WORKING CAPITAL MANAGEMENT, ASSET BASE, BOARD DIVERSITY AND FINANCIAL PERFORMANCE OF COFFEE WET MILLS IN EMBU COUNTY, KENYA

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DECLARATION

This research project is my original work and has not been presented elsewhere for a degree or any other award.

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DEDICATION

In loving memory

of

Alice A. Othuon

My mother. My role model. My teacher

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ACRONYMS AND ABBREVIATIONS

APP : Average Payment Period

CA : Current Assets

CBK : Coffee Board of Kenya

CCC : Cash Conversion Cycle

CE : Capital Expenditure

CEOD: Chief Executive Officer duality

CEOND: Chief Executive Officer Non-duality

CL : Current Liabilities

DR : Debt Ratio

EBIT : Earnings before interest and tax

GD : Gender diverse

GR : Growth Rate

NCA : Non-Current Assets

NCL : Non-Current Liabilities

NGD : Non-gender diverse

NPM : Net Profit Margin

OM : Operating Margin

PFBM: Proportion of female board members

PIBM : Proportion of independent board members

ROA : Return on Assets

ROE : Return on Equity

ROI : Return on Investment

RTF : Return to Farmers

DEFINITION OF OPERATIONAL TERMS

Asset Base:	Refers to the quantity of coffee bushes owned by a coffee wet mill
Board Diversity:	Having a varied mix of age, gender, skills, experience, and expertise in the board of directors
Financial Performance:	The measure of results of an organization's operations in monetary terms
Working Capital Management:	Efficient use and monitoring of a firm's current assets and current liabilities

ABSTRACT

Agro-processing plays a pivotal role in enhancing economic growth and socio-welfare at large. However, over the last two decades, the financial performance of small-scale agro-processing firms, including coffee, has declined. Small-scale coffee processors have put in place robust initiatives in a bid to improve their performance financially. Despite the initiatives, the coffee sector has continued to underperform. Farmers have been disgruntled by poor returns making the sector an unattractive business venture. Thus, the aim of the study was to determine the effects of working capital management, board diversity, and asset base on the financial performance of small-scale coffee wet mills. The study was informed by Keynesian liquidity preference, transaction cost, resource dependence, agency, upper echelons, social categorization, and the return to scale theories. The study used financial data from 2014 to 2018 among the small-scale coffee processors. The study employed multivariate regression modelling to determine working capital management effect on financial performance of the processors. Two-stage Least Squares (2SLS) regression analysis was utilized in determining the influence of board diversity on financial performance. Finally, Ordinary Least Squares (OLS) regression analysis was used to assess the effect of asset base on the financial performance of the small-scale coffee wet mills. A significant relationship was revealed between working capital management and return on assets and return to farmers of the small-scale coffee wet mills. Subsequently, the wet mill processors could lower their payables period and current ratio by 0.01% and 34%, respectively, to improve return on assets; and increase the same metrics by 0.03% and 76% to improve return to farmers. The results further revealed that the financial performance of the small-scale coffee wet mills was significantly influenced by board diversity. The wet mills could increase the proportion of female board members and independent board members both by 10% to increase return on assets by over 30%. In addition, a huge asset base in terms of the value of coffee bushes owned by the wet mill was found to be a positive determinant of return on assets. Thus, increasing the value of coffee bushes by the wet mills could increase their return on assets. The study findings will aid the government to focus on initiatives that will increase the quantity of coffee grown by the wet mills for sustainable processing. The decision-makers should increase current ratio and lengthen payables period to enhance small-scale coffee wet mills' financial performance. The small-scale coffee wet mill management should increase the proportion of women and independent members to the board for improved performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Since the industrial revolution, manufacturing has been the primary engine of economic growth. In the world, Great Britain was the first to be industrialized through manufacturing. After Great Britain, manufacturing diffused to other countries in Europe, including Belgium, France, and Switzerland, and later to United States (Attiah, 2019). Indeed, among the industrialized countries, very few have managed to gain such status and develop without the manufacturing sector playing a major role. The agro-processing sector, a sub-sector of manufacturing, continues to be a fundamental global tool for sustainable development. Agro-processing is a set of activities involved in producing products from the processing of agricultural raw materials (Sign, 2018). Agro-processing activities are categorized into two: primary processing which entails the drying, grading, threshing and packaging of coffee cherries (Puja, 2018). On the other hand, secondary processing activities entail marketing and nutritional value addition to the crop. Value addition can be through milling grain into floor or wet and dry milling of coffee.

Agro-processing sectors are of increasing essence in economic growth of developing nations. The sectors provide a critical link between production and marketing, connects rural and urban areas, links capital owners and labour, and more importantly creates a linkage between producers and consumers of the agricultural products (Puja, 2018). In South Africa, the agro-processing sector contributes about 14% of the country's GDP and employs 10% of the people in the formal sector (FAO, 2017). The sector also helps reduce exploitation of agriculturalists by traders and middle men, and enable rural communities to be self-reliant (Puja, 2018). Many economists consider agro-processing as a primary engine for increased country's gross domestic product (GDP) through the supply of processed products, increased employment in rural areas, and food security in most middle and low-income countries (Attiah, 2019), especially sub-Saharan Africa. Agro-processing sector is considered a critical sector in promoting social and economic well-being for

citizens living in rural set ups and low income nations (Figueroa, Mahmoud & Breisinger, 2017; El-Enbaby et al., 2016).

In Kenya, manufacturing sectors, including the agro-processing industry contribute approximately 10 percent of the GDP and employ nearly 30 % of the national workforce (World Bank Report, 2019). Like several other developing countries, Kenya's growth in the agro-processing sector is mainly driven by the agriculture and services sectors (Mwangi, 2017). The industrial crops are a sub-sector of the agro-processing sector. The sub-sector contributes 55% of the agricultural exports and 17% of agricultural GDP (Wairegi et al., 2018). Despite the significance of the processing sector in national economic development, the average percentage growth rate has declined over the recent years (Kenya National Bureau of Statistics (KNBS), 2019). The decline in manufacturing sector is mainly due to poor agro-processing performance over the years (KNBS, 2017). Therefore, improving the performance of agro-processing industries could be imperative in enhancing Kenyan's economic development.

The demand for coffee has been on a persistent increase over the years, with the highest level of coffee consumption being in Europe and USA (International Coffee Organization, 2019). Coffee is among the most important trading commodities in the world, with a retail sales value of about US$40 billion (Wairegi *et al.*, 2018). Coffee production forms one of the largest income contributing commodities, second after oil in value (Maina *et al*., 2015). It is also the fourth most exported commodity with high foreign income after tea, tourism, and horticulture (International Coffee Organization, 2015). According to FAO (2017), coffee is a fundamental cash crop in Africa, contributing over 10% of foreign exchange earnings. In Africa, coffee is grown in Ethiopia (the leading coffee producing country in Africa), Rwanda, Uganda, and Kenya.

In Kenya, coffee is grown in 32 out of the 47 counties on an estimated 150,000 hectares (KNBS, 2017). Coffee exports from Kenya make it to the USA, Belgium, Sweden, and Germany markets (Kenya Coffee Traders Association (KCTA), 2012). Kenyan coffee is the highest-rated worldwide due to its high quality. For a long time, from independence to

the 1990s, Kenyan coffee fetches more than double the premium prices offered in the New York market (Bagal et al., 2013; Andae, 2018). The significance of coffee in Kenya's economy cannot be overemphasized. The industry sustains almost a million small-scale farmers (Maina *et al*., 2015) and contributes about US$ 230 million annually in foreign exchange earnings, constituting 6% of the foreign incomes and 0.3% of the GDP (KNBS, 2017; International Coffee Council, 2019).

Kenya has 800,000 small coffee farms (Wairegi *et al*., 2018), clustered under 1,015 coffee wet mills. These wet mills are also organized into cooperatives (FAO, 2018) meant for provision of farmer inputs and extension services to farmers. Wet processing involves pulping of cherries, fermentation, and drying. This gives better quality coffee and, as such, is the main method used in Kenya. After wet milling, the dry coffee bean is taken to for dry milling. The dry millers, through marketing agents, trade coffee at the coffee auction market. Before 2002, the Coffee Board of Kenya (CBK) was the only marketing agent. The board changed from being a marketing agent after liberalization, and started issuing licences to "marketing agents" who represented growers at the auction (Condliffe, Love & Porter, 2008). These agents are the legitimate licensed groups permitted to take part in the coffee auction weekly.

1.1.1 Working Capital Management

The existence of large current assets above the total liabilities creates working capital. Trivedi (2010) describe working capital as the percentage of a company's current assets that are financed using long-term sources of funds. This put distinction between existing short-term-financed assets and long-term sources-financed assets. These current assets, financed from long-term sources, are referred to as networking capital (Trivedi, 2010). Working capital management (WCM) is the process of deploying short-term assets and liabilities most efficiently (Wahogo, 2014). The components of working capital management are payment period, collection period, days of working capital (DWC), cash conversion efficiency (CCE), current ratio, and days of operating cycle (DOC). The cash conversion cycle (CCC) refers to net cash flow generated from the firm's operational activities, expressed as a fraction of sales revenue. Days of working capital show the

number of days a firm takes to translate working capital into revenue (Wahogo, 2014). The operating cycle describes how fast a firm acquires and converts its inventories into sellable products and collects revenue.

There has been an increasing interest in understanding the management of working capital by the coffee wet mill processors. For effective management of their most liquid assets, coffee wet mills must have strategies of ensuring that current assets are more than current liabilities to settle their short-term financial obligations (Pandey, 2010). Aggressive WCM practices could enhance both wet mills' liquidity and profitability (Boisjoly, Conine, & McDonald, 2020). The daily operations of the coffee wet mills from the time raw coffee is received to the last stage of packaging the dry coffee require the firm to have cash in hand to pay for the labor force and other bills (Pandey, 2010). This means that the factories should invest sufficient funds in current assets for their routine operations.

1.1.2 Board Diversity

The organization’s governing board is a crucial organ for decision-making in an organization and approves important operational and financial decisions (Vafaei, Ahmed & Mather, 2011). Board diversity in gender, age distribution, educational qualification, physically impaired, experience, and other forms of board diversity globally has been a matter of discussion and study for a period of time. Board composition has gained momentous prominence in corporate governance, and considerable interest now focuses on board of directors' attributes in corporate governance (Marinova et al., 2016). Board diversity and specifically women's representation in the board has been at the hub of policy development and academic research in the recent years (Đặng et al., 2020). The empirical literature suggests that diversifying the board is one way of improving organiational governance (Reguera-Alvarado, de Fuentes & Laffarga, 2017). Governance is a critical managerial feature for agro-processing firms (Reguera-Alvarado et al., 2017) because it directly relates to monitoring, control, and leadership. Scholtz and Kieviet (2018) pointed out that manufacturing firms with credible governance structures accrue significant benefits from internal monitoring and improve their financial performance.

1.1.3 Asset Base

Asset base plays a vital role in maximizing shareholders' wealth; thus, every organization needs to balance asset base and profitability (Oluwaremi & Memba, 2016). Assets are resources that are controlled by an organization and used to generate future income/revenue. According to Mwaniki and Omagwa (2017), assets include revenue assets, production assets, and wasting assets. On the other hand, Xu and Xu (2013) categorized assets into tangible fixed assets, financial fixed assets, current assets, current investments, and cash in hand and at the bank. Successful operations of a firm depend on the asset level and how well it utilizes those resources to generate revenue (Oluwaremi & Memba, 2016). The management of fixed assets falls within the domain of capital budgeting, whereas the WCM is a continuous process involving day-to-day control and the flow of financial resources that circulate in the business in one form or another. In addition, the trade-off that must be made between productivity and risk affects those decisions.

1.1.4 Financial Performance

The measure of the monetary outcomes of a firm's operations and policies over some time describes financial performance (Baudron *et al.*, 2019). The main dimension of financial performance is profitability, which entails the firm's aptitude to efficiently utilize the available resources to create more revenue while incurring less expenses. It is determined by how effective and efficient the firm is performing. Both monetary and non-monetary information are used to measure financial performance. The frequently used measures of an organization's financial well-being are, return on assets (ROA), return on equity (ROE), return on sales (ROS), return on investment (ROI), net profit margin (NPM), and operating margin (OM) (Baudron *et al*., 2019).

1.1.5 Performance of Coffee Industry

The coffee industry globally is currently in a crisis due to low prices. This has adversely affected countries that heavily depend on coffee revenues and 30 million small-scale growers, and millions of people who directly or indirectly depend on coffee (Maina *et al*., 2015). There have been strident declines in the industry profitability with decreasing global

prices and increasing production costs, squeezing profits for processing firms and growers (FAO, 2018). Compared to the prices in East Africa republics, including Rwanda, Uganda, and Ethiopia, the declining coffee prices in Kenya are higher (FAO, 2018). One of the reasons for this decline is the inefficiencies in the processing firms, which drive up the production costs, which are relatively higher in Kenya compared to its direct competitor nations. The average cost of production of coffee in Kenya is Kshs 52.30/kg (FAO, 2018) which is higher than that of Ethiopia, Rwanda, and Uganda.

The coffee industry is divided into the small-scale sector and the large-scale sector. About 78% of the Kenyan coffee production comes from the small-scale sector (Maina *et al*., 2015). Coffee prices have been declining over the years (Wairegi *et al*., 2018). This puts pressure on the coffee wet mills that directly deal with farmers, as production and processing costs surpass the profitability.

Despite Kenyan coffee being lauded for its quality, high global demand, and its importance in Kenya's macro-economic status, Kenya's coffee production has declined by around fifty percent in the last 25 years (Food and Agriculture Organization (FAO), 2018), and the returns paid to farmers have continued to decline over the years (Wairegi *et al*., 2018). Against this backdrop therefore, the study tried to contribute to the ongoing dialogue on the financial performance of coffee wet mills by unravelling what drives the small-scale coffee processing firms' financial performance in Kenya.

Weak working capital management, lack of board diversity, and a small asset base are the major contributing factors for failure among firms in the USA and the United Kingdom (Kroes, Manikas & Andrew, 2014). A direct link exists between the cost of production and the firm net revenue in the manufacturing sector (Andrew & Philip, 2014). As Karadag (2015) points out, irrational financial decisions, poor working capital management, and unfounded board composition are the major contributing factors to an organization's failure and financial ill-health. For coffee wet mills, financial performance is affected worldwide by the decreasing coffee prices in the global market (Kuguru, 2016). The profitability challenge has increasingly become important in the coffee industry in Kenya. This is

because of the high processing cost and the declining prices of coffee (Mariyono, 2018). As a result, the returns to the farmer have been persistently on the decline making the sector an unattractive business venture.

Previous researchers have argued that the poor financial performance of the coffee wet mills could be attributed to production challenges, policy-related limitations, mismanagement of the factories, competition among factories, and global market instability, among others (Kuguru, 2016). Thus, it was imperative to examine how coffee wet mills control their everyday flow of financial resources circulating in the firm; and how their board composition and asset base ownership affect their performance financially.

The Kenyan government has put several initiatives over the past ten years to revamp the coffee industry. These include rehabilitation of coffee factories for effective and efficient coffee processing, operationalization of three billion Kenya shillings coffee cherry revolving fund, the publication of new coffee exchange regulations, intensive marketing of Kenya coffee, and frequent audit of coffee wet mills (Republic of Kenya, 2019). The government further waived the 4% fees and levies from coffee marketing to increase return disposable to farmers. Despite the initiatives, prices per kilogram paid by wet mills to farmers are still low. The current price has decreased to 30% below the ten-year average price (International Coffee Organization, 2019). Hence, a pressing need to assess these coffee wet mills' working capital management, board diversity, and asset base affects financial performance. Although the coffee industry in Kenya is a broad sector with many researchable areas, this study narrowed down to Embu County to understand the performance of the wet mills through a detailed contextual analysis of the working capital management, board diversity, and asset base.

