

Y = Profitability in terms of ROA

β_0 = Y –intercept

β_1, β_2, β_3, β_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

3.8 Diagnostic Tests

Farm (2013) suggested that performance of diagnostic test was recommended taking in account statistical assumptions concerning normality, multicollinearity, heteroscedasticity autocorrelation and unit test. Assumptions were made as follows: -

3.8.2 Normality Test

Researcher tested for normality through Shapiro-Wilk test. According to Jackson (2010) P-values greater than or equals 0.05 indicated normal data. P-value smaller than or equals 0.05 indicated non normal distribution and must be denied at 5% significant level. Continuous of adequately normally distributed contains a P-rate

above 0.05 and should be considered an appropriate statistical result because there is no turgid statistics or undervalued standard error. In conclusion, linearity tests Pearson's correlation coefficient of measurement was utilized to test direction and condition between profitability and predictor variables. Yount (2006) explained the role of correlation coefficient was to demonstrate power and direction of linear relationships. Hypotheses tested were H0: Residuals shows normal distribution and H1: Residuals don't portray normal distribution.

3.8.3 Multi-Collinearity Test

Multicollinearity reduces reliability regressions design simply because standard error of coefficient increases equally with collinearity. Current lesson examined Variance Inflation Factor (VIF) for evaluating multicollinearity. According to Field (2013) VIF greater than 10 explains that multicollinearity is available. Null hypothesis tested were H0: Multicollinearity available and H1: No multicollinearity.

3.8.4 Heteroscedasticity Test

Regression will always assume that homoscedasticity is real error made of real random variable containing zero mean and constant variance. In addition, Breush pagan test, recommended by Warner (2008) was utilized in testing for heteroscedasticity. Further, P - value that was smaller than 0.05 showed heteroscedasticity meaning in error term constant variance doesn't exist therefore; null hypothesis was denied at 5% level. Heteroscedasticity used a large chi-square showing that the error term was not constant. Heteroscedasticity was solved through applying data transformation or exclude from diagnosing problem treatment. Hypothesis tested; H0: Heteroscedasticity white. H1: Homoscedasticity.

3.8.5 Autocorrelation test

According to Gujarati (2003) autocorrelation is a situation where the error terms for different time period are correlated. Autocorrelation is tested by use of Durbin Watson (DW) statistics. DW statistic is between 0 and 4. P-values less than 0 means there is positive autocorrelation while values greater than 4 means there is negative autocorrelation. A DW between 0 and 4 indicates absence of autocorrelation. The study will adopt a DW of less than 0 to indicate positive autocorrelation and value greater than 4 for negative autocorrelation. Hypothesis test were H0: No autocorrelation and H1: Presence of autocorrelation.

3.8.6 Panel Unit Root Test

There is need for checking existence of panel unit root test on model data, because its presence may cause misinterpretation of estimated results (Barreira & Rodrigues 2005). The independent data tested using the method were inventory, cash, payable, and receivable management. The dependent variable tested was profitability. Conduct of panel unit test ensured that acceptance and rejection of null hypothesis was not biased. Hypotheses tested were H0: Panel data is stationary and H1: Panel data is not stationary

3.9 Operational and Measurement of Study Variables

Operationalization means turning logical conceptual ideas into measurable variables. This was done by translating conceptual definition into an operational functional describing what researcher actually wants to measure. This study utilized secondary data available on manufacturing firm's statements including income statements, statements of firms' financial positions and statements of cash flows. In addition, this information was available on annual reports submitted to NSE.

Table 3.1: Operationalization of Model Variables

Category	Variables	Indicators	Measurements	Scale
Dependent variables	Y. Profitability	Return on assets (ROA)	$ROA = \frac{\text{Total Income}}{\text{Total Assets}}$	Ratio
Independent variables	X1. Inventory Management	Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	Ratio
	X2. Receivable Management	Account receivable Turnover	$\frac{\text{Sales}}{\text{Average account recivable}}$	Ratio
	X3. Cash Management	Cash ratio	$\frac{\text{Cash and cash equivalent s}}{\text{Current liabilitie s}}$	Ratio
	X4. Payable Management	Account payable Turnover	$\frac{\text{credit Purchases}}{\text{Average account payables}}$	Ratio

Source: (Researcher, 2022)

3.10 Ethical Consideration

Research ethics consist of standards supposed to be followed, during and after the study (Mugenda & Mugenda, 2003). In addition, current research was governed by a set of standards and specific ethical behaviour. The researcher received letter of consent from Kenyatta University that was used to approach NACOSTI and obtain research permit. However, according to Parker (2012) studies that evaluates secondary data requires little ethical considerations based on fact those data are easily retrieved and is on public domain. Snowden (2014) suggested that researchers should ensure there is confidentiality as well as privacy to reduce any intentional or unintentional risks and therefore researcher ensured that confidentiality was fully maintained concerning sensitive information.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter constitute the research analysis of secondary facts gathered in settlement with current research version and methodology described in chapter three above. The results have been explained in order to analyse hypothesis stated in this research. After being analysed, statistical findings were represented in tabular form. This chapter contains descriptive evaluation, correlation evaluation, multiple regressions and ANOVA. Finally, current chapter examines statistics in order to honestly provide an explanation involving connections of WCM on profitability of producing companies indexed in NSE, Kenya. Hypothesis that was subjected to examination were stock turnover, accounts payables turnover, accounts receivables turnover and cash ratio purposely in checking their pertinence with organizations income. Diagnostic assessments were administered in order to get straight answers whether mathematical statistical assumptions situations were met.

4.2 Response Rate

The observed reasons were to dissect statistics from 20 production organizations indexed inside the NSE, Kenya. Therefore, a keen look at complete records for five years 2016 to 2020 was available only for 18 companies. This showed a response rate of 90% and was in congruence with Mugenda and Mugenda, (2003) who elaborates that a reaction rate of 70% and above is perfectly viable for evaluation and deciphering statistical outcomes. Lack of complete monetary information concerning some of indexed production companies already dictated a sign of destitute profitability results.

4.3 Descriptive Analysis

Descriptive analysis was directed to test 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 (Warner, 2008). Statistical computations were utilized for inspecting information of 18 production firms within a time period of 5 years from (2016-2020). Variables utilized were; inventory, denoted as X1 and was measured via inventory turnover ratio, payable management denoted X2 then measured via account

payable turnover, cash management highlighted as X3 evaluated by cash ratio, receivable management indicated as X4 and measured via accounts receivables turnover, and lastly profitability referred as Y measured via ROA.

