

**EFFECT OF FINANCIAL DECISIONS ON FINANCIAL  
PERFORMANCE OF MICRO AND SMALL ENTERPRISES IN  
DAIRY INDUSTRY IN MURANG'A COUNTY, KENYA**

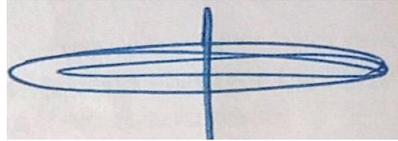
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D63/39945/2021**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENT FOR AWARD OF A DEGREE FOR MASTER OF  
SCIENCE IN FINANCE IN FACULTY OF BUSINESS AND  
MANAGEMENT SCIENCES, OF THE UNIVERSITY OF NAIROBI**

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## DECLARATION

This is my original research project that has never been offered to a university for review by academics.



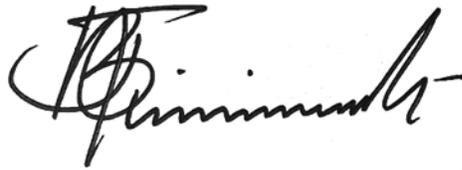
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## **DEDICATION**

This work is dedicated to my wife, parents and friends who provided a support system during the entire period of writing this research project. Thank you all and God bless you.

## **ABSTRACT**

The objective of this research project was to determine the effect of financial decisions on financial performance of MSE's in the dairy industry in Murang'a County, Kenya. The financial decisions entail financing decisions, investment decisions and adoption of technology in dairy farm operations. Financing decisions includes business firms making decisions on choice of funds such as debt or equity capital. Investment decisions includes making decisions on fixed assets such as dairy farm machinery and finally, adoption of technology entails use modern machines that improve efficiency and effectiveness of dairy farm operations such as milking thus enhancing financial performance. The research project deployed descriptive research design because it is a useful approach of acquiring and evaluating data so that research topics under discussion are addressed. The descriptive study design describes the state of circumstances as they are without affecting the outcome (Khan, 2008). A sample size of 84 MSE's was chosen using simple random sampling procedure from a population of 280 MSE's in dairy industry in Murang'a County. Financial performance is the dependent variable measured by net profit margin while independent variable is financial decisions that entails financing decisions, investment decisions and adoption of technology. The research project discovered that a single unit enhancement in financing decisions would consequently lead to an enhancement by 0.244 unit in financial performance of MSE's in dairy industry. In addition, a single unit enhancement in investment decisions would result to an enhancement of 0.479 unit in financial performance of MSE's in dairy industry in Murang'a County. Moreover, a single unit enhancement on adoption of new technology would lead to a decline by 0.391 unit in business financial performance of MSE's in dairy industry. This is because most MSE's in dairy industry in Murang'a County have not embraced use of technology because of high initial costs and lack of knowledge of available technologies in the market. Finally, 73.9% of financial performance of MSE's in the dairy industry in Murang'a County can be explained by financing decisions, investment decisions and adoption of technology.

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## **ABBREVIATIONS**

<b>ARMS</b>	Agricultural Resource Management Survey dairy version
<b>BCDP</b>	Big Climate Data Pipeline
<b>CIDP</b>	Murang'a County Integrated Development Plan
<b>DOI</b>	Diffusion of Innovation Theory
<b>ERS</b>	Economic Research Service
<b>GDP</b>	Gross Domestic Product
<b>IT</b>	Information Technology
<b>KAM</b>	Kenya Association of Manufacturers
<b>KDB</b>	Kenya Dairy Board
<b>MSE's</b>	Micro and Small Enterprises
<b>NASS</b>	National Agricultural Statistics Service
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>ROI</b>	Return on Investment
<b>SPSS</b>	Statistical Package for Social Sciences
<b>URL</b>	Uniform Resource Locator
<b>USA</b>	United States of America
<b>USDA</b>	United States Department of Agriculture