1.1.6 Embu County, Kenya

The study was conducted among small-scale coffee wet mills in Embu County, Eastern Kenya (Figure 1.1). Embu County is traditionally a coffee producing region in Kenya from the times colonial eras (Shanguhyia, 2015). The County covers 2,821 km2, with a population of about 608,599 people (GoK, 2020). Agriculture is the primary source of

livelihood for Embu county people, with over 70 per cent of tea, coffee, and cotton are the main cash crops. Food crops include rice, beans, sorghum, onions, bananas (Ministry of Agriculture, Livestock, and Fisheries (MoALF), 2016). Out of the County's total area, coffee farming covers the largest area of 3,864 hectares, producing about 800kg of clean coffee per ha; followed by tea which covers 2,595 hectares, macadamia with 724 hectares, and Khat (Catha edulis) (locally referred to as "miraa") with 159 hectares (MoALF, 2018). The County has 56 small-scale coffee wet mills, which fall under 24 coffee cooperative societies with over 79,000 farmers who are members (Kenya Coffee Traders Association, 2019).

Figure 1: Map of the study area showing the sampled coffee wet mills

Embu County has a wide series of agro-ecological zones ranging from Upper Highland (UH1) at the foot of Mount Kenya to Inner Land (IL5) in the lowlands of Mount (Jaetzold et al., 2007). However, only the highland portion of Embu County, including Embu North, Embu West, and Embu East, are prime for coffee production. The region's mean annual temperature is 20.2°C, while annual rainfall ranges from 1,400 to 1,700 mm, and an altitudinal range of 1520 to 1,820 m above sea level. The wettest season is experienced

between March and July, which is characterized by the first rainy season lasting at least 140 days. The second rainy season is experienced between September and mid-December and takes between 105 to 115 days. The primary soil types are *Humic nitisols* with modest to high intrinsic soil fertility (Jaetzold et al., 2007).

1.2 Statement of the Problem

The Kenya's coffee sub-sector, for many years, was a stable and indeed dependable source of income for small-scale coffee households and their dependants. It also enjoyed national eminence as the greatest foreign exchange earner for a long time. The sub-sector, however, is faced with many challenges currently. This is evident in the persistent reduction in production of coffee from 129,000 Metric Tonnes in 1988 to 41,375 Metric Tonnes in 2018. As per the law of supply, it is expected that declined production would result in a high price of coffee. Unfortunately, this has not been the case. The earnings to coffee growers have drastically declined to a level where only five to six percent of the retail price gets to the farmer (Mwangi, 2017). In addition, little attention has been given to small-holder coffee processors' financial management and governance, despite their substantial support to the economy. The agro-processing sub-sector in entirety is poorly understood, and its working capital management and governance challenges remain largely unexplored (Musuya, 2014). Despite various government reforms to decrease production and processing costs to tame the effects of reduced coffee prices, the situation is still on the declining trend. Coffee processing factories remain financially unstable to pay satisfactory returns to the farmers. There is a need for the coffee wet mills to increase their gross margins to boost returns to the small-scale coffee farmers. Earlier researches on financial performance of the coffee sector had concentrated on production, climate change, and profit sharing among the players in the value chain. A few of these studies focused on coffee wet mills' financial performance. Hence, there was need to evaluate the WCM, board diversity, and asset base of the coffee wet mills within the existing regulations to establish their impact on the financial performance of these wet mills.

1.3 Objectives of the Study

1.3.1 General objective

The broader objective of this study was to determine the effect of working capital management, board diversity, and asset base on the financial performance of coffee wet mills in Embu County.

1.3.2 Specific objectives

The following specific objectives guided the study:

1. To determine the effect of working capital management on the financial performance of the coffee wet mills in Embu County, Kenya.
2. To determine the effect of board diversity on the financial performance of the coffee wet mills in Embu County, Kenya.
3. To determine the effect of asset base on the financial performance of the coffee wet mills in Embu County, Kenya.

1.4 Research Questions

The study sought to answer the following research questions:

1. What is the effect of working capital management on the financial performance of the coffee wet mills in Embu County, Kenya?
2. What is the influence of board diversity on the financial performance of the coffee wet mills in Embu County, Kenya?
3. What is the effect of asset base on the financial performance of the coffee wet mills in Embu County, Kenya?

1.5 Scope of the Study

The study focused on the 41 small-scale coffee wet mills in Embu county for five years (2014-2018). This is the period when most structural changes were done in the coffee sector. In addition, the recent data available at the wet mills were for the period 2014 to 2018.

1.6 Justification of the Study

Studies on the coffee industry performance in Kenya have majorly paid attention to the production challenges. The challenges encompass farm management and climate change adaptation. The studies also used the profitability ratio to determine coffee production performance (Musuya, 2014; Ngeywo, Basweti & Shitandi 2015; Kuguru, 2016; Van Rijsbergen *et al*., 2016) with no consideration of return on assets and return to small-scale coffee farmers. The present study has employed a broader whole inclusive approach that considers the coffee wet mills financial performance using return to farmers and profitability concepts to contribute to the paradox behind the persistent decline in firm performance and return to the small-scale coffee farmers. In addition, none of those mentioned above studies specifically focused on working capital management, board diversity, and asset base of the small-scale coffee processors. More so, most working capital management and board diversity evaluation studies have concentrated on the mainstream publicly traded firms (Marinova et al., 2016). Worth noting, the declining growth of the agro-processing industry and particularly deteriorating prices of coffee and return to farmers are global phenomena. Hence, a comprehensive understanding of the drivers of the industry's performance should be sought.

1.7 Significance of the Study

This study supplements the efforts by offering credible empirical findings on how working capital management, board diversity and asset base influence the small-scale coffee wet mill processors' financial performance. The study sought to make contribution to literature for policy implication that will help in increasing return to farmers and enhance profitability of the small-scale coffee wet mill processors.

1.8 Limitation of the Study

The findings of this study are restricted to 41 coffee wet mills in Embu County. Care must be taken while generalizing the findings to the entire coffee industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter synthesizes the literature on WCM, board diversity, and asset base. It discusses the theories adopted for each objective. Further, this chapter discusses the conceptual framework, summarizes the literature, and highlights research gaps.

2.2 Theoretical Framework

Two contending theories strive to elucidate the WCM impact on corporate financial performance. Keynesian liquidity preference theory, put forward by Keynes (1936) and supported by Pandey (2010), explains three aims for cash management by a firm: precautionary reasons (need for financial reserve), speculative reasons (holding cash to take advantage of investment opportunities) and transaction reasons (having cash on hand to pay bills). For effective management of their most liquid assets, firms must have strategies to ensure that current assets are more than current liabilities to settle their short-term financial obligations (Keynes,1936; Pandey, 2010). The daily operations of the coffee wet mills from the time raw coffee is received to the last stage of packaging the dry coffee require the firm to have cash on hand to pay for the labor force and other bills (Pandey, 2010). This means that the factories should invest sufficient funds in current assets for their routine operations. The study, therefore, sought to establish how various small-scale coffee wet mills applied these approaches and their effects on financial performance.

The transaction cost theory (Ferris, 1981) affirms that firms may prefer holding payments to creditors and pay them periodically instead of making payments immediately after delivery of goods. This ensures effective payables management resulting in low transaction cost incurred on payment of bills. Furthermore, such a practice helps a firm separate the delivery cycle from the payment cycle (Ponsian et al., 2014). In addition, the firm a smooth product cycle can be maintained by a firm using credit to build up adequate inventories. However, this results in increased warehousing cost; hence, the firm must employ an

effective cost minimization strategy to improve its profitability. Thus, the study assessed small-scale coffee wet mills' payables management and its effect on financial performance.

Various theories such as resource dependence theory (Pfeffer & Gerald, 1978), agency theory (Fama & Jensen, 1983; Jensen & Meckling, 1979), social categorization theory (Turner & Oakes, 1986), social identity theory (Ashforth & Mael, 1989), and upper echelons theory (Hambrick & Mason, 1984) could be used to describe board diversity influence on organization's financial performance. This study used upper echelons, social categorization, and agency theories, similar to Đặng et al. (2020), Harjoto et al. (2018), and Marinova et al. (2016), to explore the board diversity effect on wet mills' financial performance. Initially, the focus by upper echelons theory was on the top management. However, Cannella et al. (2009) posit that literature applies the theory to board of directors by viewing them as the "supra top management teams." Upper echelons theory puts forward the idea that members of the board are different in cognitive frames and that the firm outcomes are significantly influenced by these cognitive differences (Hambrick, 2007). Since it is difficult to measure the cognitive frames of the board members, the literature uses observable features of directors such as age and gender as proxies for cognitive frames (Carpenter et al., 2004). Hambrick (2007) describes board members' cognitive frames entail the thinking processes of how they seek and evaluate information. He further contends that directors' reasoning frames are connected to their values, knowledge, experience, and personalities, and profoundly influence the interpretation of the received information. This, consequently, influences the decision-making process significantly, hence the firm outcome.

On the other hand, social categorization theory assumes the detrimental effect of diversity on group performance (Harjoto et al., 2018). It explains how people use salient features including age and gender to categorize themselves and other people into social categories. Through this process, people build self-esteem and social identity by isolating themselves as affiliates of a specific group and comparing their group with other groups (Post & Biron, 2015). Board members classifying themselves could result in cognitive biases. In an organization, board members belonging to a particular group are prone to favoring their members and consider the other groups as dishonest, less trustworthy, and uncooperative

(Scholtz & Kieviet, 2018). Agency theory suggests that independent board members are fundamental in aligning management and shareholders' interest in ensuring effective decision-making (Marinova et al., 2016). Board structure in terms of age dispersion, the proportion of independent board directors, and gender diversity is important as it impacts the board's decision-making process (Adusei, 2019).

The study employs the technological theory of returns to scale in investigating the asset base effect on firm performance. This theory, originating from the production function of a firm, describes how the long run output would increase with an increase in the inputs (Oyelade, 2019). The microeconomic theory holds that returns to scale are not determined by the market conditions but are technologically imposed (Keynes et al., 1936). The technological theory emphasizes economies of scale and physical capital as determinants of asset size, determining financial performance. The theory emphasizes on the production procedures and required investment in assets to produce output. Economies of scale would be realized with increasing quantity of coffee processed, allowing spread of accumulated fixed over large volume of output. Such economies of scale would increase return on invested capital and lower the average cost of production.

2.3 Empirical Literature

2.3.1 Working Capital Management and Financial Performance

Singhania, Sharma, and Yagnesh Rohit (2014) investigated the linkage between WCM strategies and the profitability of Indian manufacturing firms using correlation analysis. The receivables collection period, inventory conversion period, CCC, and payment deferral period were the independent variables considered in the study. Profitability was measured using the return on assets, net profit margin, and sales growth. The findings indicated that WCM strategies had a significant effect on the firm's profitability. Cash conversion cycle had a negative correlation with profitability. These results suggest that increased number of days for payables and decreased receivables collection days could enhance firms' financial stability. Similar findings are put forward by Lyngstadaas and Berg (2016), who analysed the profitability of small and medium-size Norwegian firms based on the WCM.

Panel data of four-year data between 2010 and 2013 of 21,075 enterprises were regressed. The results indicated that efficient WCM, such as a short CCC, increases the profitability. Unlike the previous study, the present study focuses on agro-processing firms.

A study in the USA by Kroes and Manikas (2014) employed the Generalized Estimating Equations methodology to research on the cash flow management effect on financial performance of manufacturing firms. The study analysed quarterly changes in cash flow positions and financial performance of 1233 companies. The analysis indicates that variations in the CCC did not contribute to firm performance. However, reductions in accounts receivables, measured by days of sales outstanding, and reductions in days of inventory outstanding improve the firm's financial performance. The present research employed Multivariate regression analysis to assess the firm financial performance effect of payment period and current ratio.

A panel data for the period from 2006 to 2012 of 208 listed companies in Vietnam were analyzed by Tu and Nguyen (2014) in investigating the relationship between WCM and profitability. Generalized Least Square and Fixed Effect Model results found a significant but negative effect of CCC, receivables collection period, inventory period, on gross operating profit. The results advocate for companies' reduction of days of receivables collection, CCC and inventory period for improved profitability. However, a multivariate regression analysis was employed in the present study to establish the wet mills' performance effect of WCM.

A research was conducted in Finland by Enqvist, Graham, and Nikkinen (2014) on the WCM impact on profitability of Finnish companies in various business phases. Profitability metrics were ROA and gross operating income, while CCC, current ratio, and debt ratio were considered as indicators of WCM. Data for the 18 years between 1990 and 2008 were analyzed using regression analysis. The findings showed that there was increased efficiency in management of the companies' inventory and longer accounts

receivables conversion periods during recession relative to economic booms. Results indicated that WCM was relative of more importance in low economic countries than in economic boom countries, implying WCM is critical and should be included in a firm's financial arrangements. As opposed to this study, which considered a few indicators for several countries during different economic cycles, the present study involves several indicators while considering control variables.

In Tanzania, Ponsian (2014) researched the profitability effect of WCM among manufacturing firms. Contrary to the current study, which applied multivariate regression methodology, this previous research applied Pearson's correlation as well as Ordinary Least Square Regression analysis on a ten-year panel data of three industrial companies listed in Dar es Salam stock market. The study considered the CCC, average collection period, average payment period, inventory turnover as variables for WCM, and return on assets as profitability variables. A significant and positive connection was found to exist between the CCC, APP, and firm's profitability, implying that shortening the cycle and increasing the payment period lead to increased returns for the firm. Average collection period was also established to exert a significant negative effect on the firm's profitability.

Using Generalised Least Square regression, Mwangi, Makau, Stephen, and Kosimbei (2014) examined the performance effects of WCM amongst the Kenyan-listed non-financial companies. Panel data for the period between 2006 and 2012 were used in the research. The firm's financing policy and investment policy were considered independent variables, with ROE and ROA as measures of profitability. The result showed that stringent financing policy significantly influenced ROA and ROE. The study suggests that aggressive financing policy and conservative investing policy improves the non-financial companies' financial performance.

2.3.2 Board Diversity and Financial Performance

Using the first stage moderated mediation model, Ararat et al. (2015) studied the secondary influence of the demographic board diversity on organizational performance in terms of

board monitoring among firms in Turkey. The regression results found a positive but non-linear association between the panel's demographic diversity and firm performance umpired by intensity of board monitoring.

In Europe, Isidro and Sobral (2015) examined whether an increase in women on the panel results in economic benefits to the firm by using a simultaneous equation model to investigate women's effect on firm value. The results never showed evidence of direct contribution of higher female representation to firm value. However, there were indirect effects. Existence of women directors on the board had a positive influence on ROA and ROS and social and ethical compliance, which have positive link with firm value. The results were in support of Reguera-Alvarado *et al*. (2017), who probed the board gender diversity's relation with economic outcomes for 125 non-financial firms. Their findings also revealed that proportion of women directors was positively connected to higher economic outcomes, suggesting that boardrooms gender diversification is necessary for improved firm financial performance. Other empirical studies have also alluded that external independent directors may have little influence on firm outcomes unless gender diversity in the boards is implemented (Terjesen, Couto & Francisco, 2016; Scholtz & Kieviet, 2018).