Table 4.1 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)

4.3.1 Summary of Descriptive Results

Descriptive study results above shows operating profits ranged from -0.9632 and 27.3572 and a 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 some firms took time in processing their raw materials. 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. The average amount of precautionary cash stored by organizations was 0.4986 with range of -1.3102 to 7.1973. Statistical widespread deviation of cash 4.8353 indicated that some corporations did not keep sufficient amount of money. This deciphers that just enough liquid cash should be kept for daily operations and excess is used for investing. An average 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. If enterprises take long to pay their lenders, they create a buffer of cash used in purchase of raw materials and paying expenses. However, these postponements tactic could harm enterprises if it is not keenly supervised.

4.4 Diagnostic Test

The researcher conducted diagnostic tests to precisely analyse records using sequence of multiple regression analysis that employed basic statistical assumptions. The evaluation was accomplished by figuring out whether or not Multicollinearity, Normality, Homoscedasticity, Panel unit test and Autocorrelation used in model evaluation were completely met. According to Mugenda and Mugenda (2003) basic regression model is conducted when mathematical statistical assumptions are met.

4.4.1 Normality Test

Normality examined use of Shapiro-Wilk check to signify if examinable variables were statistically unique from normal distribution. Assessment are performed if established independent variables are normally distributed (Field, 2013). The model data was tested at 0.05 significance level and study results were displayed in tabular form below.

Table: 4.2 Test for Normality

	Shapiro-Wilk		
	Statistic	**D.f**	**Sig.**
Return on Assets	0.986	88	0.302
Inventory Management	0.987	88	0.203
Receivable Management	0.768	88	0.301
Cash Management	0.678	88	0.201
Payable Management	0.887	88	0.402
Average	0.086	88	0.281

H0: Data is normally distributed

H1: Absence of normal distribution

Source: (Researcher, 2022)

Best power analysis within given significant is that test may find minimal variance from study null hypothesis. The null hypothesis of this test was that population is normally distributed. If (P> 0.05) explanation was that null hypothesis came from normal distribution and can't be rejected (Kothari, 2009). Shapiro-Wilk study test average (P=0.281>0.05) above shows that test was significant at 5% level. Therefore,

study null hypothesis was not rejected because null data value is normally distributed at 95% level of confidence confirming that model behaved normal.

4.4.2 Multi-Collinearity Diagnostics

The examination of tolerance and variance inflation factor was conducted and results formulated in table 4.3 below.

Table: 4.3 Multicollinearity Test

Model	1/VIF	VIF
Inventory Turnover	1.12	0.8929
Account Receivable	1.18	0.8475
Account Payable	1.17	0.8547
Cash Ratio	1.16	0.8621
Average	1.16	0.8640

H0: Multi-Collinearity Available

H1: Absence of Multi-Collinearity

Dependent Variable: ROA

Source: (Researcher, 2022)

From the lesson finding above it was crystal clear that (VIF<10) manifested that no multicollinearity was found within the study independent variables. The tolerance value 1/VIF should be always greater or equal to 1. The model average VIF of 1.16 is less than three and aaverage 1/VIF tolerance of 0.864 above is greater than 0.1 hence showing that there was no statistically significant multicollinearity and model was significant in conducting studies. This study rejected null hypothesis and accepted alternative hypothesis.

4.4.3 Heteroscedasticity Test

The researcher conducted statistical test to estimate whether there was presence of heteroscedasticity and study results were displayed below.

Table: 4.4 Heteroscedasticity Test

Panel Model	Chi-square statistics	P-value
1	103.45	0.000

Heteroscedasticity Test: White

Null Hypothesis: Homoscedasticity

Source: (Researcher, 2022)

From table 4.4 above detections showed that chi-square statistics for model 1 were significant at 5% level, hence null hypothesis test white for testing homoscedasticity was rejected. Explanation showed that heteroscedasticity was available and model data was recommended. The study used feasible generalized least of square.

4.4.4 Autocorrelation Test

Autocorrelation was tested by use of Durbin Watson (DW) statistics. DW statistic lies between zero to four. P-values less than 0 means there is positive autocorrelation while values greater than or equal to 4 means there is negative autocorrelation. The study will adopt a DW of less than 0 to indicate negative autocorrelation and value greater than 4 showing positive autocorrelation. A value near 2 is the best showing no correlation. The value between 0-4 shows no autocorrelation.

Table: 4.5 Autocorrelation Test

Variable	Value	Status
Durbin Watson	0.0441	No autocorrelation

H0: No autocorrelation

H1: Presence of autocorrelation

Source: (Researcher, 2022)

Table 4.5 above shows a DW value of 0.0441, therefore it indicates that the value was between 0-4 thus implying that there is no autocorrelation between model variables. This implies that variances of the error term were not interdependence. Study accepted the null hypothesis.

4.4.5 Panel Unit Test

Researcher examined the study variables to test if the panel data was stationary

Table: 4.6 Panel Unit Root Test Results

Variable	Coefficient	P- value
Constant	0.5061	0.0441
Inventory Management	0.0001	0.0154
Receivable Management	-0.0078	0.0116
Cash Management	-0.0720	0.0029
Payable Management	0.0129	0.0376
Average	0.0879	0.0223

H0: Panel data is stationary

H1: Panel data is not stationary

Source: (Researcher, 2022)

Statistics conducted in the table 4.7 above shows regressed results of (0.0223>0.05) Null hypothesis was rejected because P values were greater than 0.05 showing that variables were stationary and significant. Statistic tested showed that model data was stationary when tested at significant level of 5%. P - Values tested were less than 0.05.

4.5 Inferential Analysis

Researcher conducted inferential statistics to evaluate relationships of independent variables on dependent variable. This ensured clear elaboration gaps created by poor revenues of manufacturing firms. Correlation coefficient showed relationship between variables and does not indicate any causal relationship (Mugenda & Mugenda 2003).

4.5.1 Correlation Matrix

Pearson Correlation was conducted to test strength of linear relationship for dependent and independent variables. The tests were conducted at 0.05 level of significant.