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

The micro and small enterprises (MSE's) are the main economic drivers in both developed and developing countries. MSE's help in increasing output in an economy, creation of job opportunities, enhancing creativity and innovation and stimulate entrepreneurial culture in a country. Agwu & Emeti (2013) demonstrated MSE's aid to economic growth by increasing the national yield, generating employment opportunities, and decreasing income inequality and poverty and are regarded as the driver for economic growth in growing countries. According to Mweresa & Muturi (2018) the MSE's accounts for 60-70 percent of employment in majority of developed and developing countries and several countries in Africa have given preference their funding to MSE's. The financial decisions in MSE's is the independent variable and the financial performance is the dependent variable. The financial decisions include financing decisions and investment decisions that have critical impact on financial performance of MSE's in the dairy sector in Murang'a County. Financing decisions refers to the decisions made by a manager in an MSE's regarding the ratio of borrowed funds to equity capital in capital structure while investment decisions are decisions made by a manager of MSE's regarding investments in plant, machinery, equipment and technology. Financial performance is elaborated as the ability of MSE's to increase and sustain high sales by increasing dairy farms output, reducing operational costs and being efficient and effective in dairy farm operations such as feeding and milking.

This study was based on pecking order theory, behavioral finance theory, Innovation theory of profits and diffusion of innovation theory. The Pecking order theory states that managers of business enterprises usually follow a certain hierarchy in selecting sources of funding. The managers usually prefer internal funds such as retained earnings as opposed to external funding such as equity and debt capital. Behavioral finance theory illustrates how investors make choices based on psychological concerns, emotional responses and mental shortcuts. Innovation theory of profits shows how entrepreneurs earn economic profits from effectively using innovation in entrepreneurship. The diffusion of innovation theory helps us to understand how an idea or innovation spreads in a population or in an organization.

The MSE's in dairy sector have a challenging task of how to improve financial performance. The MSE's in dairy sector have to make appropriate financing and investment decisions. Also they must adopt appropriate technology. Financing decisions includes decisions on affordable source of finance, investment decisions include decisions on expansion of dairy herd, purchase of dairy farm machinery and diversification strategies and adoption of new technology includes use of animal breeding technologies, modern milking machines and animal nutrition (concentrates and fodder mixing) that enable dairy farmers to save on time, reduce labor costs and reduce overall production costs hence improve their financial performance. This would in turn lead to improved GDP, increase employment opportunities and stimulate entrepreneurship. In Kenya, Kinyua (2014) noted that MSE's contribute a critical role regarding innovation, development of entrepreneurship culture and job growth. According to Matias & Serrasqueiro, (2017) national plans for development such as Vision 2030 in Kenya have put a distinctive emphasis on the role of MSE's in generating job opportunities.

### **1.1.1 Financial Decisions**

Financing decisions refers to all choices involved with enhancement of capital, which equates into the efficient engagement of borrowed money and equity capital, the external and internal sources of funding the operations of a company Tipape (2019). Financing decisions is expounded as company's financial plan that explains a mix of financial instruments to finance an organization, this could take the form of; internal equity, external equity: debt vs. equity (Grinblatt and Titman, 2002). Investment decisions are those that will increase the business's wealth by generating the highest returns on its investments. (Modigliani and Miller, 1958). As per Zvi, Alex and Allan (2004) investment decisions can be defined as the current dedication of money or other assets in expectation of garnering benefits in future. Investment decisions are described as choices connected with establishing the appropriate portfolio of assets in a corporation Tipape (2019). Financing decisions refers to decisions made by business firms to access affordable source of finance whether internal or external while investment decisions refer to decisions made by business firms in regard to purchase of fixed assets, machinery and plant for future economic benefit.

Farmers make financing decisions on the source of finance either internal source such as retained earnings and external source such as equity and debt capital. Farmers make investment decisions on purchase of dairy farm machinery, diversification strategies, expansion decisions on dairy herd

sizes and adoption of new technology. The farmers make decisions they believe will help reduce production costs and increase financial performance of dairy farms. Financing and investment decisions have a noteworthy influence on business performance of MSE's in the dairy sector. Thi-Doana (2020) examined whether financing decisions had impact on company's financial performance and found that investment decisions have a significant effect on financial performance of MSE's in the dairy industry. Koroti (2014) examined the impact of investing decisions have on profitability of sugar manufacturing companies and discovered there is a positive relationship between investment decisions and financial performance of sugar companies.