A study in Nigeria by Tukur and Balkisu (2014) investigated the influence of gender diversity, the board size, composition, ethnic diversity, and foreign directorship on insurance companies' financial performance regarding ROA TOBIN's Q. The researchers applied Feasible Generalized Least Squares (FGLS) and random effects estimators. Results revealed that board composition had a negative and significant association with firm performance. However, gender diversity and foreign directorship had a substantial positive effect on the ROA of the insurance companies. These findings, nevertheless, contradict the results of the study in the Netherlands and Denmark by (Marinova, Plantenga, and Remery, 2016), which revealed that board diversity effect on performance of the 186 listed firms was not significant.

In the Kenyan context, Ageda (2015) empirically assessed the board diversity influence on the manufacturing firms' ROA. Board gender, average age, board independence, education level, nationality, and firm size were considered as variables for board diversity while ROA for firm financial performance. Applying regression analysis, the study's results uncovered that board nationality had a robust positive relationship with firm performance while gender, age, education, board independence, and firm size have a weak positive relationship with the performance of the manufacturing firms. While the previous studies majorly evaluated the impact of ethnic diversity and board nationality on firm performance, the current study examined both board gender diversity and firms' performance effect of board independence and board age.

2.3.3 Asset Base and Financial Performance

In assessing the importance of specificity of firm's asset in its ability to borrow, Močnik (2001) used regression analysis to investigate the asset specificity's connection with debt ratio among manufacturing firms in Slovenia. The study considered the ratio of the sum of the book value of short and long-term debts to the book value of assets as the dependent variable. The independent variable consisted of the ratio of the sum of advertising expenses and research and development expenses to net sales, operating profit, volatility, and firm size. The results showed a negative relation between specific assets and the firm's aptitude to borrow. The findings suggest that equity should be used to finance firm-specific, implying that the firm should have a considerable asset base. The study further found that operating profit and debt ratio were negatively related. The present research established the effect of the asset base in terms of the non-current assets and value of coffee bushes owned by the coffee wet mill influence firm's financial performance.

Akinyomi and Adebayo (2013) employed regression and Pearson product-moment correlation coefficient method to examine the profitability effect of firm size of manufacturing firms in Nigeria. The study used ROA as an indicator of profitability, and total assets and turnover for firm size. The analysis of the eight-year panel data discovered that firm size positively impacted firms' profitability. Using fixed effect regression, Pervan and Višić (2012) assessed the link between firm asset size and the performance of 2,050

firms in the Croatian manufacturing industry. ROA, ROE, EBIT, and profit margin were used as performance measures. Asset size was measured using the firm's total assets. The findings indicated that asset size had a weak positive effect on firm performance.

Močnik and Širec (2015) investigated the asset size linkage with firm performance of 782 fast-growing Slovenian organizations. The study utilized two-year data, then analyzed it using multiple least square regression and Ordinary Least Squares (OLS) regression. The results found a negative link between asset size and profitability. Similarly, Kouser et al. (2012) evaluated firm size linkage with profitability of non-financial companies listed in the Karachi stock market in Pakistan. ROA and total assets were used as dependent and independent variables, respectively. The regression analysis of panel data revealed that asset size had insignificant and negative effect on firm financial performance.

2.4 Conceptual Framework

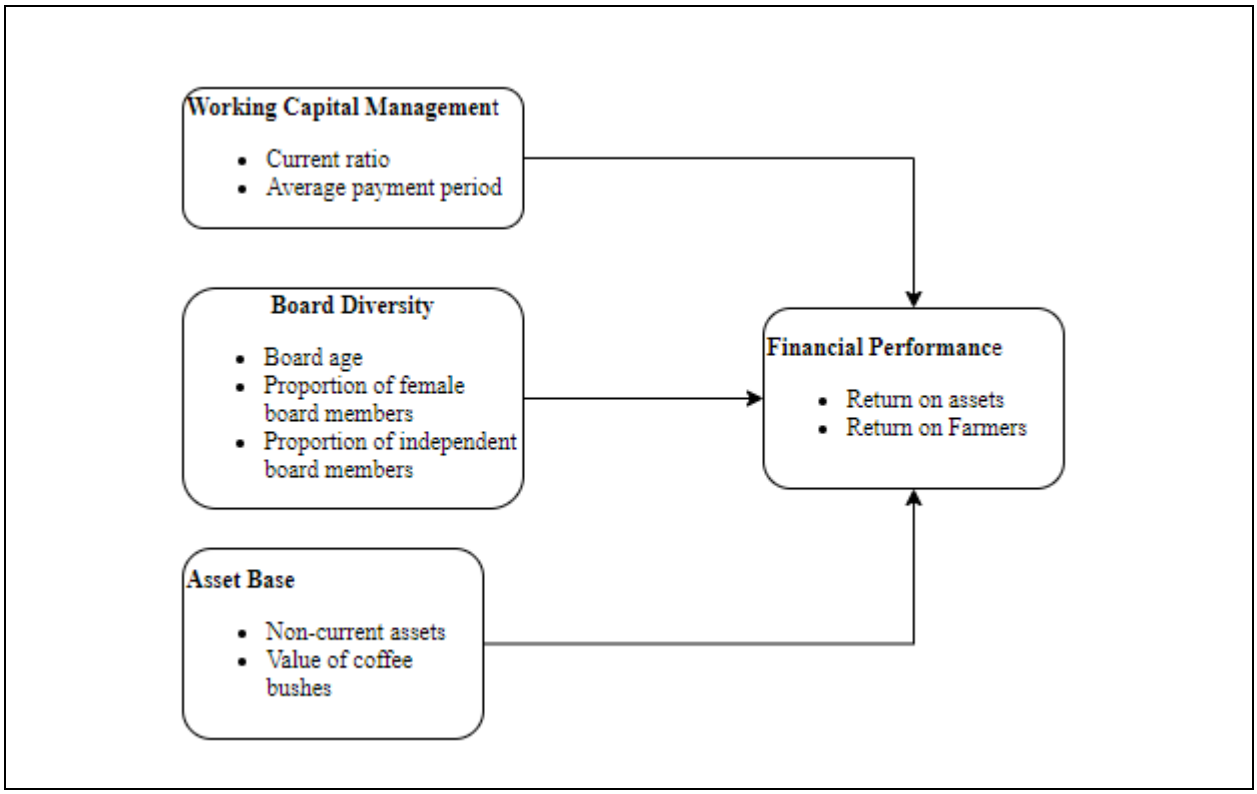


Figure 2. 1: Conceptual Framework

This study assessed three aspects: working capital management, board diversity, and asset base. These factors influence the financial performance of coffee wet mills. Working capital management involves the average payment period and current ratio, which influence both returns on assets and return to farmers. Board diversity, which comprises board age, the proportion of female board members, and the proportion of independent board members, influences return on assets and affects financial performance. Asset base, measured by non-current assets and value of coffee bushes, also affects a firm's ROA and eventually influences the financial performance.

2.5 Summary of Empirical Review

Keynesian liquidity theory asserts that a firm requires adequate cash to settle its current obligations as and when they fall due. This implies that coffee wet mills require adequate investment in current assets, which should exceed the current liabilities, to pay for daily operations of the firm. Similarly, it is important for firms to hold payments and make them periodically rather than immediately after delivery, to incur low transaction costs, hence effective payables management.

Board members are different in cognitive frames and these cognitive differences influence the outcome of the firm. Features of the board such as age and gender have been postulated by upper echelons theory to be proxies for the cognitive frames. Social categorization theory also explains how board members classify themselves using salient features such as age and gender, and build self-esteem and social identity through these features to influence their decisions. In addition, board independence has been acknowledged as a fundamental factor in aligning management and shareholders' interests for effective decision-making. Therefore, it is necessary for the coffee wet mills to diversify the boards to achieve significant firm outcomes.

The technological theory of returns to scale emphasizes that asset base determines firm financial performance and that a firm should focus on production process and investment in physical assets which produce desirable output. As such, increased quantity of coffee processed would lead to greater efficiency of the wet mills thereby enhancing their financial performance.

2.6 Research Gap

From the studies, it is apparent that little empirical work has been done on WCM, board diversity, and asset base in the coffee wet mills in developing economies. The literature on working capital management, board diversity, and asset base remains negligible in Kenya and Africa in general (see Ponsium *et al*., 2014; Kale, 2014; Mwangi *et al*., 2014). Most studies have been conducted in mature economies such as Europe, South America, and Asia, where working capital management, asset management, and board diversity are high. In Kenya, empirical evidence on WCM and the asset base of coffee wet mills remains scanty. The few studies that have been conducted in Kenya focus on other sectors such as the tea industry, banking, tourism, and energy industries.

Similarly, the inspiration for studying corporate governance in agro-processing firms such as coffee processors arises due to the increasing use of corporate governance guidelines borrowed from the publicly traded firms and the absence of empirical studies linking corporate governance to the financial performance of the agro-processing firms. The limited research on governance in the agro-processing industry indicates that the sector's governance may be different from that of other sectors mainly because of the sector's unique characteristics. Therefore, there is a need to understand the economic performance of small-scale coffee wet mills under aspects of working capital management, board diversity, and asset base. The study's contribution to the literature is evident as it reveals the existing link between these variables and firm performance through a 5-year panel data analysis of the small-holder coffee wet mills in Embu County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section examines research design, variable measurement, and the empirical models that the study employed to assess the effect of working capital management, asset base, and board diversity on the financial performance of small-scale coffee wet mill processors in Embu County. Instruments and procedures for data collection, pretesting, and data analysis are also described in this chapter.

3.2 Research Design

The research adopted a quantitative correlational research design, which was a non-experimental and involved analysis of panel data for the period 2014-2018 for the 41 small-scale coffee wet mills in Embu County. According to Mwangi *et al*. (2014), correlational research is useful in investigating the link between variables without manipulating any of them. The design describes the strength of the relationship by unfolding the characteristics of the relation as either positive or negative.

3.3 Target Population

The study considered all the 56 small-holder coffee processors in the County, thus a census study was adopted. Out of the 56 coffee processors, 49 were operational, while seven had closed down. Data were collected from the 49 coffee wet mill processors. Eight coffee wet mills did not have all the required data across the five years, hence were debarred from the study. The list of the 56 firms is provided in Appendix 4.

3.4 Operationalization and Measurement of Study Variables

In assessing the WCM effect on firm performance, the study used two dependent variables: i) return on assets(ROA), measured as the ratio of net revenue to total assets, a proxy for wet mill profitability similar to Enqvist et al. (2014). The ROA measures asset utilization's efficacy within a firm to generate revenue (Singhania et al., 2014). Higher ROA indicates

effective asset utilization within the firm. ii) return to farmers (RTF) as a measure of the financial well-being of the coffee wet mills expressed as the amount paid to farmers after the sale of the processed coffee i.e revenue less total cost, a proxy for firm financial performance (Gorton & Davidova, 2014) (Table 3.1). Aggressive working capital management practices are important in improving firm value, cash flow, profitability, and lowering costs (Boisjoly et al., 2020). Several recent studies have used the cash conversion cycle, collection period, and inventory turnover as WCM measures (Wahogo, 2014; Ponsian, 2014; Boisjoly et al., 2020; Nguyen et al., 2020). In this study, the average payment period (APP), and current ratio were used to measure WCM. APP was calculated as payables divided by purchases and the result multiplied by 365 days. Purchases included all the materials bought to facilitate the processing of the coffee cherry, such as fuel and electricity, drying materials, insurance, and licenses. CR was calculated as current assets divided by current liabilities. According to Panda et al. (2021), APP is the second most significant determinant of WCM after the average collection period and could significantly impact a firm's performance through improved operational efficiency and reduced transaction costs. Studies have revealed mixed results on the impacts of APP on financial performance. For example, Sharma and Kumar (2011) found a positive relationship between APP and profitability. Conversely, Samiloglu and Demirgunes (2008) found a negative relationship between APP and profitability. Additionally, the current ratio (CR) was used as WCM to measure of liquidity of coffee wet mills. Balancing between profitability and liquidity is pertinent for enhancing firms' performance. Five control variables were considered: i) firm size (Size), ii) growth rate (GR), calculated as ($Revenue_t$ / Revenuet-1) – 1, iii) age of the firm in years, iv) capital expenditure (CE), calculated as depreciation/total assets, and v) debt ratio (DR) calculated as total debt/total assets (Table 3.1).

The study considered three board diversity variables namely; the proportion of female board members (number of female board members divided by total number of board members), the proportion of independent board members (number of independent board members/total number of board members), and board age (sum of ages of all board members/total number of board members), similar to Romano and Guerrini (2014). As

pointed out by Post & Byron (2015), this study argued that a higher representation of women in the board was likely to influence decisions made by the board. The study contended that more female directors in the board would affect the decision-making process, as women's styles of leadership are considered participative, democratic, and communal (Đặng et al., 2020). The board independence financial effect remains a subject with mixed results in the literature (Ararat, Aksu, & Tansel Cetin, 2015; Đặng et al., 2020; Song, Yoon, & Kang, 2020; Terjesen, Couto, & Francisco, 2016). The researcher controlled for the firm and board characteristics that could influence financial performance, similar to Scholtz and Kieviet (2018) and Song, Yoon, & Kang (2020). The seven control variables were decided based on literature (Đặng et al., 2020; Şener & Karaye, 2014; Adams, 2015) (Table 3.1).

Asset base variables included the value of coffee bushes and total non-current assets. The value of coffee bushes was calculated as the number of kilograms of processed coffee harvested from own coffee bushes multiplied by the price per kilogram of the processed coffee in a particular year. As pointed out by Akiyomi and Adebayo (2013), this study argued that the coffee processors' high value of coffee bushes could possibly affect the financial performance of the processors. Similarly, investment in non-current assets could influence small-scale coffee processors' financial performance. The control variables were decided based on literature (Močnik & Širec, 2015).

Table 3.1: Description of the study variables

Objective	Dependent variables	Independent variables	Control variables	Statistics used
1	ROA RTF	APP (+) CR (+)	Firm size (+) Firm age (-) GR (+) CE (+) DR (-)	Descriptives Correlations Non-parametric local polynomial regression Multivariate Regression
2	ROA	PFBM (+) PIBM (+) Board age (+)	Board size (-) CEOD (+) Training (+) Education (+) Experience (+) DR (-) GR (+) Firm age (-) Firm size (+)	Descriptives Correlations 2-stage Least Squares
3	ROA	NCA (-) VCB (+)	DR (-) GR (+) Firm age (-) Firm size (+)	Correlations Ordinary least squares

ROA is the return on assets, RTF is return to farmers, APP is the average payment period, CR is current ratio, PFBM is the proportion of female board members, PIBM is the proportion of independent board members, Board age is the average age of board members, NCA is non-current assets, VCB is the value of coffee bushes. Firm size represents the number of active members, GR is the growth rate, firm age is years the firm has been in operation, CE is capital expenditure, DR is debt ratio, board size is the total number of board members of a wet mill. CEOD is CEO duality, Training is the number of training on corporate governance organized by the firm for board members, education is the average number of years spent in education calculated as the sum of years in education for all board members/total number of board members. Experience is the average years of board members' experience. In parenthesis is the expected sign of the hypothesized effect of the independent variable on the dependent variable.