Table 4.7 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)

The study result shows that correlation between ROA and predictor variables is statistically significant at 5% level. Inventory management and cash management had weak positive correlation of 0.1106 and 0.1073 respectively to ROA. Receivable and payable had moderate negative relation to ROA -0.0432 and -0.3288 respectively. In interpreting the linear relationships of the study, weak correlation R ranges from 0.1 to 0.29; in a moderate correlation the R ranges from 0.3 to 0.49 whereas, in a strong correlation it ranges from 0.5 to 0.9 (Goundar, 2012).

4.5.2 Model Summary

Study analysed strength of study variables. The analysis was used in testing for 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 95% confidence level.

Table: 4.8 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)

The 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 this model. The adjusted R^2 shows coefficient of determinant variations of dependent variables caused by independent variables.

4.5.3 Analysis of Variance (ANOVA)

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

Table 4.9 ANOVA

	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)

The research established that model goodness of fit was significant (F = 5.6524, P = 0.0004 = < 0.05). The calculated F = 5.6524 exceeds the F- critical of 0.05 this shows that the level of variations between predictor and dependent variables was significant at 95% confident level. In addition it shows that model of WCM and profitability data

was fit to explain reasons for variations. Manufacturing firms predictor strength of variation was significant at (P= 0.0004 < 0.05).

4.5.4 Model Coefficients

Table 4.10 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)

The table 4.11 above shows that 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 the model was significantly fit. The model constant of 0.5061 shows that chosen independent model variables (Inventory management, receivable management, payable management and cash management) if assumed to be zero firms profitability would increase by 51% showing the variability of profits growth.

4.6 Analysis of Hypothesis Testing

Working capital management variables were analysed and relationships with profitability of manufacturing firms interpreted. If relationship of independent and dependent variables was significant then slope will not equal to zero (Johnston, 2014).

4.6.1 Hypothesis Test for Inventory Management

The 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 profit of manufacturing industries registered by NSE, Kenya

Regression results conducted on table 4.11 above shows that 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. If (P < 0.05) we accept the H_{01} is accepted. The model statistical results in table 4.11 shows that P-value at (P = 0.0154 <0.05) and this was supported by model t-value of 2.4723 that is greater than the critical t-statistics of 1.96. As a result, the study rejected null hypothesis and embraced the alternative hypothesis meaning inventory management contains significant positive relations with profitability of manufacturing firms registered in NSE. In addition, the study deducted that inventory management is statistically significant at 5% significant level. Consequently, study derived that positive slope of significant for beta shows that unit increase of inventory will predict increase in profits by 0.0001 units ceteris paribus.

The study results are similar with Mulumba (2016) who found out that ROE improved generally due to inventory management and was significant at 5% level. Similarly, Mshelia (2016) research study results revealed that components of WCM were affecting profitability of SMEs positively. In contrast Ajayi (2019) study results showed that inventory conversion time contained a negative useful significant result.

4.6.2 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 registered by NSE, Kenya

According to regression results conducted in table 4.11 above it 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 the H_{02} is less than 0.05 the null hypothesis is accepted. The study P-value was -0.0138 so the study rejected the null hypothesis and concluded that account receivable management was negatively statistically significant at 5% level (P = 0.0116 <0.05), dictating that account receivable have a significant relationship with ROA. The results were supported by a calculated t-statistics of -2.5788 which is greater than the critical t-statistic (F-tabulated) of -1.96.

The study results are in congruent with Onchanga (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 a positive impact on organization profit. Lastly, Adembo (2017) noted that accounts receivable turnover made some positive significant impact on ROA.

4.6.3 Hypothesis Test for Account Payable

The 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 NSE, Kenya.

The study regressed model shown in table 4.11 shown above shows that account payable was statistically negatively related to profitability with (B = -0.720, P= 0.0029). The 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 alternative hypothesis. Study rejected null hypothesis and concluded that payable management is negatively statistically significant to profitability. In addition, the study was supported by the t-statistics of -3.0627 that was greater than the critical t-value of 1.96.

Madugba and Ogbonnaya (2016) results of their studies indicated that average payment do change earnings per share together with ROCE. In contrast, Kungu (2017) found that there was positive relationship between payable management and firms profits. In addition Siraj et al., (2019) study results further showed that accounts

payable management had significant effect on firm's revenue. Njoroge (2015) stated that increase in payables compared to equity significantly affected firm's returns.

4.6.4 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 and cash equivalents management has no significant result on profit of manufacturing industries registered by NSE, Kenya.

Further, table 4.11 above showed that cash management had a 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. The study results was supported by t-statistics of 0.3362 which was greater that the 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 units holding other factors constant.

The study results are the same with studies conducted by Yameen (2019) which revealed that current ratios and quick ratios contain significant positive activity with profits. In addition, Kimondo (2014) study outcome was established showing significant feeble positive correlation on liquidity and ROA. Similarly, Pander (2019), revealed that cash controls had little positive influence on returns. Further, Nizigiyimana (2014) noted that current and quick ratios had positive outcome on ROCE.

Table 4.11 Summary of Study Hypothesis

Hypothesis	Beta (β)	P-value	Sig.	Decision
H_{01}: Inventory management has no significant results on profit of manufacturing industries	0.0001	0.0154	H_{01} Significant	H_{01} Rejected
H_{02}: Account receivables management has no significant results on profit of manufacturing industries registered by NSE, Kenya	-0.0078	0.0116	H_{02} Significant	H_{02} Rejected
H_{04}: Cash and cash equivalents management has no significant results on profit of manufacturing industries registered by NSE, Kenya	-0.0720	0.0029	H_{04} Significant	H_{04} Rejected
H_{03}: Account payables management has no significant effects on profit of manufacturing industries registered by NSE, Kenya	0.0129	0.0376	H_{03} Significant	H_{03} Rejected

Source: (Researcher, 2022)

Performed summary significant analysis above showed that a WCM variable plays an important factor in affecting amount of profitability in manufacturing firms. Study found various recommendations, conclusion and analysis arising from study accepted hypothesis and was explained in chapter five.

CHAPTER FIVE

SUMMARY CONCLUSSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains precise conclusions, summary of study research findings, recommendations involving study research goals and recommendations for further research. General objective of this experiment was to observe the inbound connections of WCM on profitability of production firms indexed in NSE, Kenya.