### **1.1.2 Financial Performance**

Financial performance is a measurement of a company's overall financial state over a specific time period. It is also sometimes used for comparison purposes between business enterprises in the same sector or to aggregate industries or sectors (Padachi, 2006). To assess the effectiveness and overall performance in relation to its financial records and reports, Amalendu (2016) hypothesizes that measuring financial achievement entails evaluating financial aspects. Financial performance according to Makau, VanLeeuwen, and Wichtel (2018) indicates the firm's capacity to manage strategies and noteworthy choices to meet its goals and objectives and generate high returns. According to Kwaning, Awuah, and Mahama (2015), financial performance is the method by which an institution gauges the outcomes in monetary terms.

The MSE's in dairy sector struggle with how to improve their financial performance. Any commercial enterprise's main objective is typically to perform financially. The MSE's in dairy sector must adopt technology to ensure efficiency and effectiveness in dairy farm operations such as milking that saves time, reduce labor costs and reducing the overall production costs, which leads to improved financial performance. Adoption of technology include the following areas; animal breeding technologies, use of milking machines, information management systems and fodder and concentrates management.

The financial performance of MSE's can be assessed using several methods, including through the use of ratio analysis. ROA and ROE are important financial statistics that are calculated to evaluate a company's performance (Harelimana, 2017). According to Ceylan, Emre, and Asl (2018), a company's financial performance can be evaluated by looking at how its size (total assets), earnings capability (return on assets, earnings per share, and return on equity) and market-based proxies

have grown (market price per share). According to Mwangi (2016), measuring financial performance entails taking financial metrics of the results of a company's plans and other actions. Mumo (2017) claims that return on equity, profits, sales, and return on investment are other ways to gauge business performance. Monetary performance is expounded as the dimension of commercial enterprise outcomes in monetary terms and the expansion of a business organization's size (total assets) over a given time period.

### **1.1.3 Financial decisions and financial performance of MSE's in Dairy industry.**

The financial success of MSE's in dairy industry is noteworthy influenced by financial decisions. Financial decisions include financing and investment decisions both of which directly affect the financial performance of MSE's in the dairy industry in Murang'a County. Investment decisions deal with the expansion of the dairy herd, the purchase of dairy farm equipment, diversification strategies and adoption of new technology in dairy farm operations that ensure efficiency and effectiveness in dairy farm operations, save time and lower overall production costs thus improving financial performance of MSE's in the dairy industry. Financing decisions deal with choosing the best source of financing.

The earning performance of enterprises is predisposed by financial and investment decisions, according to earlier studies. Financial performance is correlated with better financing selections Heshmati and Loof (2008). Business firms that make the right financing decisions can have the ideal balance of debt and equity capital, which increases the likelihood that their financial performance will be better. Ayaydin and Kraaslan (2014) discovered a favorable association between investment choices and business performance. Swedish enterprises were the subjects of Loof and Heshmati's (2008) investigation on the connection between investment choices and business performance. The outcomes indicated an optimistic link between investment decisions and monetary performance. MSE's in dairy sector make investment decisions that involve purchase of dairy farm equipment, use of animal breeding technologies, use of milking machines and other technological advancements that allow such dairy farms to lower production costs and thus improve financial performance. The dynamics of investment and financial performance examined by Jacoby and Treibich (2013) and the study's findings indicated a favorable association between investment decisions and financial performance.

#### **1.1.4 MSE's in dairy sector in Murang'a County, Kenya.**

The Kenyan economy heavily depends on the agricultural sector. The rural economy and global economic growth depend on the agricultural industry (Mwashuiya & Mbamba, 2020). Most households in Murang'a County engage in dairy farming, which has a strong potential to raise income levels for households if productivity is raised. In Kenya's economy, the importance of the agriculture industry cannot be understated. 51 percent of Kenya's GDP is generated by the agriculture sector (World Bank, 2018). Additionally, 40% of the population works in agriculture, while 70% of rural residents depend on it for their livelihood (Mwewa, 2013). In Murang'a County, the dairy sector is characterized by micro and small dairy farms with few employees and family members helping out. Most dairy farmers often sell raw milk to cooperatives societies or milk processing companies and purchase hay, commercial animal feeds, and fodder from agro veterinarians close by.