3.5 Data Collection

The study utilized both primary and secondary quantitative data for five years (2014-2018), with 205 observations. Out of the 56 small-scale coffee wet mills in the County, 49 were operational, while seven had closed down. Data were collected from 41 out of the 49 coffee wet mills that had required data across the five years. The data consisted of the income statement and balance sheet information of the 41 coffee wet mills. Data on revenues, operational costs, assets, and liabilities were derived and computed to generate data on

financial performance Data on revenues and operational costs were derived and computed to generate data on financial performance. Data were extracted on the payment due to members, accruals, current assets, and current liabilities for data related to WCM. Other information obtained for this study were years the wet mill had been in operation and capital expenditure. A pre-test was carried out to assess the research instruments' suitability in collecting reliable and viable data in line with the research objectives. The primary data related to the second objective consisted of information about the board, such as number of board members, age, gender, CEO duality, level of education, experience, number of training the firm had organized for the board, and the number of independent board members. The data relating to coffee wet mills' asset base consisted of information about the quantity of their coffee processed and the price per kilogram of processed coffee. Questionnaires were administered to the small-holder coffee processor managers.

3.6 Data processing

In the first objective, the coffee wet mills were classified based on APP and CR. For APP, the desirable period is one year since payables are the firm's current obligations that need to be settled within one financial year (Ponsian, 2014). Even though a firm with a high value of APP means that it is able to extend the period of holding the available funds, allowing the firm to utilize the funds in maximizing profits (Lyngstadaas & Berg, 2016), a high APP beyond one year could indicate firm's inability to pay its bills on time. APP was therefore into two categories i) APP unconstrained (APP less than or equal to one year) and ii) APP constrained (APP greater than one year). In most cases, a firm's liquidity goal is to have sufficient cash to pay for its bills, make large unanticipated purchases, and have enough cash reserve to take care of unexpected emergencies all the time (Aktas et al., 2015). A current ratio of 2:1 is desirable (Ponsian, 2014), and the higher the ratio, the higher the liquidity and better management of the firm working capital. The CR was classified as CR less than two as undesirable and CR equal or greater than two desirable.

In the second objective, classification of the small-holder coffee processors was done based on gender diversity and CEO duality. For gender diversity, the study considered boards with a representation of females to be gender diverse (GD) while those without female

representation non-gender diverse (NGD). Whereas boards whose CEOs were the chairs were categorized as CEO duality (CEOD), those whose CEOs were not the chairs were categorized as CEO non-duality (CEOND).

3.7 Data Analysis

Data were analysed using STATA 15.0 software. The study performed descriptive statistics, including means, standard error, and t-test in all the research objectives. Assessing WCM effect on performance, the ROA and RTF across the five years were subjected to Tukey's posthoc test and means differences separated at $p<0.05$. The study employed a non-parametric local polynomial regression to assess the link between age and financial performance (ROA and RTF) under the working capital management categories, i.e., unconstrained and constrained APP and desirable and undesirable CR. The study used multivariate regression to assess the determinants of financial performance. Before the regressions analysis, the data plausibility for regression was tested using pairwise Pearson correlation between independent variables and a multicollinearity test for variance inflation factors. Since this study analysed two dependent variables, i.e., ROA and RTF, multivariate regression analysis is more reliable than individual ordinary least square regression (OLS) (Moro & Fink, 2013; Lazaridis & Tryfonidis 2006; Tu & Nguyen, 2014; Singhania et al., 2014) as described in equation 3.1.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \mu \qquad \text{Equation 3.1}$$

Where Y represents the dependent variables (ROA and RTF), βo is the intercept, β1, β2…βn are the regression coefficients of independent variables, X_1, X_2…X_n are determinants hypothesized to influence financial performance, i.e., ROA and RTF.

While examining the board diversity effect on performance, the study took note of the previous literature which found that one complication in such a study is that correlation may not imply causality (Marinova et al., 2016). The causality may go in either direction; that is, either board diversity causes high performance, or high performing firms tend to

have a high diverse board, hence endogeneity of board diversity and performance variables. In such a case, the coefficients of the OLS are prejudiced and cannot be interpreted as significant relations. To control for the endogeneity, the study used two-stage least squares (2SLS) regression analysis to assess the effect of board diversity on financial performance as described in equation 3.2, following other studies which also investigated the effect of board diversity and firm performance (Marinova et al., 2016; Reguera-Alvarado et al., 2017).

The study employed OLS regression to analyse the effect of the asset base of wet mills' financial performance. In several quantitative analyses, OLS is the most commonly used economic model for estimating beta (β) parameters (Wahogo, 2014). OLS regression model reveals the relationship between several independent variables and a continuous dependent variable. Because of its relative simplicity in testing model assumptions such as linearity, variance and the effect of outliers, it is considered one of the most effective statistical model in statistical analysis (Ponsian et al., 2014). The model demonstrates the extent of the independent variable's effect on the dependent variable. Like in the previous models, a test for data plausibility for regression was done using pairwise Pearson's correlation between independent variables and multicollinearity using variance inflation factors, and heterogeneity using the Breusch Pagan test.

$$ROA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \mu \qquad \text{Equation 3.2}$$

Where ROA is the return on assets, β_0 is the intercept, β_1, $\beta_2 \ldots \beta_n$ are the coefficients of independent variables, X_1, $X_2 \ldots X_n$ are the independent and control variables hypothesized to influence financial performance. μ is the associated error term.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter provides the results and discussion organized logically as per the study's objectives.

4.2 Working Capital Management Effects on Financial Performance of the Small-scale Coffee Wet Mill Processors

4.2.1 Descriptive characteristics of the coffee wet mills

The results show the coffee wet mill characteristics by status (unconstrained and constrained APP, desirable and undesirable CR) (Table 4.1). Sixty-nine (34%) observations were APP unconstrained, while 136 (66%) were in APP constrained (Table 2). The results reveal that most coffee-wet mill processors take over three years to pay creditors (pooled APP mean of 3.5), which indicates the WCM problem. The APP-constrained wet mills had a significantly ($p<0.1$) higher APP, CR, and growth rate. The APP-constrained wet mills had a significantly ($p=0.064$) higher CR than the unconstrained ones. This implies that part of the cash held by constrained wet mills in a period could be used for creditors' accounts settlement. Constrained firms also had a significantly ($p=0.051$) higher growth rate (3.07) compared with unconstrained firms (0.80). This indicated that constrained coffee wet mills hold creditors' money for a longer period to utilize the funds to create more value for the firm. The age of the wet mills significantly ($p=0.002$) differed between APP constrained and unconstrained. The APP unconstrained wet mills had 35.29 years compared to 33.88 years of constrained and significantly differed at a 1% level. The APP unconstrained wet mills had more ($p = 0.001$) active members (730.23) than constrained (578.34).

Table 4. 1: Descriptive characteristics of the sampled coffee wet mills in Embu County, Kenya

Variable	Total Mean	Unconstrained A N=69 Mean	Constrained B N=136 Mean	Diff A – B Mean diff	Desirable C N=151 Mean	Undesirable D N=54 Mean	Diff C - D Mean diff
Dependent variables							
ROA	1.22(2.27)	1.41(0.27)	1.12(1.96)	0.29	1.65(0.47)	1.06(0.13)	0.59
RTF[a]	13.86(15.03)	13.38(1.83)	14.12(1.28)	0.73	16.61(2.46)	12.88(1.12)	3.72**
Independent variables							
APP	3.50 (6.37)	0.122 (0.01)	5.21(0.62)	-5.08*	3.12(0.91)	3.63(0.51)	-507.47
CR	5.62(2.29)	2.09(0.42)	7.41(3.45)	-5.32*	18.57(8.53)	0.99(0.04)	17.59***
GR	2.31(15.44)	0.80(0.34)	3.07(1.61)	-2.27**	4.43(2.95)	1.57(1.03)	2.86**
DR	0.75 (1.45)	0.68(0.11)	0.78(0.14)	-0.09	0.22(0.44)	0.94(0.13)	-0.72***
CE	0.02 (0.05)	0.02(0.00)	0.02(0.00)	0.00	0.04(0.01)	0.02(0.00)	0.02***
Age	34.95(15.69)	35.29(1.31)	33.88 (1.89)	1.59***	34.76(2.07)	35.02(1.30)	-0.26
Size	629.46(331.75)	730.23(43.87)	578.34(25.95)	151.89***	683.70(43.52)	610.07(27.25)	73.64

In parenthesis are standard errors, *, **, *** significant at 10%, 5% and 1%, respectively.
[a] Return to farmers is Kenya shillings in millions.
[b] Average payment periods are years.

The descriptive results further indicate that 74% (151 out of 205) observation during the five years had desirable CR (Table 4.2). Coffee wet mills with a desirable CR paid significantly (p=0.01) higher RTF (16.61 million KSH, 154,800 USD) than those with undesirable current ratio (12.88 million KSH, 120,037 USD). This implies that that firms with desirable CR have better financial performance than their counterparts with undesirable CR. These findings were consistent with previous WCM studies in Kenya (Singhania et al., 2014; Wahogo, 2014; Ponsian, 2014), who found the current ratio to be a significant determinant of firm financial performance. A significantly (p=0.001) higher CR was observed from wet mills with desirable CR (18.574) compared with those who had undesirable CR (0.99). In addition, results showed that wet mills with desirable CR had a better (4.43) growth rate than those with undesirable CR (1.57). The wet mills' debt ratio differed significantly (p=0.0024) between those firms with desirable CR and those with undesirable CR. Small-scale coffee wet mills with undesirables CR had a higher debt ratio (0.94) than those with desirable CR (0.22). This implied that the former require debt

financing to pay current liabilities, as the current assets are not adequate to meet their current obligations as and when they fall due. Small-scale coffee wet mills with desirable CR had better management of their physical assets, as indicated by higher capital expenditure (0.04) than those with undesirable CR (0.02).

4.2.2 Small-scale coffee wet mills financial performance during the study period

The return on assets was similar ($p<0.089$) during the study period (Figure 4.1). The return to farmers significantly ($p<0.0001$) differed across the five years. The highest (24.13 million KSH, 224,884 USD) RTF was observed in 2014 and the lowest (6.72 million KSH, 62,628 USD) in 2018. The variation in RTF could be attributed to the decreasing trend of average coffee prices over the years (FAO, 2018; Wairegi et al., 2018).

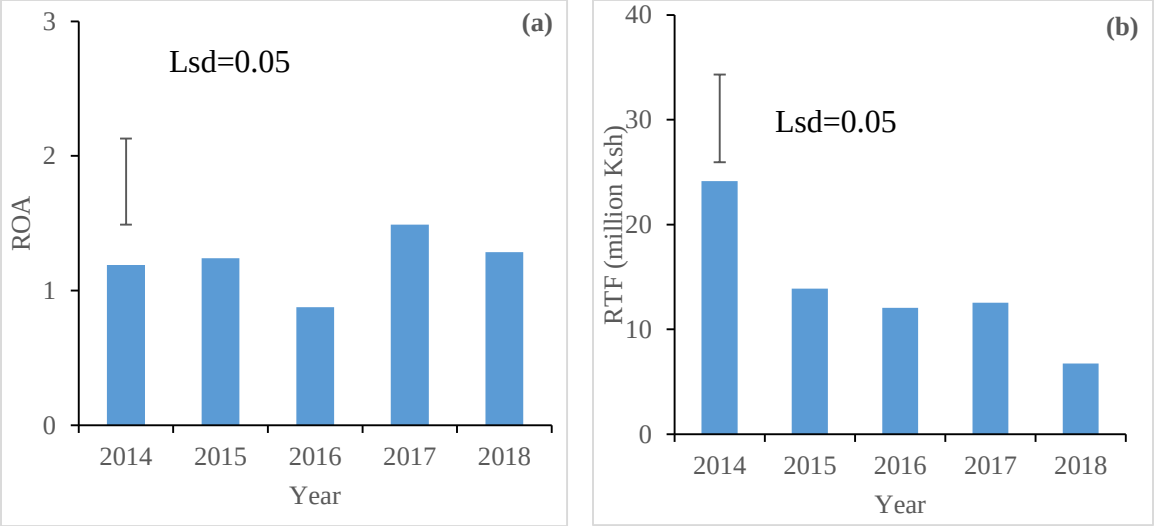
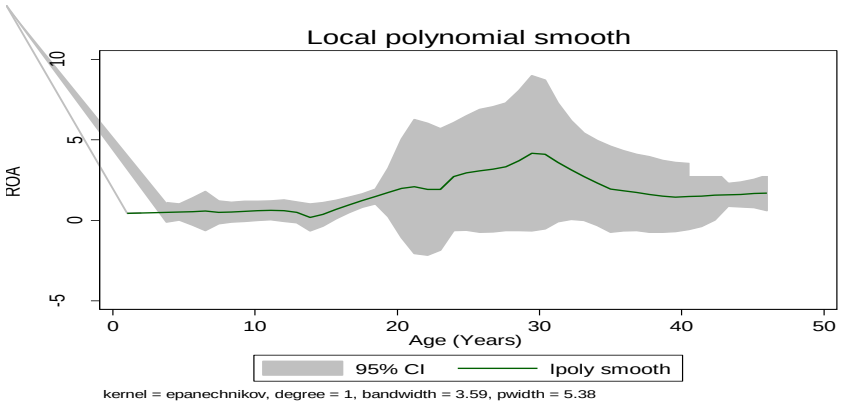


Figure 4. 1: Small-scale coffee wet mills financial performance between 2014 and 2018.

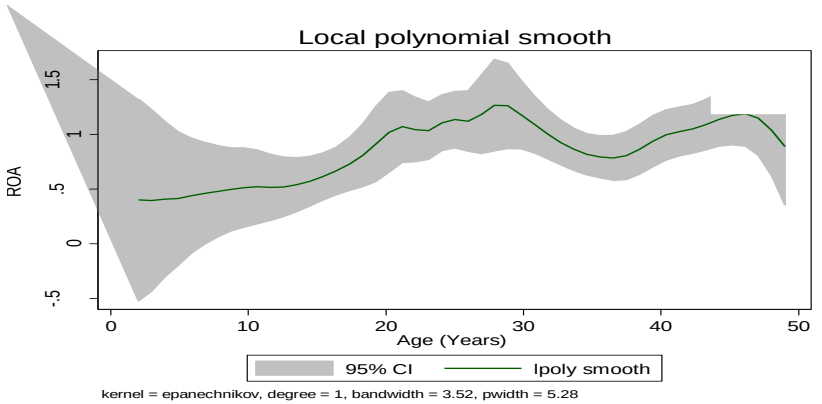
4.2.3 Distribution of financial performance against the age of small-scale coffee wet mills

Figure 4.1 shows the result of the local polynomial regression that establishes a relationship between the following: return on assets and age for desirable current ratio (panel A); ROA and age for undesirable CR (panel B); return to farmers and age for desirable current ratio (panel C), and return to farmers and age for undesirable current ratio (panel D). For the first 30 years of operation, a smooth positive but less rapid ROA trend is observed among

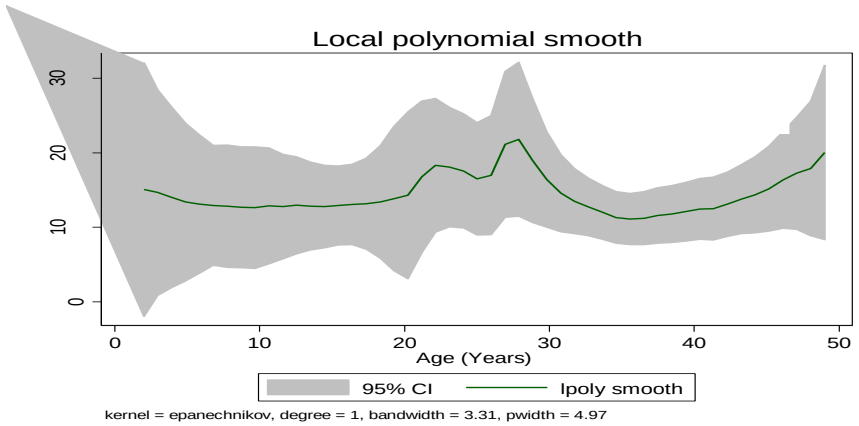
firms with desirable CR (panel A); and a sharper positive trend for the undesirable CR category of wet mills (panel B). This indicates better financial performance, in terms of ROA, for firms with low CR. Return to farmers decreased gradually among firms with desirable CR during the first 20 years (panel C). A constant trend is observed for firms with undesirable CR (panel D), an implication that increased current ratio decreases RTF. In line with Enqvist et al. (2014), these findings underscore CR's importance in increasing RTF among small-scale coffee wet mills.