5.2 Summary of the Study Findings

The study was guided by aid of setting the subsequent targets of establishing effect of inventories, cash, receivables and payables on profitability of manufacturing companies. Model outcome tested at 5% level of significant and 95% level of confidence results of F= 5.6524 showed that working capital management had significant effect on manufacturing firms' profitability. Model was statistically relevant with R^2 = 0.21 on explaining study variables relationship with profits. Statistical summaries for each variable were presented below;

5.2.1 Summaries of Study Findings for Inventory Management

The study first specific objective was to determine the effects of inventories management on profitability of manufacturing firms listed by NSE, Kenya. The researcher also found that firms predicts inventories with (Mean=1.4242) and a high standard deviation of 59.1146. The inventory management was found to be statistically significant at 5% in explaining the variations of manufacturing firms profits (P=0.0154<0.05) Holding other factors constant it showed that unit increase in manufacturing firms inventories would predict profitability increase with 0.01% (P = 0.0154) which is insignificant.

5.2.2 Summaries of Study Finding for Receivables Management

The second study objective was to examine the effect of debtors management on profitability of manufacturing firms listed in NSE, Kenya. Receivables had a (Mean = 5.3965) and a deviation of 4.6467. The results were significant at 5% with (P=0.0116<0.05). Coefficient of determinant -0.0078 showed that when other profits determinants are held constant then one unit increase of receivables would lead to -0.0078 decrease in firm's profitability.

5.2.3 Summary of Study Finding for Cash Management

The third study objective was to establish effect of cash management on profitability of manufacturing firm's profits listed by NSE, Kenya. Study mean cash prediction was found to be 0.4986 and standard deviation of 1.3940. Cash management was found to be statistically positively related with profitability when tested at 5% significance level (P=0.0376<0.05). Study coefficient of determinant of 0.0119 shows that one unit increase in cash management would lead to an increase with 0.0119 of manufacturing firm's profits.

5.2.4 Summary of Study Findings for Payable Management

The fourth study objective was to determine the effect of payable management on the profitability of manufacturing firms listed by NSE, Kenya. The study found out that payable management had a negative significant relationship with manufacturing firms profits when tested at 5% level of significance (P=0.0029<0.05). The payables coefficient of determinant of -0.0720 shows that a unit increases in payable ratio would predict a decrease in firm's profitability by -0.0720.

5.3 Conclusions

This study was conducted in an effort to find a higher WCM combination that will enable production companies to maximize their income. The study overall conclusion was that there exists ineffective management of manufacturing firms working capital. Researcher came up with variables conclusions concerning study model, these conclusions included -

5.3.1 Conclusions for Inventory Management and Profitability

The observations show that if stock conversion time is decreased profits will generally increase. Therefore, whilst inventories increase, they need to be transformed into completed sellable items very fast and bought immediately. Further, if inventories increase management should ensure minimal time is taken to convert raw materials into finished items. This ensures that firm avoids warehouse cost and manufacturing firms should value inventories to keep statistical records.

5.3.2 Conclusions for Receivable Management and Profitability

The study concluded that account receivable when collected on time it provides cash that is used for daily operations and paying of contingencies. The negative

significance shows that manufacturing firms should collect their debts early to avoid bad debts and cost involved in hire ring debt collectors and this makes profits to decrease.

5.3.3 Conclusions for Cash Management and Profitability

Well managed cash increases profitability in companies. Managers should manage cash appropriately to ensure enough cash is available for recurring expenses and excess is used to purchase inventories or raw materials. This deciphers that firms should retain enough money to cater for payments, outlays and charges.

5.3.4 Conclusions for Payables Management and Profitability

This study had a negative relationship with profitability meaning when a firm increases the level of account payable profits gradually decreases. This suggests firms should be keen not to ruin business relationship with their suppliers and should maximize on available discount offered by their raw materials suppliers. If firms do not pay suppliers they will discontinue their supplies. Paying suppliers on time motivates them to supply more raw materials and offer better discounts.

5.4 Recommendations

Based on this study conducted on congruent of working capital management the researcher came up with the subsequent advice regarding organizational profitability. Study statistical results shows that WCM affects profitability therefore manufacturing companies should balance and contain most desirable quantity of working capital that maximizes returns. Also, it was clear that increased working capital should match increased expenses, sales and revenue ensuring industries remain profitable. As a result of good WCM policy clear evidence showed that profitable firms always provided employees or communities with jobs, ownership of stock, infrastructure development, health care, human development and educational institutions. The researcher suggested the following recommendations;

5.4.1 Recommendations for Inventory Management

Finding of this research recommends managers to understand policies concerning raw materials by ensuring they are processed and sold at shortest time possible. Managers should also keep track of inventories and check for reorder level for them to replenish. In addition, lenders should use this research outcome in cross section

comparison for individual suppliers by evaluating use of technology reduction in operation cost and usage of proper inventory records. This research would assist government decision makers in having an effective future prediction plan that would improve firm's returns and ensure they offer cheap raw materials which are market competitive. Having high amounts of inventory in a farm is catastrophic simply because of storage cost, theft, damages and foregone investing opportunities.

5.4.2 Recommendations for Receivable Management

Firms should ensure that they collect their dues in time before they become bad debts and use this cash to pay their customers and buy inventories. They should adopt use of technology for tracking payable records and source for cheap raw materials.

5.4.3 Recommendations for Cash Management

Research would be useful to financial institutions as tool of assessing firm's credit worthiness, by apprehending on significance of balanced cash amount and investing policies. Further cash resources affect manufacturing together with human resources and technology because cash is used in settling short-term contingencies and purchase materials. Study recommends that increased inventories should be turned into finished goods, sold and cash collected as soon as possible.

5.4.4 Recommendations for Payable Management

The researcher recommends that due to the negative relationship firms should pay their suppliers on time and enjoy trade discounts and enable them to increase quality and quantity supplied. Further, negative relationship shows that firms should pay their trade payables within the stipulated time and enjoy trade discounts. It will also help trade creditors to offer good credit ratings.

5.4.5 Recommendations for Profitability

If a firm makes profits it makes management achieve shareholders dreams. Therefore management should ensure that there is good working capital management policy that maximizes shareholders wealth.

Management should ensure profitable organizations personnel are trained, compensated and ready make satisfactory decisions using study results. In addition maximum profitability will ensure firms offer jobs, pay taxes and pay National hospital insurance fund (NHIF) for societies dwelling around them. Government should ensure that local manufactured goods are promoted through policies enabling

local goods compete with imports. Meanwhile security exchange may use profitability results for regulating and registering new entries. Lastly growth in manufacturing increases growth in other sectors of economy so government should promote factors that maximize profits.