Dairy farms' production is affected by a variety of factors, including investment decisions, financing decisions and technology adoption. Investment decisions are made by farmers when they decide to purchase new farm equipment, replace old equipment, build farm buildings like milking parlors, and increase the size of their dairy herd. As a result, farmers can increase productivity and efficiency in dairy farm activities including milking, feeding, and watering cows which lowers overall production costs per unit and boosts profitability. Koroti (2014) looked at how financing and investing decisions affected the profitability of sugar manufacturing enterprises. The verdicts specified that investing decisions took a positive sway on financial achievement in Kenya. Farmers choose to finance their operations either internally (using retained profits) or externally, using bank loans and SACCO's loans. Koskei (2019) found that debt ratio and debt to equity ratio noteworthy impacted the financial performance of six private sugar firms in Kenya. The amount of capital available to a dairy farmer has a direct impact on his or her ability to expand dairy herd size, invest in dairy farm machinery and build modern farm facilities (such as modern milk parlors and modern cow shelters).

The use of advanced milking equipment and animal breeding technologies is expected to improve breeds of cows and therefore lead to improved milk output and thus better financial performance. The use of technology improves productivity, saves time and lowers overall production costs, which boosts dairy farms' long-term financial success. El-Osta and Morehart (2013) investigated

the association of use of technology and financial success of dairy farms in United States of America (USA). The findings revealed a noteworthy impact of technology adoption on small-scale dairy farmers' milk production, which in turn increased sales revenues and dairy farms' profitability. The research also found that using technology helps dairy farms perform financially by lowering labor costs and other production costs.

## **1.2 Research Problem**

Due to rising production costs, MSE's in Kenya's dairy sector have had to deal with a number of difficulties, including high labor costs, a shortage of animal fodder and a fall in prices of raw milk. According to KDB (2019), the prices of raw milk dropped from Ksh 39 to Ksh 21 representing a 46% decline. Particularly, MSE's in Murang'a County are dealing with similar issues, which affects the dairy farms' financial performance. The majority of MSE's in dairy sector are being forced out of business by the high production costs, thus county and national governments must act quickly to support dairy farmers in Murang'a and Kenya as a whole.

The number of MSE's in dairy sector has decreased and some dairy farmers are shrinking their herds as a result of high production costs which might diminish job creation, national output and innovation if immediate action is not taken. The MSE's in dairy sector will benefit if advantageous policies are utilized to lower production costs such as the prices of commercial animal feeds, which would increase the financial performance of dairy farms and result in creation of jobs, higher national output and improved innovation.

The results of international studies on the connections between financial decisions made by MSE's in dairy sector and their financial performance have been conflicting. While some studies have shown positive relationships, others have found negative ones. According to Xu, Ou, and Chan (2016), debt financing noteworthy harms the operational performance of farming enterprises listed on the Chinese stock market. Locally conducted studies reveal methodological, conceptual, and contextual limitations. The disparities in ideas utilized in local research are what cause the conceptual gaps. For instance, Koskei (2019) conducted research to ascertain connection between six private sugar companies' capital structures and financial performance; Njiru and Mwikamba (2020) looked at the factors affecting smallholder dairy farms' accessibility to agricultural credit and its effects on milk production and financial performance; Gitonga (2014) evaluated the application of modern technologies in dairy farming among small scale dairy farmers and their

profitability in Githunguri sub-county in Kiambu County. Additionally, there are methodological gaps due to the different data and data analysis techniques utilized in local studies. The focus of the current research project, however, is on how financial decisions affect MSE's operating in dairy sector in Murang'a County. Koroti (2014) based his study on four sugar manufacturing companies; Njiru and Mwikamba (2020) based their research on how small-scale dairy farmers can access agricultural credit; Gitonga (2014) based his research on how small-scale dairy farmers adopt modern dairy farming technologies; and the current research proposal is based on MSE's in dairy industry. What connection occurs amid financial decisions and financial performance of MSE's in Murang'a County's dairy industry?

### **1.3 Research Objective**

To evaluate the impact of financial decisions on financial performance of micro and small businesses (MSE's) in Murang'a county's dairy industry.

### **1.4 Value of the study**

The county administration of Murang'a, dairy farmers, academics and financial institutions will all benefit from the study's conclusions. For dairy farmers, it is believed that this research project will aid both aspiring and current dairy farmers in learning more about dairy farming. The variables influencing MSE's financial performance in dairy sector, such as investment and financing decisions as well as technology adoption, may aid aspiring or current dairy farmers in making better decisions, making dairy farm activities like milking more effective and save time.