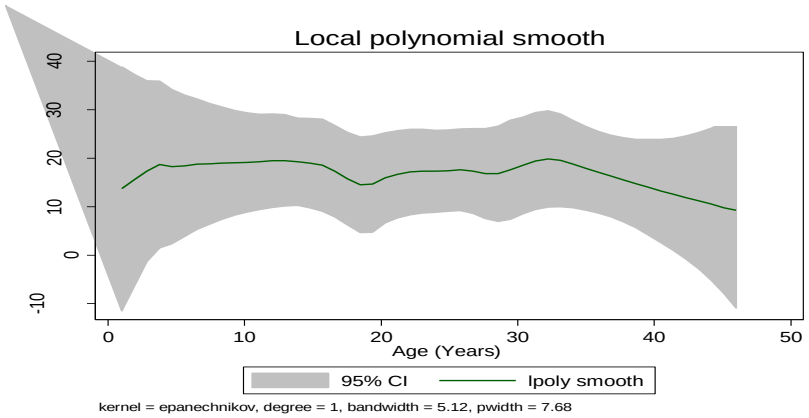
Panel A: Return on assets vs. age of the wet mill for desirable CR



Panel B: Return on assets vs. age of the wet mill for undesirable CR

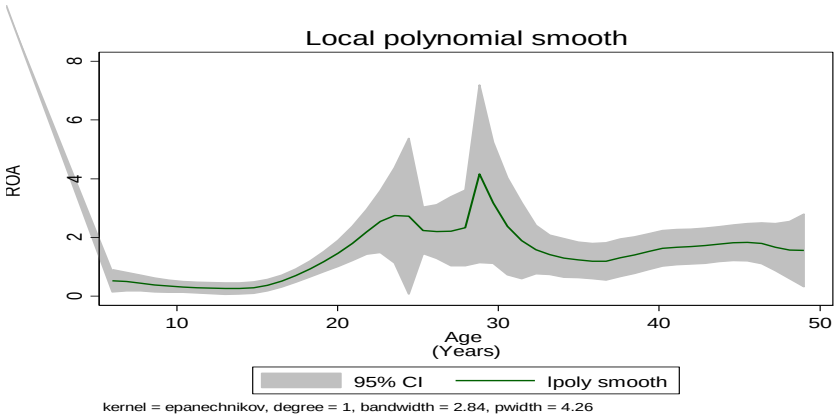


Panel C: Return on farmers vs. age of the wet mill for desirable CR

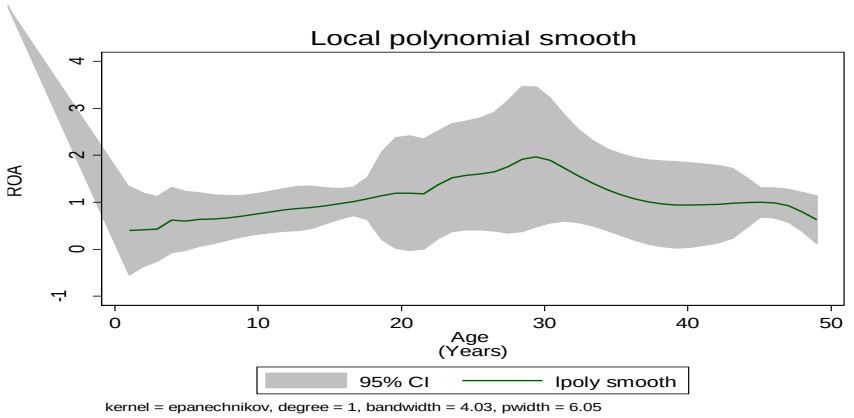


Panel D: Return on farmers vs. age of the wet mill for undesirable CR

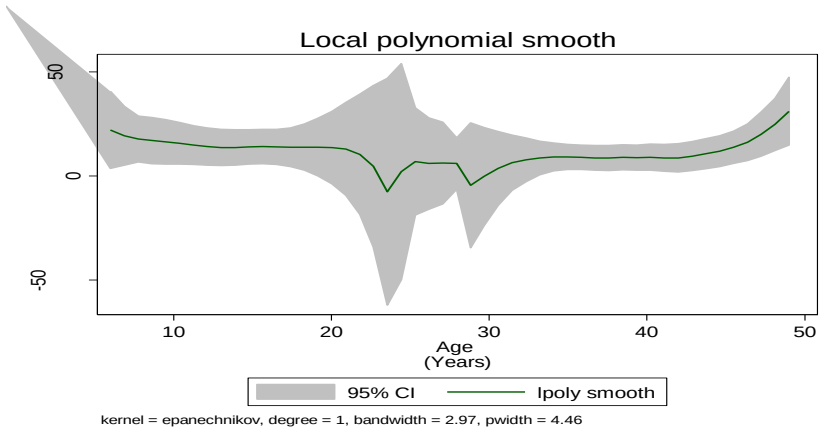
Figure 4. 2: Local polynomial regressions for desirable and undesirable current ratio of small-scale coffee wet mills.



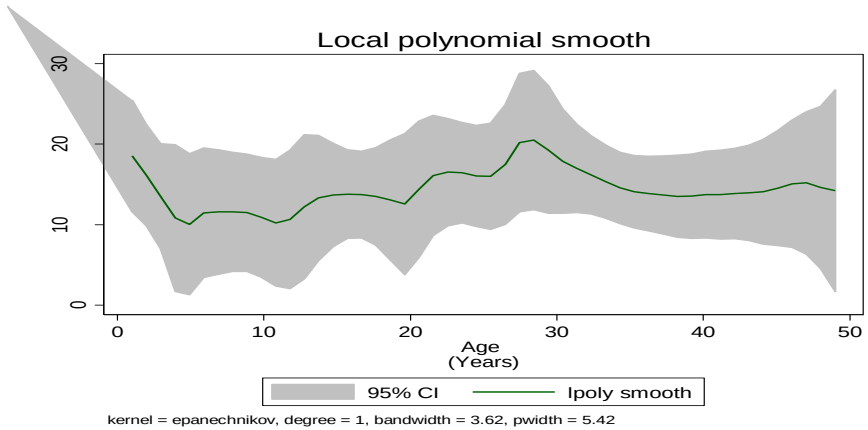
Panel A: Return on assets vs. age of the wet mill for APP unconstrained



Panel B: Return on assets vs. age of the wet mill for APP constrained



Panel C: Return to farmers vs. age of the wet mill for APP unconstrained



Panel D: Return to farmers vs. age of the wet mill for constrained

Figure 4. 3: Local polynomial regressions for the short and long average payment period of small-scale coffee wet mills.

Figure 4.2 shows a smooth positive and more rapid trend in ROA for APP unconstrained coffee wet mills (panel A) than the APP constrained wet mills (panel B). However, the ROA declined for both APP constrained and unconstrained wet mills past 30 years. This implies that younger coffee wet mills had a better return on assets. APP unconstrained small-scale coffee wet mills had a fairly constant RTF trend across the years (panel C). However, the APP-constrained wet mills had a positive trend in RTF for the first 30 years (panel D). This indicates that the RTF among small-scale coffee wet mills increased with years of operation up to a certain age (30 years), then performance started declining.

4.2.4 Test results

The variance inflation factor (VIF) ranged between 1.10 and 1.04 with a mean of 1.05 (Table 4.2). The rho values of pairwise correlation were less than 0.3 (Table 4.3). Since the VIF was less than ten and rho values less than 0.5, the independent variables were not correlated, thus credible for multivariate regression analysis. Pairwise correlation (β=-0.047, p=0.50) was not significantly different between ROA and RTF among small-scale wet mills (results not reported). However, the negative sign indicates as the ROA was increased, RTF decreased.

Table 4. 2: Multicollinearity test results

Variable	VIF	1/VIF
APP	1.10	0.912636
CR	1.02	0.982133
GR	1.01	0.994840
DR	1.01	0.988424
CE	1.01	0.986562
Size	1.15	0.870651
Age	1.04	0.958025
Mean VIF	1.05	

Table 4. 3: Pearson correlation of independent variables

	APP	CR	GR	DR	CE	Age	Size
APP	1.0000						
CR	-0.0494	1.0000					
GR	0.0059	-0.0169	1.0000				
DR	0.0116	-0.0710	-0.0427	1.0000			
CE	-0.0362	0.0816	-0.0330	-0.0283	1.0000		
Age	-0.0352	0.0816	0.0064	0.0181	-0.0340	1.0000	
Size	-0.2875***	0.0872	-0.0346	-0.0518	-0.0817	0.1889***	1.0000

APP is natural logarithm of average payment period; CR is current ratio; GR is growth rate; DR is debt ratio; CE is capital expenditure; Size is number of active members of the coffee wet mill; Age is number of years the wet mill has been in operation. *** denotes the 1% significance level.

4.2.5 Working capital management effects on coffee wet mills' financial performance

The estimated value of the regression coefficient and their related statistics are presented in Table 4.4. The model goodness of fit (R^2) implies that 63% of the variation in the financial performance of small-scale coffee wet mills in Embu County was described by the independent variables used in the model. The significant F-value (47.40****) signified the importance of independent variables included in the model in explaining variations in small-scale coffee wet mills' financial performance.

The Multivariate regression analysis showed that the two WCM factors significantly predicted small-scale wet mills' return on assets (Table 4.4). The APP (β=-0.0001, p=0.000) negatively predicted ROA among small-scale coffee wet mills. This implied that small-scale coffee wet mills with short APP were more likely to have a higher return on assets. This could be attributed to a good credit rating realized when a firm takes a short period to pay creditors. Thus the wet mills attract more farmers who bring more coffee to the firms. The high quantity of coffee processed by a wet mill could lead to high revenue, hence a high return on assets. The finding was in agreement with Agbo (2018), who reported that APP was a negative determinant of ROA.

The CR negatively (β=-0.3416, p=0.001) determined coffee wet mills' return on assets. This suggests that a 10% increase in CR could decrease ROA by 3.4%. It means that

pursuing a higher current ratio leads to low utilization of assets in generating revenue for the firm. It further implies that wet mills efficient in asset utilization may not perform well in settling their short-term obligations using current assets in the short run. However, these findings were contrary to previous research that found that the current ratio was a positive determinant of ROA, attributing it to conservative investment policy (Agbo, 2018; Mwangi et al., 2014).

The results found that wet mills size (number of active members) positively (β=0.0011, p=0.000) influences small-scale coffee wet mills' ROA. This showed that coffee wet mills with more active members had a higher financial performance. This could be attributed increased quantity of coffee supplied to the wet mills with increased active members, hence optimal asset utilization in revenue generation. While this finding contradicts Agbo (2018) and Singhania et al. (2014), who found that firm size was a negative predictor of ROA, it supports the findings of Nguyen et al. (2020) and Mathuva (2010) that firm size was a positive contributing factor to firm financial performance.

The findings indicate that the wet mill's age was a negative (β=-0.0111, p=0.0052) determinant of small-scale coffee wet mills' ROA. This could be attributed to the reduced efficiency of assets (especially fixed assets due to depreciation effect) in income generation as firms grow older. This is contrary to Singhania et al.'s (2014) findings, who reported that age was a positive determinant of ROA among the Indian manufacturing firms.

Table 4. 4: Multivariate regression of working capital management effects on financial performance of small-scale coffee wet mills.

Variable	ROA			RTF		
	Coff	**SE**	**p-value**	**Coff**	**SE**	**p-value**
APP	-0.0001***	0.0000	0.000	0.0003***	0.0000	0.001
CR	-0.3416***	0.0734	0.001	0.7675***	0.2673	0.001
GR	-0.0038	0.0064	0.842	0.0418*	0.0234	0.082
DR	-0.1059	0.0677	0.853	0.5977**	0.2464	0.021
CE	0.0001***	2.1465	0.000	2.6022***	0.7813	0.002
Size	0.0011***	0.0002	0.000	0.0085***	0.0009	0.000
Age	-0.0111**	0.0052	0.027	-0.1636***	0.0192	0.001
Constant	-1.160***	0.3187		1.5100***	3.3413	
R-squared	0.6297					
F-value	47.3957****					
Observations	205					

*, **, *** denote the 10%, 5% and 1% significance level, respectively. 1 US$ equals Kshs 107.30

Similarly, APP and CR variables positively and significantly affected the return to farmers (Table 4.4) at 1%. The results indicate that if all factors are held constant, a 10% increase in APP and CR, will increase return to farmers by 0.003 and 7.6, respectively. The positive relationship between APP and RTF can be explained in two ways. First, firms wait longer to pay creditors to make use of the available cash to meet their working capital needs. Second, economically, this finding makes sense because the longer the firm takes to pay creditors, the higher the working capital reserve level it has and utilizes to increase its profitability. This result is consistent with the WCM rule that organizations should strive to delay their payment to creditors but not to the extent of spoiling their business rapport with them (Mathuva, 2010). Agbo (2018), Aktas et al. (2015), and Enqvist et al. (2014) reported that the current ratio was a positive determining factor of firm financial performance. The results imply that small-scale coffee wet mills could improve their financial performance by increasing current assets' proportion to current liabilities.

The DR, CE, size, and age variables significantly affected the return to farmers (Table 4.4). CE, and size coefficients were positive and significant at 1%, while GR and DR's coefficients were significant at 10% and 5%, respectively. The implication of the findings is that if all factors are held constant, a 10% increase in GR, DR, CE, and size will increase return to farmers by 0.4, 5.9, 26 0.08%, respectively. The study, however, found that the coefficient of age was negative and significant at 1%. The finding that DR is a positive determinant of performance as measured by RTF is contrary to the previous findings of Aktas et al. (2015), which reported that debt ratio was a negative determinant of financial performance, which was measured by gross operating income. The age of the wet mill was, however, found to have a negative effect on RTF. This confirms the report by FAO (2018) that return to farmers has been on the declining trend over the year.

4.3 Board Diversity Effects on Financial Performance of the Small-scale Coffee Wet Mill Processors

4.3.1 Descriptive characteristics of the sampled small-holder coffee processors

Eighty-four (41%) observations were gender diverse, while 121 (59%) were non-gender diverse (Table 4.5). The gender diverse (GD) wet mills had a significantly ($p<0.1$) higher board size, PIBM, PFBM, training, education, and experience. The GD wet mills had a significantly ($p=0.000$) higher number of board members than NGD ones. This implies that the GD firms increase the size of their boards to include women's representation. The GD firms also had a significantly ($p=0.000$) PIBM ($\beta=0.357$) than NGD wet mills. This indicated that the GD wet mills had a higher level of board independence. Similarly, the GD boards had a significantly ($p=0.003$) higher level of education, experience ($\beta=24.638$) and had more trainings ($\beta=0.870$). The finding that GD board members had a higher level of education confirms the literature that there is greater likelihood of females possessing a University degree and advance degrees (Dang et al., 2014). The firm’s growth rate (GR) and age of the wet mills significantly differed between GD and NGD. The NGD wet mills had higher GR ($\beta=3.582$) compared with the GD ones. Finally, the NGD wet mills had 38.17 years in operation compared to 34.95 years of GD and significantly differed at a 1% confidence level.