5.5 Recommendations for Further Research

1. The study recommends that further research studies should be done on SMEs to investigate if study results shows similar characteristics as those observed on manufacturing firms.
2. Researcher recommends that similar research should be done on other countries in East Africa region to find out if market conditions are the same with that of manufacturing firms in Kenya.
3. The researcher recommends that other studies should be conducted on factors that affect manufacturing profits like market demands, pricing policies and technology because Kenya has great technology and it can be integrated to production

REFFERENCES

Abor, J. Y. (2017). "Working capital management. *In Entrepreneurial Finance for MSMEs. Springer.* 225–255.

Adembo, C. (2017). Effect of trade receivables on profitability of manufacturing and allied firms Listed at Nairobi Securities Exchange. *KCA University. Kenya.*

Adam, A. M., Quansah, E., & Kawor, S. (2017). Working capital management policies and returns of listed manufacturing firms in Ghana." *Scientific Journals of Economics and Business, 64 (2),* 255–269.

Adjirackor T. Asare, D.D. Gagakuma, W. & Nana, J.O.O. (2017). Financial ratios as a tool for profitability in Aryton drugs research. *Journal for financial and accounting 8 (14),* 2222-1697.

Africa Development Bank ADB, (2020). Developing workforce for the future. *Africa Economic Outlook.* 92-6.

African Union, (2019). Agenda 2063 report of commission on the African Union. *An Overview of Manufacturing Industry in the Region.* Agenda 2063.

Agwu, O.M, & Emeti, C. I, (2014) Issues, challenges and prospects of small and medium enterprises in Port-Harcour City, *European Journal of Sustainable Development*. *3(1),* 101.

Ajayi O. (2019). Working capital management and the operating profit of listed cement manufacturing companies in Nigeria. *International journal, (11) 2.*

Ajao, S. O., & Nkechinyere, A.C. (2013). Effective working capital management and profitability: A selected study of quoted companies in Nigeria. *Economics and Finance Review, 2 (6),* 55-67.

Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance* (30) 98-113.

Andisi, L. C. (2018). Working capital management and profitability of firms listed under the construction and allied sector at the Nairobi Securities Exchange, Kenya. *Unpublished Journal. Kenyatta University.*

Akenga, (2017). Effect of liquidity on financial performance of firms listed at the Nairobi Securities Exchange: *International Journal of Science and Research, 78 (96),* 6-391.

Alshatti, (2015). Effects of the liquidity management on profitability in the Jordanian commercial banks: *International journal of business management, 10 (1),* 62.

Al-Jafari, M. K., & Samman, H. A. (2015). Determinants of profitability: Evidence from industrial companies listed on Muscat securities market: *Review of European Studies,* 303 -311.

Aminu, Y., & Nasruddin, Z., (2015). A review of anatomy of working capital management theories and the relevant linkages to working capital components: A Theoretical Building Approach: *European Journal of Business and Management*, 10 -18.

Barnes, C. (2010). *"Financial Management for the Small Business":* The Daily Telegraph guide, (2nd edition), London: Page Kogan.

Bellouma, M. (2014). Trade credit policy and agency theory: Evidence from Tunisian Export Companies: *Global Journal of Management and Business Research Economics and Commerce*, 14- 21.

Braimah, A. Yinping M. Quaye, I. & Alhassan A. I. (2021) Working capital management and SMEs profitability in emerging economies: *The Ghanaian Case journals:* Sage pub. 1–16.

Boesch, I., Schwaninger, .M., Weber, M., & Scholz, R. W. (2013). Enhancing validity and reliability through feedback-driven exploration. *A study in the context of conjoint analysis. Systems Practice Action Research, 26,* 217-238.

Borin, A. & Mancini, M. (2019). Measuring what matters in global value chains and value added trade. *Policy Research Working Paper.* Washington DC. World Bank. 8804

Boțoc, C., & Anton, S. G. (2017). Is profitability driven by working capital management? Evidence for high-growth firms from emerging Europe. *Journal of Business Economics and Management, 18 (6),* 1135–1155.

Bulle, H. I., (2017). Financial management and financial performance of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya. *Unpublished Journal. Kenyatta University*.

Capital Markets Authority, (2020). Quarterly statistical bulletin. *Capital market authority.*

Central Bank of Kenya CBK, (2020). State of economic and opportunities for economic growth. *National Assembly Workshop.*

Cole, R. (2016) Introduction to statistical principles: Army Medicine: Honoured to serve, *Unclassified, 508-223.*

Damir, M & Kontus, E. (2019) Management of liquidity and liquid assets in small and medium sized enterprises. *International journal*, 32 (1), 3247-3265.

Dary, S. K., & James, H. S. (2019). Does investment in trade credit matter for profitability? Evidence from publicly listed Agro-food firms. *Research in International Business and Finance, 47,* 237–250.

Donaldson, L., Qiu, J., & Luo, B. (2013). For rigor in organizational management theory research. *Journal of Management Studies, 50,* 153-172.

Enqvist, J., Graham, M., & Nikkinen, J. (2019). The impact of working capital management on firm profitability in different business cycles. *Evidence from Finland, Research in International Business and Finance, 32,* 36-49.

England & Wales, (2005). *Agency theory and role of audit,* Institute of chartered accountants.

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. Sage Publications Limited, 4

Gitman, L. J. (1974). Estimating corporate liquidity requirement. *A simplified approach. Finance Revision Journal, 30 (2)* 26-35.

Gibendi, R. (2013, August 13th). Mumias Sugar grapples with financial woes. *Daily Nation*, p. 48.

Goundar, S. (2012). Research methodology and research design. *University of Wellington, Research gate.*

Gulia, R. (2014), Effects of working capital management on firms' profits-evidence from the pharmaceutical sector. *International Journal of Management and Social Sciences Research, (IJMSSR), 3 (1),* 103-107.

Hallwar, M. & Nayyer, G. (2018). The future of manufacturing led-department: Trouble in the Making: *World Bank. Hall Street NW, Washington* DC 20433

Hassan, U., Maturi, W., & Mberia, H. (2017). Effect of working capital management on firm's financial performance: a survey of water processing firms in Punt land: *International Journal of Economics, Commerce and Management,* 479-497.