For the county government of Murang'a County, it is hoped that the financial decisions will have a major impact on the financial performance of MSE's in dairy industry. The rules, policies, and regulations of the county government of Murang'a have an impact on MSE's in dairy sector directly or indirectly, which has an impact on their profitability over time. The county government of Murang'a and by extension, the government of Kenya, will be assisted by this research project in implementing beneficial rules, policies and regulations to encourage the development of the dairy sector.

This research project will contribute knowledge to the body of existing knowledge and could serve as a foundation for future research. The research project sheds light on how financial decisions affect micro and small enterprises' financial success in dairy sector, which may serve as a

foundation for identifying existing research needs. Financial institutions provide money to MSE's in the dairy sector to expand their dairy farm operations, including building new farmhouses, milking parlors and dairy farm machinery before extending loans to MSE's in the dairy sector. Financial institutions like banks and Sacco's are interested in learning about the monetary performance of MSE's in the dairy industry and these findings will serve as a standard for assessing the dairy farmers' credit worthiness.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In chapter two's literature review, previous research studies on how financial decisions affect financial performance of MSE's in dairy industry are critically evaluated. The conceptual framework, empirical investigations, theoretical review, the impact of financial decisions on financial performance of MSE's in dairy industry and ultimately a summary of the literature study are all included.

#### **2.2 Theoretical Review**

The four ideas that inform the research project include the pecking order theory, behavioral finance theory, innovation theory of profits and diffusion of innovation theory, which together explain how technology and innovation are adopted.

##### **2.2.1 Pecking Order Theory**

The pecking order theorem by (Myers and Majluf, 1984) is a well-known capital structure theory. According to the pecking order idea, managers choose sources of funding in following sequence: retained profits first, then borrowed funds and ultimately equity capital. Retained earnings are thought to be less expensive and not subject to external obligations. The second choice is debt capital because it is thought to be less risky and there is no loss of control. Finally, equity capital is regarded as the most expensive kind of funding due to the risk of eventual loss of ownership and control. According to this idea, corporate managers typically favor internal finance over external financing due to information asymmetry caused by the knowledge gap between the business firm and possible buyers, there is no defined ideal debt to equity ratio for businesses. In contrast to outsiders, managers in a company have access to knowledge and are aware of potential future growth.

The pecking order idea has a number of shortcomings. Pecking order idea does not adequately tell why the majority of business organizations issue equity, especially small and high-growth companies, according to (Shyam-Sunder & Myers, 1999). (Frank and Goyal, 2003) found that pecking order theory performs much worse for small and high growth business organizations when they extended the Shyam-Sunder and Myers (1999) test to a larger sample and a longer period.

Additionally, Fama and French (2002, 2005) contended that small and high growth enterprises are more prone to experience information asymmetry and that this contradicts pecking order due to their propensity to issue stock.

The pecking order theory was used in the research project to demonstrate how financing decisions affect MSE's financial performance in the dairy sector. Matias and Serrano (2016) found that MSE's financing decisions typically conform to the predictions of the pecking order theory when choosing debt financing when enterprises lack adequate internal capital. Due to their concern over losing control, MSE's in dairy sector typically prefer employing borrowed capital as opposed to equity capital.

### **2.2.2 Behavioral Finance Theory**

Machii and Kyalo (2016) define behavioral finance as "the study of how individuals evaluate and act on knowledge in order to make rational investment decisions," and it has improved our understanding of how investors make decisions, including psychological factors. According to the behavioral finance theory, factors related to behavior might influence investing decisions directly or indirectly. Farmers invest in dairy farms in ways that they feel will boost their profitability, such as through expansion of dairy herd sizes, diversification strategies and the use of technology. Farmers will expand dairy farms by adding more cows in order to benefit from economies of scale, lower the overall cost of production per unit and ultimately increase profitability.

The study of how psychology, emotion, and mental shortcuts and biases affect how people behave on the financial markets and how that affects markets is known as behavioral finance theory (Sewell, 2007). According to Statman (1999), a standard finance investor would never be tricked into using the flawed theory of small numbers to guide their investment decisions. As a result, an investor who uses performance of stocks from the past as evidence of potential future returns is a plausible possibility and goes against the paradigm of the standard finance investor. Some individual investors might be persuaded to give well-performing, well-known firm stocks a lot of thought.