The results further showed that 41% (85 out of 205) observations during the five years had CEO duality (Table 4.3). Coffee processors with CEO duality (CEOD) had significantly (p=0.000) more board members than those with CEO non-duality (CEOND). Board members for wet mills with CEOND were averagely 8.764 years older than those with CEOD, at a 1% confidence level. Proportion of independent board members was significantly higher (0.363) in CEOD wet mills than in CEOND wet mills (0.273). Board members for small-holder coffee processors with CEOD had significantly (p=0.006) more experience (25.471) in terms of years worked than those with CEOND (23.720). Whereas a high debt ratio (1.052) was observed among firms with CEOD than those with CEOND (0.530), the latter had more years of operation (35.10) than the former (33.88).

Table 4. 5: Descriptive characteristics of the coffee wet mill processors in Embu County, Kenya

Variable	Total Mean	GD (A) N=84 Mean	NGD (B) N=121 Mean	Diff (A – B) Mean diff	CEOD (C) N=85 Mean	CEOND (D) N=120 Mean	Diff (C - D) Mean diff
Dependent variables							
ROA	1.217(1.586)	1.417(0.316)	1.078(0.155)	0.339	1.238(0.311)	1.202(0.159)	0.036
Independent variables							
Board size	7.10(0.084)	7.02(0.104)	7.15(0.123)	0.125***	7.94(0.088)	6.50(0.099)	1.441***
Board age	50.96(1.059)	50.863(1.535)	51.026(1.449)	0.164	45.830(2.363)	54.593(0.474)	-8.764***
PIBM	0.310(0.010)	0.357(0.001)	0.277(0.016)	0.0803***	0.363(0.002)	0.273(0.017)	0.090***
PFBM	0.060(0.005)	0.147(0.003)	0.000(0.000)	0.147***	0.069(0.008)	0.054(0.007)	0.015
Trainings	0.59(0.073)	0.870(0.138)	0.390(0.074)	0.481***	0.410(0.130)	0.71(0.083)	-0.297
Education	11.63(0.076)	11.921(0.107)	11.428(0.101)	0.493***	11.694(0.103)	11.585(0.107)	0.109
Experience	24.45(0.268)	24.638(0.484)	24.312(0.307)	0.326***	25.471(0.342)	23.720(0.376)	1.751***
DR	0.746(0.101)	0.714(0.104)	0.769(0.155)	-0.054	1.052(0.229)	0.530(0.051)	0.522***
GR	2.312(1.081)	0.461(0.255)	3.582(1.809)	-3.121***	1.928(1.441)	2.581(1.541)	-0.653
Firm age	34.95(1.096)	30.310(1.851)	38.170(1.267)	-7.864***	33.88(1.506)	35.1(1.540)	-1.826**
Firm size	629.46(23.171)	657.3(38.014)	610.14(29.066)	477.157	546.82(35.937)	688.00(29.276)	-141.176

CEOD is CEO duality; CEOND is CEO non-duality; *, **, *** significant at 10%, 5%, and 1%, respectively.

4.3.2 Test results

The rho values of pairwise correlation were less than 0.3 (Table 4.6). A correlation coefficient below 0.8 indicates less multicollinearity problem (Ombaba & Kosgei, 2017). The variance inflation factor (VIF) values were between 1.06 and 3.15 with a mean of 1.78, well below the threshold of 10 recommended by Đặng et al. (2020) and Wooldridge (2014) The tolerance factors were above 0.1 (Table 4.3), indicating that there was an absence of multicollinearity within independent variables, as validated by Ombaba and Kosgei (2017). There Durbin and Wu-Hausman test for endogeneity revealed non-existence of endogeneity problem, that is, the variables were exogenous (Chi-Square = 380321, p=0.8268; F =180243, p=0.8352). However, the existence of heteroscedasticity was found in the data for board age, the number of active members, and firm age as they were not normally distributed (Chi-Square=79.74; p=0.0000). To solve this problem, data on board age, firm age, and firm size data were subjected to logarithmic transformation and used robust standard errors to improve the coefficients further. Since the VIF was less than ten and rho values less than 0.5, the independent variables were not correlated, thus credible for 2SLS regression analysis.

Table 4. 6: Pairwise correlation and multicollinearity test results

	Board age	PIBM	PFBM	Board size	CEOD	Trainings	Education	Experience	DR	GR	Firm age	Firm size	VIF	1/VIF
Board age	1.000												1.81	0.552
PIBM	-0.181	1.000											1.68	0.597
PFBM	0.031	0.208	1.000										1.44	0.511
Board size	-0.160	0.377	-0.153	1.000									3.15	0.318
CEOD	0.384	0.143	0.172	-0.339	1.000								2.77	0.360
Trainings	0.122	0.168	0.314	-0.249	0.284	1.000							1.49	0.669
Education	0.399	0.240	0.236	0.294	0.111	0.140	1.000						1.96	0.511
Experience	0.302	-0.157	0.076	-0.061	0.075	-0.044	0.296	1.000					1.88	0.533
DR	0.092	0.053	-0.031	0.132	-0.011	-0.111	0.069	0.077	1.000				1.08	0.923
GR	0.065	-0.049	-0.095	-0.014	0.103	0.047	0.073	0.066	-0.043	1.000			1.06	0.948
Firm age	0.073	0.041	-0.221	0.133	0.143	-0.204	-0.025	-0.247	0.018	0.006	1.000		1.49	0.671
Firm size	0.354	0.121	0.091	0.063	0.224	0.221	0.315	0.112	-0.052	-0.035	0.189	1.000	1.68	0.595

4.3.3 Board diversity effects on coffee wet mill processors' financial performance

The Two-stage Least Squares (2SLS) regression analysis revealed that the three board diversity variables significantly predicted small-holder coffee processors' return on assets (Table 4.7). The board age (β=0.242, p=0.018) positively predicted ROA among the coffee processors. This implied that small-holder coffee processors whose board members had higher average age were likely to perform better financially. This could be attributed to the increased level of experience of board members in management (Song et al., 2020).

The study established that proportion of independent board members exerted a positive significant (β=2.916, p=0.009) influence on small-holder coffee processors' ROA. This shows that *ceteris paribus*, increasing the proportion of independent board members by 10%, would increase ROA by 29.16%. As supported by this finding, the independent board members bring boards divergent understandings and new insights that are likely to affect the decision-making process. These results are a confirmation of the previous studies, which found a significant positive link between board independence and a firm's financial performance (Tornyeva, 2012; Ararat et al., 2015). However, the findings are contrary to Terjesen et al. (2016), whose finding showed that board independence was not a contributing factor to firm performance. This study, conducted in 47 countries, attributed their finding to the lack of gender diversity in the boards, implying that board independence could significantly influence firm performance only if the board were sensitive to gender diversity.

The study found that a firm's growth rate negatively and significantly influences ROA at a 1% significance level. Thus, a 10% increase in GR will lead to a 0.06% decrease in ROA. Contrary to the previous studies, which showed a positive financial performance effect of firm growth (Đặng et al., 2020; Isidro & Sobral, 2015), the finding supports three arguments of agency theorists for firm growth, not always being a positive predictor of a firm's financial performance. First, instead of optimizing shareholders' wealth, the managers maximize their wealth (Fama & Jensen, 1983). Second, weak corporate governance and free cash flow in an organization are two promoters of revenue growth without considering the impact on shareholders' wealth. Weak corporate governance

creates interest misalignment between the board and shareholders. Free cash flow availability makes it easy for managers to make investments without external funds and debt surveillance mechanisms (Jensen & Meckling, 1979). Third, incentives for the board enable them to grow the firm beyond the optimal amount of revenue, leading to an increase in the amount of resources they control. This increase in revenue results in more compensation for the board since executive benefits is positively linked to revenue growth (Tingler, 2015). Merging these three arguments, the board may venture into revenue growth projects even if the expected returns are low, impairing the firm's financial performance (Fama & Jensen, 1983).

Table 4. 7: Effects of board diversity on return on assets of small-holder coffee processors: A 2-stage least squares regression.

Variables	Coefficient	Robust SE	p-value
Board age	0.242	0.101	0.018**
PIBM	2.916	1.103	0.009***
PFBM	0.128	2.406	0.099*
Board size	-0.052	0.223	0.822
CEOD	0.133	0.333	0.690
Trainings	-0.189	0.114	0.297
Education	0.100	0.115	0.386
Experience	0.027	1.219	0.982
DR	-0.098	0.088	0.265
GR	-0.006	0.003	0.068*
Firm age	0.243	0.106	0.023***
Firm size	0.565	0.230	0.015***
Constant	-4.818	3.045	0.0115**
Observations	205		

*, **, *** significant at 10%, 5%, and 1%, respectively.

The study found that the proportion of female board members positively exhibited a significant (β=0.128; p=0.099) influence on the coffee processors' ROA. This implies that a 10% increase in women's representation in the board will cause a 12.8% increase in ROA of the small-scale coffee processors. The improved performance could be attributed to better decision-making when females were incorporated into the board. Similar findings were reported by Post & Byron (2015), who found that a high number of females on the board positively influenced accounting returns such as ROA. They argued that female

directors brought various knowledge and experiences to the board that impacted decisions made by the board. Further., the findings agreed with previous studies that found a significantly positive connection between the proportion of female board members and firm financial performance (Đặng et al., 2020; Scholtz & Kieviet, 2018; Marinova et al., 2016).

4.4 Asset Base Effects on Financial Performance of the Small-scale Coffee Wet Mill Processors

4.4.1 Test Results

The results of pairwise correlation had rho values of less than 0.3 (Table 4.8), which is below the threshold of 0.5 (Ombaba & Kosgei, 2017). Hence, there was non-existence of multicollinearity problem among the variables. Similarly, the variance inflation factor (VIF) ranged between 1.02 and 3.77 with a mean of 1.79, well below Đặng et al. (2020) and Wooldridge (2014) recommended a threshold of 10.

Table 4. 8: Pairwise correlation and multicollinearity tests

	NCA	VCB	DR	GR	CE	Firm age	Firm size	VIF
NCA	1.000							1.25
VCB	0.031	1.000						3.77
DR	0.058	0.041	1.000					1.02
GR	0.064	0.106	-0.043	1.000				1.02
CE	-0.048	0.216	-0.028	-0.033	1.000			1.08
Firm age	-0.248	0.299	0.018	0.006	-0.034	1.000		1.33
Firm size	0.185	0.139	-0.052	-0.035	-0.082	0.189	1.000	1.19

4.4.2 Asset Base effects on coffee wet mill processors' financial performance

The OLS regression analysis revealed that asset base variables significantly determined small-scale coffee wet mill processors' financial performance (Table 4.9). The value of coffee bushes (β=2.160; p=0.040) positively predicted the ROA of the small-scale coffee wet mills. This showed that coffee processors which had a large own coffee plantation were likely to perform better financially. This could be attributed to increased economies of scale arising from a large quantity of coffee cherries available for processing. This finding is

consistent with the previous research findings (Oyelade, 2019) and the technological theory of returns to scale.

The results indicated that non-current assets exhibited a negative significant (β=-4.550; p=0.013) influence on small-scale coffee processors' ROA. This means that holding other factors constant, increasing non-current assets by 10% will decrease ROA by 45%. This finding confirms that most coffee processors' have low investment in non-current assets to lower cost of finance in acquisition of the assets. The results are in accordance with the findings of Kouser et al. (2012) and Močnik and Širec (2015), who found a negative link between asset size and firm financial performance.

Table 4. 9: Effects of asset base on return on assets of small-holder coffee processors: Ordinary Least Squares regression

Variables	Coefficient	Robust SE	p-value
NCA	-4.550	1.830	0.013**
VCB	2.160	1.050	0.040**
DR	0.001	0.028	0.963
GR	0.003	0.001	0.047**
CE	2.034	0.742	0.000***
Firm age	0.144	0.151	0.341
Firm size	0.994	0.144	0.000***
Constant	-5.827	1.006	0.000***
Observations	205		

*, **, *** significant at 10%, 5%, and 1%, respectively.

The coefficient of capital expenditure (β =2.034) was positive and significant at 1%, implying that *ceteris paribus*, a 10% increase in capital expenditure will increase ROA by 20%. The results show that increased investment in the maintenance of non-current assets will improve the financial performance of the small-scale coffee wet mills. From the results, the firm's growth rate and size (number of active members) exerted a positive and significant (β=0.003; p=0.047) effect on coffee processors' ROA. The positive effect of wet mill size on performance could be attributed to an increased quantity of coffee available for processing, thus generating more revenue. This finding corroborates with Nguyen et al. (2020) and Mathuva (2010) that firm size was a positive determinant of firm financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1.Introduction

This chapter presents a summary of the study findings, conclusion, and recommendations. Suggestions for future studies are also provided in this chapter.

5.2.Summary of Study Findings

The research sought to empirically analyze the effect of WCM, board diversity and asset base on the financial performance of small-scale coffee wet mills in Embu county from 2014 to 2018. The result showed that working capital management, measured by average payment period and current ratio, negatively affected return on assets. The study ventures further into analyzing the effect of WCM on return to farmers of small-scale coffee wet mills in Embu County, Kenya. The findings indicated that average payment period positively predicts return to farmers.

The study also found that board age, proportion of independent board members, and proportion of female board members positively affected return on assets. It is also observed that firm size and age were positive and significant predictors of ROA. The findings disclosed that board diversity in relation to age, gender, and board independence plays a significant role in improving coffee processors' financial performance. This implies that small-holder coffee processors which diversify their boards in terms of age and increase the proportion of independent board members are likely to have higher return on assets. In addition, the coffee processors with higher proportion of female board members on their boards could have better financial performance.

The study findings further showed that asset base, measured by non-current assets and value of coffee bushes, affected return on assets negatively and positively, respectively. The results indicated that coffee processors which increase the yield from their own coffee and lower investments on non-current assets are likely to have improved financial performance.

5.3.Conclusion

The study examined the impact of working capital management, board diversity, and asset base on small-scale coffee wet mills' financial performance. The present study concludes that an increase in the APP and the current ratio improve wet mills' performance as indicated by an increased return to farmers. The study further concludes that an increase in the proportion of female board members, the proportion of independent board members, and age diversity enhances firm's financial performance. In addition, the study concludes that the high value of coffee bushes and low investment in non-current assets improve wet mills' financial performance.

5.4.Recommendations

The study findings underscore the importance of CR and APP in improving small-scale coffee wet mills' financial performance. Contrary to the negative effect observed between WCM metrics and ROA, the results indicate a positive effect of WCM metrics on RTF. This contradicting finding between ROA and RTF determinants can be explained by the small-scale coffee wet mills' overall objective of increasing return to farmers. While high APP shows a problem of WCM and the firm's inability to pay creditors on time, it is advantageous to the coffee wet mill as it leads to an increase in RTF. Thus, consistent with their overall objective, the coffee wet mills should increase APP. However, they should do this sparingly to maintain the business relationship with the creditors. Similarly, the wet mills should increase CR to increase RTF. Implicitly, the study concludes that working capital management impacts small-scale coffee wet mills' performance. Hence, the management of the wet mills should increase the current ratio and lengthen the average payment period to enhance firm financial performance.

The study recognizes the importance of board diversity on the financial performance of small-holder coffee processors. Policymakers targeting to improve small-holder coffee processors' financial performance should consider diversifying the board based on gender, age, and board independence. Coffee wet mills, on their part, should increase the female board members, independent board members and consider board members of different ages to enhance firm performance.