International Monetary Fund IMF, (2020). Kenya request for an extended arrangement under the extended fund facility: Country Report: *Washington DC. (172)*, 21

Iraya, C & Musyoki, L. (2013). Performance of social screened portfolio at the Nairobi Securities Exchange. *International Journal of Humanities and Social Sciences. 3 (6)* 73-83.

Işık, Ö. (2017). Determinants of Profitability: Evidence from Real Sector Firms Listed in Borsa Istanbul: *Business and Economics Research Journal*, 689-698.

Jackson, A.R. (2010). Comparative and international corporate governance. *An Academy of Management Journal,* 485-556

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure: *Journal of Financial Economics, 3 (4),* 305-360.

Johnston, M. P. (2014). Secondary data analysis. A method of which the time has come. *Qualitative and Quantitative Methods in Libraries*, 3, 619-626.

Kangangi, L.K. (2020). Working capital management practices and growth of small and medium-sized enterprises in Nyeri County, Kenya. *Unpublished Journal, Kenyatta University*.

Kakeeto, F., Timbirimu, M., Kiizah, P., & Olutayo, K.O., (2019) The effect of accounts receivable management on organizational profitability. *Journal of economic and finance*. 31-37.

Karadag, H. (2015). Financial management challenges in small and medium-sized enterprises. *A strategic management approach emerging markets Journal 5.* 25-40.

K.A.M. (2018). Kenya Association of Manufacturers. *Kenya Manufacturers and Exporters Directory 2011*. Nairobi.

Kenya National Bureau of Statistics. (2016). *Economic Survey 2015.* Nairobi, Kenya.

Kimondo C.N. (2014) Liquidity and Profitability of Nonfinancial Companies Listed in the NSE. *Unpublished Journal, University of Nairobi.*

Kituku, H. K. (2019). Effects of working capital management practices on financial performance of food and beverage manufacturing companies in Kenya. *Repository, KCA University*

Kothari, C.R. (2009). *Research Methodology, Methods and Techniques.* New Delhi, New Age International. 5.

KPMG, (2005). Working capital management survey: How European Companies Manage their Working capital: *KPMG international retrieved*.

Kenya National Bureau of Statistics KNBS. (2020a). *Consumer Price Indices and Inflation rates for February 2020* (Issue February 2009). Accessed on May 2021. Kenya National Bureau of Statistics.

Kenya National Bureau of Statistics KNBS. (2020b). *Economic Survey 2020*. Kenya National Bureau of Statistics.

Kungu, J. N. (2017). Effects of liquidity management practices on profitability of manufacturing industry in Kenya. *Journal of economics and finance. 8* (1) 84-89

Lucy, W. M., Muathe, S. M., & Kosimbei, G. (2014). Effects of Working Capital Management on Performance of Non-Financial Companies Listed in NSE, Kenya. *European Journal of Business and Management, 6 (11)*

Lach, D. (2014). Challenges of Interdisciplinary Research, Reconciling Qualitative and Quantitative Methods for Understanding Human-landscape Systems. *Environmental Management,* 53, 88-93.

Michira, M. (2016, January 26). When Things Began to Fall Apart at Uchumi. Standard Newspaper. P. 6

Madugba, J. U., Ogbonnaya, A. K., (2016). Working capital management and financial performance evidence from manufacturing companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research 4 (9),* 98-106.

Makori, D. M. & Jagongo A.O. (2013). Working capital management and firm profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya. *International Journal of Accounting and Taxation, 1 (1),* 1 -14.

Mathuva, D. M. (2014). An empirical analysis of the determinants of the cash conversion cycle in Kenyan listed non-financial firms. *Journal of Accounting in Emerging Economies, 4,* 175-196.

Mathuva, D.M. (2013). Determinants of corporate inventory holdings: Evidence from a Developing Country. *The International Journal of Applied Economics and Finance, 7 (1),* 1–22.

Maverick. J.B. (2019). The components of working capital management. California: *Dotdash publishing company Investopedia*.

Moyo, M. Simson, R. Arun, J. & Mevius, F. (2020). Attaining medium income status Tanzania growth and structural transformation required to meet middle income by 2025. *Working Paper International Growth Centre London.* 11-1019

Mshelia, H. A. (2016). Effects of working capital management on the performance of small and medium enterprises in Nigeria: Doctoral Dissertation: *Jomo Kenyatta University of Agriculture and Technology.*

Muchina, S. & Kiano, E. (2011). Influence on working capital management on firm profitability: *A Case of SME's in Kenya. International Business Management, 5 (5),* 279-286.

Mugenda, O. & Mugenda, P. (2013). *Qualitative and Quantitative Research Methods*. Nairobi City County, Kenya.

Mugenda, O.M., & Mugenda, A.G. (2003). Quantitative and Qualitative Approaches. *Nairobi, African Centre for Technology Studies.*

Mukiri, C.G. (2018). The Relationship between Working Capital Management and Profitability of Manufacturing Firms Listed on the Nairobi Securities Exchange. *Repository United States International University, Kenya.*

Mulumba A. (2016) Inventory management practices and financial performance of agro-chemical firms. *KCA University. Kenya*.

Muller, M., (2019). Essentials of inventory management. *Harper Collins Leadership.*

Murphy, (2020). What are the differences between operating expenses and overhead expenses, *Google Scholar.*

Musau, J.W. (2015) The effects of working capital management on profitability of public listed energies company in Kenya. *Strathmore University. Unpublished Thesis*

Musiega, P. (2015) Factors Influencing competitive advantage among supermarkets in Kenya: A case of Nakumatt Holdings Limited: *Repository University of Nairobi.*

Muturi, H. M., & Wachira, V. (2015). Effects of inventory conversion period on profitability of tea factories in Meru County, Kenya. *International Journal of Economics, Commerce and Management, 3(10),* 366-378.

Mwendwa, F. (2018). Working capital management strategies on financial performance of manufacturing companies listed in Nairobi Securities Exchange. *Repository KCA University*.

Mwangi, L. W., Makau M. S., & Kosimbei, G. (2014). Efects of working capital management on performance of Non- financial companies listed in Nairobi Securities Exchange, Kenya. *European Journal of Business and Management. 6 (11),* 195-205.

Nairobi Securities Exchange, (2014). Listed Companies. *From Nairobi Securities Exchange, www.nse.co.ke*

Nhuhiu A., & Dërmaku A. (2017). Theoretical review on the relationship between working capital management and company's performances. *Research gate* 16-33.