These criticisms of this theory are present. The assumption made by behavioral finance theory when explaining how individual investors make investment decisions based on psychological factors, the theory assumes only individual investors are in stock market. However, in reality, there are both individual and institutional investors. According to (Kaniel, Saar, and Titman, 2005) institutional investors often differ from individual investors due to their scale and sophistication. Individual investors are irrational noise traders, according to Frazzini and Lamont (2005) and Bange (2006), while institutional investors are knowledgeable investors, according to Jones and Lipson (2004) and Sias, Starks and Titman (2006).

According to this study's findings, behavioral factors usually directly or indirectly affect investment decisions, which in turn affect the business performance of MSE's in dairy industry. When a farmer believes he or she will improve the financial performance of the dairy farm by taking advantage of economies of scale and lowering production costs, investment decisions like the purchase of dairy farm equipment, milking machines, expansion of dairy farms and purchase of more dairy cows are made.

### **2.2.3 Innovation Theory of Profits**

Joseph A. Schumpeter developed the innovation theory of profitability. According to Schumpeter (1934), an entrepreneur would make money after effectively applying innovation to their business. According to Schumpeter, an entrepreneur's primary responsibility is to introduce innovation, and any profits made are a reward for that performance. This theory defines innovation as any strategy used by an entrepreneur to lower cost of production or boost market demand for his or her products.

This idea divides invention into two categories. The first group includes efforts that aim to lower production costs, such as using new manufacturing methods or techniques, locating new, high-quality raw materials, utilizing new equipment or plant, and altering an organization's internal structure. The second category of innovation includes all initiatives targeted at boosting consumer demand for a product, including entering new markets, launching high-quality products, finding new sources of raw materials, and developing new product varieties or designs. When the difference between the selling price and the cost of production widens, profits rise.

When an invention is successfully executed, the entrepreneur makes money by either lowering the cost of production or raising market demand for the items. Profits are made for a brief period of time until the innovation stops being novel and other competitors begin to copy it. By protecting an invention or fresh idea with a patent to stop rivals from copying it, the entrepreneur can continue to make money for a longer length of time. These theories contend that investors take up the risk.

A number of academics have disputed the innovation theory of profits. The innovation theory of profits was critiqued by Upadhyay and Rawal (2018) because it solely emphasizes the entrepreneurial function of invention while ignoring other crucial characteristics of entrepreneurs, such as organizational and management abilities. The theory was also questioned by Upadhyay and Rawal (2018) for disregarding the element of risk and uncertainty, which is the foundation of entrepreneurship.

The adoption of modern milking machines, animal feed manufacturing equipment, and modern feeding and watering systems ensure efficiency and effectiveness in dairy farm operations, which lower overall production costs and boost the business performance of MSE's in dairy industry. Innovation theory will be used in this research project to demonstrate the effects of technology adoption in dairy farm operations.

#### **2.2.4 Diffusion of Innovation Theory**

The theory of invention spread was developed by Rogers in 1962. It was employed in transmission to explain how an idea or product develops traction and diffuses (or spreads) over time among a population or social structure Newman (2012). The eventual result of the diffusion of innovation theory is that individuals adopt new ideas as part of a social system. Adoption refers to a person changing their behavior from what they previously did, such as buying a good or service (Njiru & Mwikamba, 2020). The perception of a person affects how new concepts, goods, and services are adopted.

A number of factors affect how technology is used in a business organization. According to (Zaltman, Duncan, and Holbek, 1973) there are two stages to organizational adoption: initiation and completion. The business organization learns about the invention, expresses interest in it and evaluates it during the initiation stage. The business organization decides to purchase and execute the invention during the completion stage. When an idea is embraced and adopted by the organization, the innovation process is successful Roger (1995). Rogers defined five characteristics that affect the rate of adoption in accordance with the diffusion of innovation theory: relative advantage, compatibility, complexity, trialability, and observability (1995). The degree to which a concept is thought to be superior to already-existing concepts or objects is known as its relative advantage. The focus of compatibility is on the organization's needs and ideals being consistent. The innovation's complexity refers to how challenging it is to use, understand, and put into practice. The capacity of an idea to be tested incrementally is referred to as trialability. When discussing observability, it is important to consider how the innovation's benefits are distributed to other people