The study highlights the significant role of asset base in improving coffee processors' financial performance. The small-scale coffee wet mill processors should therefore increase the size of own coffee plantations for sustainable processing and to enhance their financial performance. In addition, the wet mills should lower their investments in non-current assets for better performance.

5.5.Suggestions for Further Research

A longer time span panel study on working capital management, board diversity, and asset base of coffee processors in other parts of Kenya can be studied in the future to provide more insights into the performance effect of working capital management, board diversity, and asset base. In addition, future studies could consider classifying female board members as dependent or non-independent. This data was not available for a large number of small-holder coffee processors in the present study.

REFERENCES

Adams, R. B. (2015). Women on boards: The superheroes of tomorrow? ☆ Worldwide Board Gender Diversity Policies as of 2015. *The Leadership Quarterly*, 27(3), 371-386 https://doi.org/10.1016/j.leaqua.2015.11.001

Adusei, M. (2019). Board gender diversity and the technical efficiency of microfinance institutions: Does size matter? *International Review of Economics and Finance*, 64, 393–411. https://doi.org/10.1016/j.iref.2019.07.008

Agbo, E. I., & Nwankwo, S. N. P. (2018). Impact of Average Payments Period on the Return on Assets of Quoted Insurance Companies in Nigeria. *European Journal of Business and Management*, 10(28), 25-34. http://eprints.gouni.edu.ng/id/eprint/1341

Ageda, E. O. (2015). The effect of board diversity on the financial performance of trading and manufacturing companies listed in the Nairobi Securities Exchange, University of Nairobi repository. http://hdl.handle.net/11295/94622 (accessed on 10th February, 2020)

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. https://doi.org/10.1016/j.jcorpfin.2014.12.008

Andae, G. (2018) March 20. Kenya coffee fetches premium price at New York exchange. Business Daily. https://www.businessdailyafrica.com/markets/marketnews/Kenya-coffee-fetches-premium-price-at-New-York-exchange/3815534-4350232-sak1pn/index.html.

Andrew, R., & Philip, D. (2014). Coffee Production in Kigoma Region, Tanzania: Profitability and Constraints. Tanzania *Journal of Agricultural Sciences*, 13(2), 75-85. https://www.ajol.info/index.php/tjags/article/view/130189

Ararat, M., Aksu, M., & Tansel Cetin, A. (2015). How board diversity affects firm performance in emerging markets: Evidence on channels in controlled firms. Corporate Governance: *An International Review*, 23(2), 83–103. https://doi.org/10.1111/corg.12103

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14(1), 20–39. https://doi.org/10.5465/amr.1989.4278999

Attiah, E. (2019). The Role of Manufacturing and Service Sectors in Economic Growth: An Empirical Study of Developing Countries, *European Research Studies Journal*, 22(1), 118–124. https://www.um.edu.mt/library/oar//handle/123456789/40587

Bagal, M., Belletti, G., Marescotti, A., Onori, G. (2013). Study on the Potential of Marketing of Kenyan Coffee as Geographical Indication. Case Study Related to the Study on the Potential for Marketing Agricultural Products of the ACP Countries Using Geographical Indications and Origin Branding. Retrieved from.

https://ec.europa. eu/agriculture/sites/agriculture/files/external-studies/2013/gis-acp-countries/case- study-coffee-kenya_en.pdf.

Baudron, F., Ndoli, A., Habarurema, I., & Silva, J. V. (2019). How to increase the productivity and profitability of smallholder rainfed wheat in the Eastern African highlands? Northern Rwanda as a case study. *Field Crops Research*, 236, 121–131. https://doi.org/10.1016/j.fcr.2019.03.023

Boisjoly, R. P., Conine, T. E., & McDonald, M. B. (2020). Working capital management: Financial and valuation impacts. *Journal of Business Research*, 108 1–8. https://doi.org/10.1016/j.jbusres.2019.09.025

Bradley, M., Jarrell, G. A., & Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance*, 39(3), 857–878. https://doi.org/10.2307/2327950

Cannella, S. F. B., Hambrick, D. C., Finkelstein, S., & Cannella, A. A. (2009). Strategic leadership: Theory and research on executives, top management teams, and boards. *Strategic Management (Oxford U.* Retrieved from https://oxford.universitypressscholarship. com/view/10.1093/acprof:oso/9780195162073.001.0001/acprof-9780195162073 (accessed on 2nd February, 2021)

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30(6), 749–778. https://doi.org/10.1016/j.jm.2004.06.001

Central Bank of Kenya (2021). https://www.centralbank.go.ke/rates/forex-exchange-rates/. Accessed on 5th April, 2021.

Coad, A., Segarra, A., & Teruel, M. (2012). Like milk or wine: Does firm performance improve with age? Structural Change and Economic Dynamics, 24, 173-189. https://doi.org/10.1016/j.strueco. 2012.07.002

Condliffe, K., Love, C., & Porter, M. (2008). Kenya Coffee: A Cluster Analysis. https://www.isc.hbs.edu/Documents/resources/courses/moc-course-at-harvard/pdf/student-projects/Kenya_Coffee_2008.pdf

Đặng, R., Houanti, L. H., Reddy, K., & Simioni, M. (2020). Does board gender diversity influence firm profitability? A control function approach. Economic Modelling, 90, 168–181. https://doi.org/10.1016/j.econmod.2020.05.009

Deloitte, L. L. P. (2019). Missing pieces report: The 2018 board diversity census of women and minorities on Fortune 500 boards. https://www2.deloitte.com/us/en/pages/center-for-board-effectiveness/articles/missing-pieces-fortune-500-board-diversity-study-2018.html

El-Enbaby, H., J.L. Figueroa, H. El-Didi, and C. Breisinger. 2016. "*The Role of Agriculture and the Agro- Processing Industry for Development in Egypt: An Overview*," Egypt Strategy Support Program Working Paper 03. Cairo: International Food Policy Research Institute (IFPRI).

Enqvist, J., Graham, M., & Nikkinen, J. (2014). 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. https://doi.org/10.1016/j.ribaf.2014.03.005

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301–325. https://doi.org/10.1086/467037

Figueroa, J. L., Mahmoud, M., & Breisinger, C. (2018). *The role of agriculture and agro-processing for development in Jordan* (Vol. 5). Intl Food Policy Res Inst.

Food and Agriculture Organization (2018). FAOSTAT. Retrieved from. www.fao.org http://www.fao.org/faostat/en/#data.

Garanina, T., & Muravyev, A. (2020). The gender composition of corporate boards and firm performance: Evidence from Russia. *Emerging Markets Review*, 100772. https://doi.org/10.1016/j.ememar.2020.100772

Garba, T., & Abubakar, B. A. (2014). Corporate board diversity and financial performance of insurance companies in Nigeria. *Asian Economic and Financial Review*, 4(2), 257–277. https://www.researchgate.net/publication/333293194

Gatimbu, K. K., Ogada, M. J., Budambula, N., & Kariuki, S. (2018). Environmental sustainability and financial performance of the small-scale tea processors in Kenya. *Business Strategy and the Environment*, 27(8), 1765–1771. https://doi.org/10.1002/bse.2243

GoK (2020). 2019 Kenya Population and Housing Census Reports.

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Briarcliff Manor*, NY 10510. https://doi.org/10.5465/amr.2007.24345254

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193–206. https://doi.org/10.5465/amr.1984.4277628

Harjoto, M. A., Laksmana, I., & Yang, Y. wen. (2018). Board diversity and corporate investment oversight. *Journal of Business Research*, 90 40–47. https://doi.org/10.1016 /j.jbusres.2018.04.033

International Coffee Council (2019). Icc 124-7 14. https://www.ico.org/documents/cy2018-19/icc-124-7e-profile-kenya.pdf

Isidro, H., & Sobral, M. (2015). The Effects of Women on Corporate Boards on Firm Value, Financial Performance, and Ethical and Social Compliance. *Journal of Business Ethics*, 132(1), 1–19. https://doi.org/10.1007/s10551

Jaetzold, R., Schmidt, H., Hornetz, B., & Shisanya, C. (2007). Farm management handbook. *Vol II, Part C, East Kenya. Subpart C, 1*.

Jensen, M. C., & Meckling, W. H. (1979). Theory of the firm: Managerial behavior, agency costs, and ownership structure. In Economics social institutions (pp. 163–231). *Springer*. https://doi.org/10.1016/0304-405X(76)90026-X

Karadag, H. (2015). Financial management challenges in small and medium-sized enterprises: A strategic management approach. EMAJ: *Emerging Markets Journal*, 5(1), 26–40. http://emaj.pitt.edu/ojs/index.php/emaj/article/view/67

Kenya Coffee Traders Association (2019). Coffee Data. Nairobi. http://www.kenyacoffee.co.ke/

Kenya National Bureau of Statistics (2017). *Economic Survey*. Nairobi: Government of Kenya.

Kenya National Bureau of Statistics (2019). *Economic Survey*. Nairobi: Government of Kenya. https://www.knbs.or.ke/?p=5567 (accessed on 15th April, 2020)

Kenya National Bureau of Statistics. (2019). 2019 Kenya Population and Housing Census Volume 1: Population by County and Sub-County. 2019 Kenya Population and Housing Census (Vol. I). Retrieved from https://www.knbs.or.ke/?wpdmpro=2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub-county (accessed on 15th April, 2020)

Keynes, J. M., Dequincey, T., Robbins, L. C., & Robbins, Lord. (1936). A review of microeconomic theory, 13–58. https://www.ulapland.fi/loader.aspx?id=17d0b783-c1c9-44d8-a2e2-d4a45e5622d1

Keynes, John M. (1936). The General Theory of Employment, Interest and Money. Harcout Brace and World. Inc, New York.

Kothari, C. R. (2013). Research Methodology: Methods and Techniques. *New Age International (P) Limited, Publishers*. Retrieved from https://books.google.co.ke/books?id=q-rUoAEACAAJ (accessed on 15th April, 2020)

Kroes, J. R., & Manikas, A. S. (2014). Cash flow management and manufacturing firm financial performance: A longitudinal perspective. *International Journal of Production Economics*, 148, 37–50. https://doi.org/10.1016/j.ijpe.2013.11.008

Lazaridis, I., & Tryfonidis, D. (2006). Relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of Financial Management and Analysis*, 19(1), 26-35.

Lyngstadaas, H., & Berg, T. (2016). Working capital management: evidence from Norway. *International Journal of Managerial Finance*, 12(3), 295–313. https://doi.org/10.1108/IJMF-01-2016-0012

Maina, J. J., Mutwiwa, U. N., Kituu, G. M., & Githiru, M. (2015). Evaluation of Greenhouse Gas Emissions along the Small-Holder Coffee Supply Chain in Kenya. Open Access *Journal of Sustainable Research in Engineering*, 2(4), 111–120. Retrieved from http://sri.jkuat.ac.ke/ojs/index.php/sri/article/view/359 (accessed on 20th May, 2020)

Marinova, J., Plantenga, J., & Remery, C. (2016). Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms. *The International Journal of Human Resource Management*, 27(15), 1777–1790. https://doi.org/10.1080/09585192.2015.1079229

Mariyono, J. (2018). Profitability and determinants of smallholder commercial vegetable production. *International Journal of Vegetable Science*, 24(3), 274–288. https://doi.org/10.1080/19315260.2017.1413698

MoALF (2016). Annual Report. https://www.kalro.org/sites/default/files/Draft-2016-2017-Annual-Report-11-01-2020.pdf

MoALF (2018). Annual Report

Močnik, D. (2001). Asset specificity and a firm's borrowing ability: an empirical analysis of manufacturing firms. *Journal of Economic Behavior & Organization*, 45(1), 69–81. https://doi.org/10.1016/S0167-2681(00)00166-9

Močnik, D., & Širec, K. (2015). Determinants of a fast-growing firm's profits: Empirical evidence for Slovenia. Analele Stiintifice Ale Universitatii "Al. I. Cuza" Din Iasi. Stiinte Economice/Scientific Annals of the" Al. I. Cuza", 62(1), 37-54. http://saaic.feaa. uaic.ro/index.php/saaic/article/view/147

Moro, A., & Fink, M. (2013). Loan managers' trust and credit access for SMEs. *Journal of Banking and Finance*, 37(3), 927–936. https://doi.org/10.1016/j.jbankfin.2012.10.023

Musuya, D. N. (2014). Corporate governance practices and performance of coffee farmer's co-operative societies in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1 (13), 148-161. http://ijsse.org/articles/ijsse_v1_i13_148_161.pdf

Musuya, David N. (2014). Corporate Governance Practices and Performance of Coffee Farmer's Cooperative Socieities in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1(13), 1–13. http://ijsse.org/articles/ijsse_v1_i13_148_161.pdf

Muthuva, D. M. (2010). The influence of working capital management components on corporate profitability; A survey of Kenyan listed firms. Research Journal of Business Management, 4, 1-11.

Mwangi, L. W., Makau, M. S., & Kosimbei, G. (2014). Relationship between capital structure and performance of non-financial companies listed in the Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, 1(2), 72-90. http://commercialaw.ku.ac.ke/schools/business/images/stories/research/relationship_between_capital_structure_and_performance.pdf

Mwangi, L. W., Makau, Stephen, M., & Kosimbei, G. (2014). Effects_of_Capital_Working_Management.Pdf. Euoropean Journal of Business and Management, 6(11), 195–205. https://www.iiste.org/Journals/index.php/EJBM/article/ view/12753

Mwangi, R. W. (2017). Effect of Final Processing Practices Carried out by the Coffee Cooperative Societies on the Sustainability of the *European Journal of Business and Strategic Management*, 2(8), 60–75. Retrieved from https://www.iprjb.org/journals/index. php/EJBSM/article/view/531

Mwangi, R. W., Mwenda, L. K. M., Wachira, A. W., & Mburu, D. K. (2017). Effect of Primary Processing Practices Carried out by the Coffee Cooperative Societies on the Sustainability of the Coffee Industry in Kenya. http://41.89.227.156:8080/xmlui/handle/123456789/670

Mwaniki, G., & Omagwa, J. (2017). Asset Structure and Financial Performance: A Case of Firms Quoted Under Commercial and Services Sector at the Nairobi Securities Exchange, Kenya, 8(4), 192–200. https://ir-library.ku.ac.ke/handle/123456789/15455

Ngeywo, J., Basweti, E., & Shitandi, A. (2015). Influence of Gender, Age, Marital Status and Farm Size on Coffee Production: A Case of Kisii County, Kenya. *Asian Journal of Agricultural Extension, Economics & Sociology*, 5(3), 117–125. 10.9734/AJAEES/2015/15702

Nguyen, A. H., Pham, H. T., & Nguyen, H. T. (2020). Impact of working capital management on firm's profitability: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, 7(3), 115–125. https://doi.org/10.13106/jafeb.2020.vol7.no3.115

Ombaba, K. M. B., & Kosgei, D. (2017). Board Composition and Financial Distress of Listed Firms in Kenya. An Empirical Analysis. *Journal of Finance and Investment Analysis*, 6(4), 75–93. Retrieved from http://www.scienpress.com/Upload/JFIA%2FVol%206_4_4.pdf

Oyelade, A. (2019). The impact of firm size on firms' performance in Nigeria: A comparative study of selected firms in the building industry. https://doi.org/10.18488/journal.107.2019.71.1.9

Ozdemir, O. (2020). Board diversity and firm performance in the U.S. tourism sector: The effect of institutional ownership. *International Journal of Hospitality Management*, 91102693. https://doi.org/10.1016/j.ijhm.2020.102693

Panda, A. K., Nanda, S., & Panda, P. (2021). Working Capital Management, Macroeconomic Impacts, and Firm Profitability: Evidence from Indian SMEs. Business Perspectives and Research, 9(1), 144–158. https://doi.org/10.1177/2278533720923513

Pandey, I. M. (2010). Financial management 10th edition. *Vikas Publishing Housing pvt ltd*.