Nizigiyimana A., (2014) Impact of liquidity management of cement manufacturing companies listed in Nairobi securities exchange. *United States International University Kenya*.

Njoroge, (2015). The performance of construction and allied companies listed in Nairobi Securities Exchange. Unpublished Research, *University of Nairobi Repository. Uonbi.ac.ke*

Njuguna, A. M. (2018). Effect of Working Capital Management on Financial Performance of Construction and Allied Sector Firms Listed in the Nairobi Securities Exchange. *Doctoral dissertation, United States International University-Africa*

Nucu, A. E. A. & Anton, S. (2020). Impact of working capital management on firm profitability. Evidence from the polish firms. *Journal of risk and finance management. 14 (1)* 9

Obiodun, O. & Aladejebi, O. A. The impact of working capital management on profitability: Evidence from selected small businesses in Nigeria. *Journal of small business and entrepreneurship development.*

Oladimeji, J. & Aladejebi, O. A. (2020). The impact of working capital management on profitability, evidence from selected small business in Nigeria. *International Journal of managerial finance.*

Omusolo, M. (2019) Mumias Sugar sinks into KES 15 billion loss. *The standard newspaper. Retrieved August, 27, 2021.*

Omesa, (2015). Effect of liquidity on the financial performance of financial institutions listed in the Nairobi securities. *Unpublished Journal, University of Nairobi*.

Onchangwa G.A., (2019). Effects of working capital on financial distress of non-financial firms listed at the Nairobi Securities Exchange. *Unpublished doctoral dissertation, Nairobi, University of Nairobi.*

Orshi, (2016). Liquidity management and profitability of listed food and beverages companies in Nigeria. *IOSR Journal of Business and Management*, 18, (2) 167-176

Ochieng, R. M. Jagongo, A. O. & Ndede, F.W.S (2020). Working Capital Management and Financial Performance of Manufacturing and Allied Category of Firms Listed at the Nairobi Securities Exchange, Kenya. *International Journal of Research in Finance and Marketing* (IJRFM) 10-01.

Ochieng, R. M. (2020). Working capital management and financial performance of manufacturing and allied category of firms listed at the Nairobi Securities Exchange, Kenya. *Repository Kenyatta University*

Parker, L. D. (2012). *Qualitative management accounting research. Assessing deliverables and relevance*. Critical Perspectives on Accounting, 23, 54-70.

Pandey, D. (2019). Impact of cash management on profitability in small manufacturing organization. *Journal Research Gate*. *25 (1)*, 53-58.

Panigrahi, A. (2014). Impact of negative working capital on liquidity and profitability. A case study of ACC. *Journal SSRN*.

Petersen, A. & Kumar V. (2010). Perceived risk products return and optimal resource allocation, evidence from a field experiment. *SAGE journals.*

Phuong, N.T.T & Hung, D. N. (2020). Effects of working capital management on firms' profitability. *Research Gate.*

Ratemo, D.G. (2018). Working capital management and profitability of selected supermarkets in Nairobi City County, Kenya. *Repository Kenyatta University*.

Richards, V. D., & Laughlin, E. J. (1980). *A cash conversion cycle approach to liquidity analysis*. Financial Management. *9, (1)* 32-38.

Robles, F. (2016). The impact of working capital management on firm profitability in different business cycles. *Evidence from the United Kingdom*

Sadiq, R. (2016). Impact of Working Capital Management on Small and Medium Enterprises' Performance in Nigeria. *The International Journal of Business & Management,* 28-35.

Chatterjee, S. (2010). The impact of working capital management on profitability of the listed companies in the London Stock Exchange. *University of wales.*

Singh, S., & Kaur, H. (2017). Working capital management and profitability: Evidence from Selected Steel Manufacturing Companies in India: *Indian Journal of Commerce & Management Studies.* 73 -79.

Siraj, M., Mubeen, M., & Sarwat, S. (2019). Working capital management and firm performance: Evidence non-financial firms in Pakistan. *Asian journal of empirical research.* 9 (20) 27-37

Snowden, A. (2014). Ethics and originality in doctoral research in the United Kingdom. *Nurse Researcher,* 21 (6), 12-15.

Hossain, T. (2020). The effect of working capital management on profitability. A study on manufacturing companies in Bangladesh, *International Journal of Research in Business and Social Science* (2147-4478).

Temtime, Z.T. (2016). Relationship between Working Capital Management Policies and profitability of small manufacturing firms. *Doctoral dissertation Walden University. Scholar Works.*

Uyar, A. (2014). The relationship of cash conversion cycle with firm size and profitability. An Empirical investigation in Turkey. *International Research Journal of Finance and Economics, 24 (2009),* 186-193.

Udo-Akang, D. (2012). Theoretical constructs, concepts, and applications. *American International Journal of Contemporary Research. 2 (9).*

Wang, G. Y. (2010). The impacts of free cash flows and agency costs on firm performance. *J. Service Science & Management,* 408-418.

Wambugu, P. M. (2013). Effect of working capital management practices on profitability of small and medium enterprises in Nairobi County, Kenya. *Unpublished MBA Thesis, School of Business, Kenyatta University, Kenya.*

Warner, R. (2008). *Applied statistics from bivariate through multivariate techniques*. Sage publications Inc: Thousand Oaks.

Williamson, O. E. (1981). The economics of organization: The Transaction Cost Approach. *The American Journal of Sociology,* 548 -577.

Williamson, O. E. (1975). *Markets and hierarchies :*Analysis and Antitrust Implications: New York: Free press.

Williamson, O.E. (1985). *The economic institutions of capitalism:* New York, NY: Free Press.

World Bank WB, (2018). Unleashing Kenya private sector to drive inclusive growth and accelerate poverty reduction, *Policy Options to Enhance the Big 4. (*17).

Yameen M., (2019). Impact of liquidity on the profitability of pharmaceutical companies listed on Bombay Stock Exchange (BSE). *Journal Research gate*.

BYazdanfar, D., & Öhman, P. (2016). The impact of trade credit use on firm profitability. *Empirical evidence from Sweden. Journal of Advances in Management Research, 13 (2),* 1–16.

Yount, W.R. (2006). Research design and statistical analysis for Christian ministry. *Fort Worth.*

Yusuf, Y. & Sani, M. (2018). Working capital management policy and the financial performance of food and beverages companies in Nigeria. *International Business and Accounting Research Journal*, 2 (2).