Pervan, M., & Višić, J. (2012). Influence of firm size on its business success. Croatian Operational Research Review, 3(1), 213–223. Retrieved from https://hrcak.srce.hr/index.php? show=clanak&id_clanak_jezik=142467 (accessed on 4th August, 2020)

Pfeffer, J., & Gerald, R. (1978). The external control of organizations: A resource dependence perspective. *New York: Harper & Row*. Retrieved from https://www.gsb.stanford.edu/faculty-research/books/external-control-organizations-resource-dependence-perspective (Accessed on 16th December, 2020)

Ponsian, N., Chrispina, K., Tago, G., & Mkiibi, H. (2014). The effect of working capital management on profitability. *International Journal of Economics, Finance and Management Sciences*, 2(6), 347–355. https://doi.org/10.11648/j.ijefm.20140206.17

Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal*, 58(5), 1546–1571. https://doi.org/10.5465/amj.2013.0319

Principles, O., & Governance, C. (2004). OECD Principles of Corporate Governance. Retrieved from https://www.oecd.org/corporate/ca/corporategovernanceprinciples/31557724.pdf (accessed on 4th August, 2020)

Puja, C. (2018). Economic analysis of agro processing industries in himachal pradesh. https://shodhgangotri.inflibnet.ac.in/bitstream/123456789/4624/1/final%20synopsis_puja%20chadha%20new.pdf

Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does Board Gender Diversity Influence Financial Performance? Evidence from Spain. *Journal of Business Ethics*, 141(2), 337–350. https://doi.org/10.1007/s10551-015-2735-9

Republic of Kenya (2019) *Ministry of Agriculture, Livestock and Fisheries: Capacity Building Strategy for Agriculture Sector*

Romano, G., & Guerrini, A. (2014). The effects of ownership, board size and board composition on the performance of Italian water utilities. Utilities Policy, 31, 18–28. https://doi.org/10.1016/j.jup.2014.06.002

Samiloglu, F., & Demirgunes, K. (2008). The effect of working capital management on firm profitability: Evidence from Turkey. *The International Journal of Applied*

Economics and Finance, 2(1), 44–50. https://scialert.net/abstract/?doi=ijaef.2008.44.50

Schmidt, M. (2014). Business Case Essentials.: Solution Matrix Limited. Ebook.

Scholtz, H., & Kieviet, S. (2018). The Influence of Board Diversity on Company Performance Of South African Companies. *Journal of African Business*, 19(1), 105–123. https://doi.org/10.1080/15228916.2017.1356065

Şener, İ., & Karaye, A. B. (2014). Board Composition and Gender Diversity: Comparison of Turkish and Nigerian Listed Companies. *Procedia - Social and Behavioral Sciences*, 150, 1002–1011. https://doi.org/10.1016/j.sbspro.2014.09.112

Shanguhyia, M. S. (2015). Population, tradition, and environmental control in colonial Kenya (Vol. 68). Boydell & Brewer. Retrieved from https://www.amazon.com/Population-Tradition-Environmental-Colonial-Rochester/dp/1580465390 (accessed on 20th June, 2020)

Sharma, A. K., & Kumar, S. (2011). Effect of working capital management on firm profitability: Empirical evidence from India. *Global Business Review*, 12(1), 159–173. https://doi.org/10.1177/097215091001200110

Sign, L. (2018). The potential of manufacturing and industrialization in Africa Trends, opportunities, and strategies. Retrieved from https://www.africaportal.org/publications/ potential-manufacturing-and-industrialization-africa-trends-opportunities-and-strategies/ (accessed on 26th June, 2020).

Singhania, M., Sharma, N., & Yagnesh Rohit, J. (2014). Working capital management and profitability: evidence from Indian manufacturing companies. Decision, 41(3), 313–326. https://doi.org/10.1007/s40622-014-0043-3

Song, H. J., Yoon, Y. N., & Kang, K. H. (2020). The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization. International *Journal of Hospitality Management*, 86, 102461. https://doi.org/ 10.1016/j.ijhm.2020.102461

Terjesen, S., Couto, E. B., & Francisco, P. M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management & Governance*, 20(3), 447–483. https://doi.org/10.1007/s10997-014-9307-8

Thoa, T. T. K., & Nguyen Uyen, T. U. (2014). Relationship Between Working Capital Management and Profitability - Empirical Evidence from Vietnamese Listed Firms. *Proceedings of the 1st International Conference on Finance and Economics* 2014, 731–740.

Tingler, S. (2015). The Modes of Firm Growth and Their Effects on Firm Performance – An Empirical Analysis of the Chemical Industry. *Faculty of Economics / Schumpeter School of Business and Economics* »Dissertations http://nbn-resolving.org/urn:nbn:de:hbz:468-20160419-114304-1

Tornyeva, K. (2012). Corporate Governance and Firm Performance: Evidence from the Insurance Sector of Ghana. *European Journal of Business and Management* 4(13), 95–113. https://core.ac.uk/download/pdf/234624331.pdf

Trivedi, S. M. (2010). An analysis of financial performance of state road transport corporation in Gujarat. Saurashtra University. Retrieved from https://core.ac.uk/download/ pdf/11821456.pdf (accessed on 20th June 2020)

Tu, T. T. K., & Nguyen, U. T. U. (2014). Relationship between working capital management and profitability–empirical evidence from Vietnamese listed firms. In *The International Conference on Finance and Economics, ICFE*.

Tukur, G., & Balkisu, A. A. (2014). Corporate board diversity and financial performance of insurance companies in Nigeria: an application of panel data approach, 4(2), 257-277.

Turner, J. C., & Oakes, P. J. (1986). The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. *British Journal of Social Psychology*, 25(3), 237–252. https://doi.org/10.1111/j.2044-8309.1986.tb00732.x

United Nations Industrial Development Organization (2016). Inclusive and Sustainable Industrial Development Working Paper Series The Importance of Manufacturing in Economic Development: Retrieved from https://www.unido.org/sites/default/files/2017-02/the_importance_of_manufacturing_in_economic_development_0.pdf (accessed on 20th April, 2020)

Vafaei, A., Ahmed, K., & Mather, P. (2011). Board Diversity and Financial Performance in the Top 500 Australian Firms, 25(4) 413–427. https://doi.org/10.1111/auar.12068

Van Rijsbergen, B., Elbers, W., Ruben, R., & Njuguna, S. N. (2016). The ambivalent impact of coffee certification on farmers' welfare: a matched panel approach for cooperatives in Central Kenya. *World Development*, 77, 277–292. https://doi.org/10.1016/j.worlddev.2015.08.021

Wahogo, E. (2014). The Relationship Between Working Capital Management and Financial Performance of Firms in the Agricultural Sector: The Case of Firms in the Coffee Industry in Kenya. *Journal of International Development*, 2(3), 35–40. http://hdl.handle.net/ 11295/75559

Wairegi, L. W. I., Bennett, M., Nziguheba, G., Mawanda, A., Rios, C. de los, Ampaire, E., Jassogne, L., Pali, P., Mukasa, D., & van Asten, P. J. A. (2018). Sustainably improving

Kenya's coffee production needs more participation of younger farmers with diversified income. *Journal of Rural Studies*, 63, 190–199. https://doi.org/10.1016/j.jrurstud.2018.07.009

Wooldridge, J. M. (2014). Introduction to Econometrics: *Europe, Middle East and Africa Edition. Cengage Learning.* Retrieved from https://www.worldcat.org/title/introduction-to-econometrics-europe-middle-east-and-africa-edition/oclc/871276063 (Accessed on 17th April, 2020)

World Bank (2019). Annual Report 2019 Organizational Information and Lending Data. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/32333/211470app.pdf (accessed on 17th April, 2020)

Xu, Z. S., & Xu, N. Z. (2013). The research of the optimal allocation of assets structure and business performance. *Research Journal of Economics, Business and ICT*, 8(1), 19-23. http://dx.doi.org/10.1111/j.1540%C2%AD6261.1991.tb03753.x

APPENDICES

APPENDIX 1: INTRODUCTORY LETTER

Dancan Othuon
University of Embu
P.O.BOX 6-60100
EMBU
November, 2020

Dear Sir/Madam

REF: DATA COLLECTION

I am a student at the University of Embu pursuing a degree of Master of Business Administration (Finance). I am carrying out a research on *Working Capital Management, Asset base, Board Diversity, and Financial Performance of Coffee Wet Mills in Embu County, Kenya*. I am requesting for your participation in this research by providing the information called for in the questionnaire attached herein.

The requested data are intended to obtain information on the working capital management, asset base, board diversity, and financial performance of the coffee wet mill. The information provided will strictly be kept confidential and will be combined with information from other coffee wet mills for use in this academic research only. Attached herein is the research permit from NACOSTI.

Yours faithfully,

Dancan Othuon
Researcher

APPENDIX 2: COFFEE WET MILLS QUESTIONNAIRE

This questionnaire is designed to seek for your responses on working capital management, board diversity and asset base of coffee wet mills. This is an academic research and therefore high level of confidentiality will be observed. None of your personal information will appear in the findings of the study. Thank you.

A: BACKGROUND INFORMATION

Constituency	
Co-op Society	
Coffee wet mill	
Title/designation of the respondent	
Questionnaire Number	

B: FACTORY INFORMATION (For factory managers or a member of management)

Q	QUESTION		
1.	How long has the factory been in operation (years)?		
2.	What was the total number of employees of the factory in each year?	**Y** / **No. of Employees**: 2014; 2015; 2016; 2017; 2018	

C: COFFEE WET MILL ASSET BASE

3.	What was the total number of coffee bushes owned by the coffee wet mill each year?	**Y** / **No. of Coffee Bushes**: 2014; 2015; 2016; 2017; 2018	

D: BOARD DIVERSITY

4.	What was the total number of directors for each year?		

Y	No. of Directors
2014	
2015	
2016	
2017	
2018	

5.	What was the lowest and highest age of the directors in each year?		

Y	Low	High	Average
2014			
2015			
2016			
2017			
2018			

6.	What was the gender proportion of the board of directors each year?		

Y	Male	Female	Total
2014			
2015			
2016			
2017			
2018			

APPENDIX 3: DATA COLLECTION SHEET

<table>
<tr><th>S/N</th><th>ITEM</th><th>YEAR/AMOUNT</th></tr>
<tr><td>1.</td><td>Accounts payables for each year</td><td>
<table>
<tr><th>Y</th><th>Payables (Ksh)</th></tr>
<tr><td>2014</td><td></td></tr>
<tr><td>2015</td><td></td></tr>
<tr><td>2016</td><td></td></tr>
<tr><td>2017</td><td></td></tr>
<tr><td>2018</td><td></td></tr>
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</td></tr>
<tr><td>2.</td><td>Gross income for each year</td><td>
<table>
<tr><th>Y</th><th>Gross Income (Ksh)</th></tr>
<tr><td>2014</td><td></td></tr>
<tr><td>2015</td><td></td></tr>
<tr><td>2016</td><td></td></tr>
<tr><td>2017</td><td></td></tr>
<tr><td>2018</td><td></td></tr>
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</td></tr>
<tr><td>3.</td><td>Total current assets and non-current assets for each year</td><td>
<table>
<tr><th>Y</th><th>CA</th><th>NCA</th><th>TA</th></tr>
<tr><td>2014</td><td></td><td></td><td></td></tr>
<tr><td>2015</td><td></td><td></td><td></td></tr>
<tr><td>2016</td><td></td><td></td><td></td></tr>
<tr><td>2017</td><td></td><td></td><td></td></tr>
<tr><td>2018</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>Total current liabilities and non-current liabilities for each year</td><td>
<table>
<tr><th>Y</th><th>CL</th><th>NCL</th><th>TL</th></tr>
<tr><td>2014</td><td></td><td></td><td></td></tr>
<tr><td>2015</td><td></td><td></td><td></td></tr>
<tr><td>2016</td><td></td><td></td><td></td></tr>
<tr><td>2017</td><td></td><td></td><td></td></tr>
<tr><td>2018</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>5.</td><td>Total cost of input provided to farmers in each year</td><td>
<table>
<tr><th>Year</th><th>Ksh</th></tr>
<tr><td>2014</td><td></td></tr>
<tr><td>2015</td><td></td></tr>
<tr><td>2016</td><td></td></tr>
<tr><td>2017</td><td></td></tr>
<tr><td>2018</td><td></td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Total remuneration to the board of directors in each year</td><td>
<table>
<tr><th>Year</th><th>Ksh</th></tr>
<tr><td>2014</td><td></td></tr>
<tr><td>2015</td><td></td></tr>
<tr><td>2016</td><td></td></tr>
<tr><td>2017</td><td></td></tr>
<tr><td>2018</td><td></td></tr>
</table>
</td></tr>
</table>

7.	Total operational cost for each year	**Year** / **Operational cost (Ksh)** 2014 2015 2016 2017 2018	
8.	Payment rate per kg of cherry in each year	**Year** / **Kshs/kg** 2014 2015 2016 2017 2018	
9.	Net profit each year	**Year** / **Net Profit (Ksh)** 2014 2015 2016 2017 2018	

APPENDIX 4: LIST OF COFFEE WET MILLS IN EMBU COUNTY

S/N	Coffee Wet Mill
1.	Ena Coffee Factory
2.	Gachagori Coffee Factory
3.	Gachungu Coffee Factory
4.	Gakui Coffee Factory
5.	Gakundu Coffee Factory
6.	Gakwegori Coffee Factory
7.	Gatondo Coffee Factory
8.	Gatunduri Coffee Factory
9.	Gicherori Coffee Factory
10.	Gichugu Coffee Factory
11.	Gikirima Coffee Factory
12.	Gikuuri Coffee Factory
13.	Gituara Coffee Factory
14.	Ivinge Coffee Factory
15.	Ivurori Coffee Factory
16.	Kamurai Coffee Factory
17.	Kamviu Coffee Factory
18.	Kangondu Coffee Factory
19.	Kangunu Coffee Factory
20.	Kanja Coffee Factory
21.	Kanjugu Coffee Factory
22.	Karuriri Coffee Factory
23.	Kathakwa Coffee Factory
24.	Kathande Coffee Factory
25.	Kathangariri Coffee Factory
26.	Kathima Coffee Factory
27.	Kavutiri Coffee Factory
28.	Kevote Coffee Factory

29.	Kianguchu Coffee Factory
30.	Kianjuki Coffee Factory
31.	Kianyangi Coffee Factory
32.	Kigaa Coffee Factory
33.	Kihumbu Coffee Factory
34.	Kiini Coffee Factory
35.	Kirimiri Coffee Factory
36.	Kirindiri Coffee Factory
37.	Kithegi Coffee Factory
38.	Kithimu Coffee Factory
39.	Kithungururu Coffee Factory
40.	Kiungu Coffee Factory
41.	Kiviuvi Coffee Factory
42.	Mbuinjeru Coffee Factory
43.	Minai Coffee Factory
44.	Mirundi Coffee Factory
45.	Mururiri Coffee Factory
46.	Mwiria Coffee Factory
47.	Ndunda Coffee Factory
48.	Ndunduri Coffee Factory
49.	Nduuri Coffee Factory
50.	New Kapingazi Coffee Factory
51.	Ngaindethia Coffee Factory
52.	Ngerwe Coffee Factory
53.	Ngurueri Coffee Factory
54.	Njauri Coffee Factory
55.	Njeruri Coffee Factory
56.	Rianjagi Coffee Factory