Wangige, J. G. (2016) Effects of firm characteristics on financial distress of non-financial firms listed at Nairobi Securities Exchange, Kenya. *Repository Kenyatta University.*

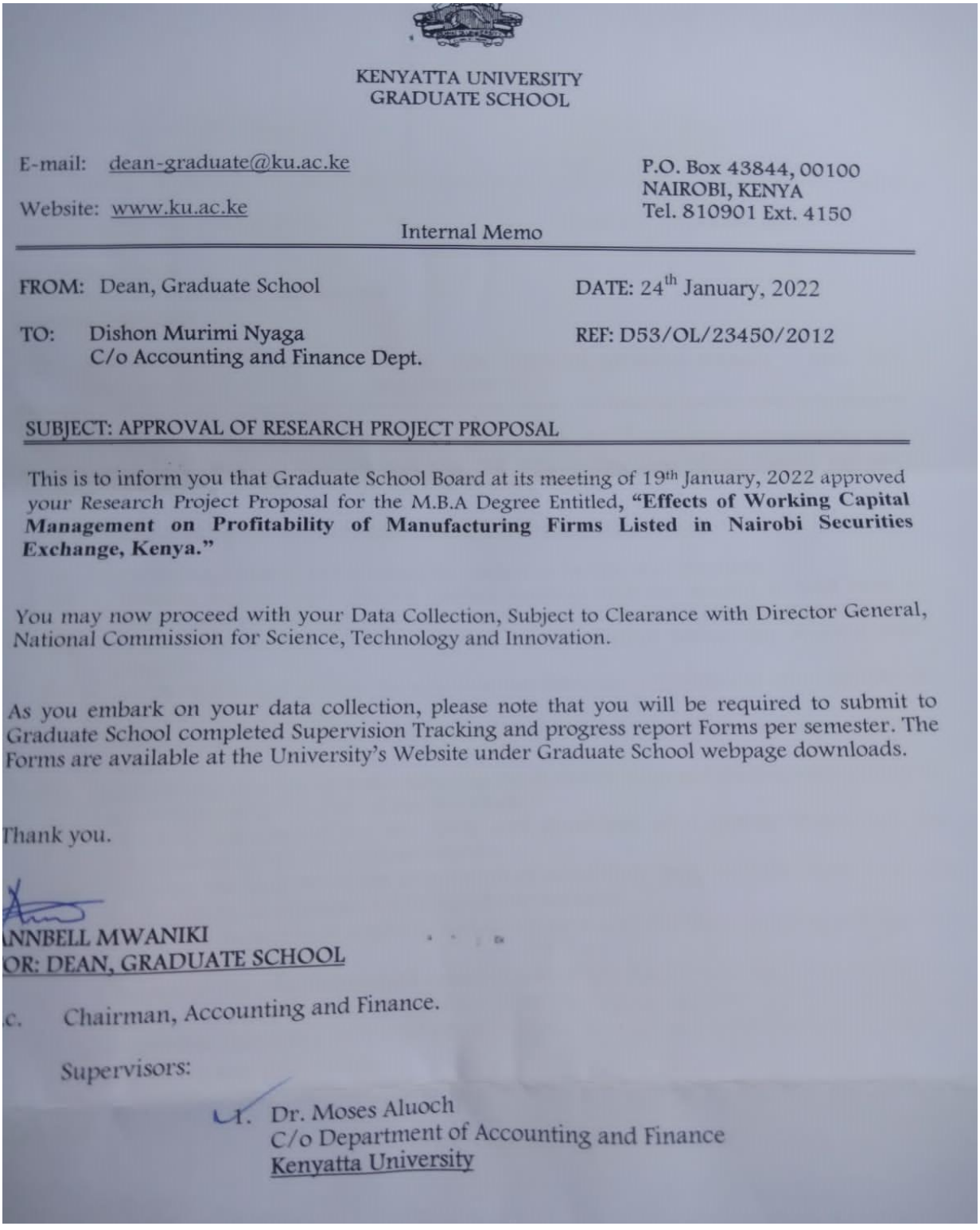
APPENDICES

Appendix A: List of Manufacturing Firms Listed at NSE 2016-2020

1	B.O.C Kenya limited
2	British American Tobacco Kenya ltd.
3	Carbacid investments limited.
4	East African breweries ltd.
5	Mumias Sugar co. ltd.
6	Unga Group ltd
7	Eveready East Africa ltd.
8	Kenya Orchards ltd.
9	Frame Tree Group Holdings
10	Bamburi Cement
11	ARM Cement
12	Crown Paints Kenya
13	East African Cables
14	East African Portland
15	Olimpia Capital Holdings
16	Sasini
17	Transcentury
18	Eaagads
19	Williamson Tea Kenya
20	Kapchorua Tea Kenya

Source: NSE Report (2022)

Appendix B: Approval of Research Project Proposal



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Internal Memo

FROM: Dean, Graduate School

DATE: 24th January, 2022

TO: Dishon Murimi Nyaga
C/o Accounting and Finance Dept.

REF: D53/OL/23450/2012

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 19th January, 2022 approved your Research Project Proposal for the M.B.A Degree Entitled, **"Effects of Working Capital Management on Profitability of Manufacturing Firms Listed in Nairobi Securities Exchange, Kenya."**

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and progress report Forms per semester. The Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

NNBELL MWANIKI
OR: DEAN, GRADUATE SCHOOL

c. Chairman, Accounting and Finance.

Supervisors:

1. Dr. Moses Aluoch
C/o Department of Accounting and Finance
Kenyatta University

Source: (Researcher, 2022)

Appendix C: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **460278**

Date of Issue: **25/March/2022**

RESEARCH LICENSE

This is to Certify that Mr.. Dishon Murimi Nyaga of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: EFFECTS OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF MANUFACTURING FIRMS LISTED IN NAIROBI STOCK EXCHANGE KENYA for the period ending : 25/March/2023.

License No: **NACOSTI/P/22/16504**

460278

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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Appendix D: Data Collection Form

Year	**2016**	**2017**	**2018**	**2019**	**2020**
Total Assets					
Total Income					
Sales					
Average Account Receivable					
Cost of Goods Sold					
Average Inventory					
Purchases					
Cash					
Current Liabilities					

Source: (Researcher, 2022)