The majority of people, in Rogers' five categories of established adopters, fall into the middle categories. Innovators, early adopters, early majority, late majority, and laggards are the different types of adopters. There is no need to persuade innovators because they are willing to take risks, open to new ideas, and frequently the first to try new innovations. Early adopters are typically represented by opinion leaders. They typically accept new ideas well and are aware of the need for enhancement. Examples of tactics to serve this audience include how-to manuals and information sheets on implementation. Odero-Waitituh (2019). Early majorities are rarely leaders, but they are the first to adopt novel concepts. They want proof before putting a new concept into practice. The two approaches for attracting this population are success stories and evidence of the innovation's effectiveness (Ogilo & Makayoto, 2019). The late majority is not open to new ideas and won't adopt them until the majority of people have experimented with and adopted a new innovation. Information about the majority of people who have tried and successfully employed a new idea or invention is one way to appeal to this group of people. The final group, the Laggards, is made up of people who are extremely conservative and highly fear change. Statistics, peer influence from other adopter categories and appeals to worry are all effective methods for attracting this group of people.

The internal consistency and predictive power issues are the two main objections leveled at the Diffusion of Innovation Theory. The original intent of this idea was to investigate the dramatic changes in mass communication over the previous 60 years. According to Chaffee and Metzger (2001), modern communication technologies have altered interpersonal communication and muddled once-clear channels. The homogeneous DOI concept has been noticed and critiqued by academics (Chang, 2010). Rogers made a clear distinction between the various adopter types, but he did not do the same for the target groups that made up those adopters; instead, he grouped them all together, which created problems with internal consistency and made it easy to draw incorrect conclusions about why some innovations were adopted and others were not, which in turn could have an influence on the theory's capability to predict the future. According to Atkin et al., (2015) academics have noted the lack of predictive capacity and criticized the theory for focusing on mass communication without taking environmental, technological, and interpersonal aspects into account.

This research project will use the diffusion of innovation theory to demonstrate how invention spreads over time in a population or in an organization. The dairy farmers are able to adopt new ideas and innovations from established innovator dairy farmers who were pioneers to apply technology, new ideas, and innovations like the use of modern milking machines, animal feed making machines, designing and building modern milking parlors, modern cow sheds, and artificial insemination technology.

### **2.3 Determinants of financial performance of MSE's in dairy industry in Murang'a County.**

There are various aspects that impact profitability of MSE's in dairy industry in Murang'a County and these include accessibility to money, financing decisions, investment decisions, adoption of new technology and ultimately climatic and environmental factors.

### **2.3.1 Accessibility of capital**

The MSE's in dairy industry confront a huge issue in acquiring funding for investment and expansion of the dairy farms. According to Njiru and Mwikamba (2020) in Githunguri sub-county, Kiambu County in Kenya noted that the accessibility of agricultural credit from banks was influenced by several factors such as basic management skills of individual farmers, loan interest rates and security availability among smallholder dairy farms. Most farmers cannot get funds from banks, financial institutions and Sacco's due to poor record keeping, low credit worthiness and lack of information about bank financing. Most farmers are unable to obtain cash consequently they cannot expand the dairy farms, they cannot buy farm machinery such as milking machines, chaff cutters and cannot afford quality artificial insemination to improve cow breeds thus cannot achieve optimum Business achievement of their dairy farms.

### **2.3.2 Financing Decisions**

Financing decisions refers to decisions taken by management of business firms affecting the proportion of debt capital to equity capital in capital structure. In Kenya, Koskei (2019) discovered that liability to owners capital ratio and debt ratio had a substantial impact on business achievement of six private sugar companies. The managers of business organization must decide on an optimal combination of debt and equity capital to guarantee optimum business achievement of company organizations. The dairy farmers make a selection on source of capital between equity capital and borrowed capital so as to ensure optimum financial achievement and attain competitive advantage in dairy farming.

### **2.3.3 Investment Decisions**

Investment decisions involve making decisions on investment in fixed assets in an organization after utilizing capital budgeting methodologies to analyze the viability of projects or assets. In Kenya, Koroto (2014) studied the impact of funding and investing decisions on business achievement of four sugar manufacturing firms and concluded that investment decisions positively influenced business performance of sugar companies in Kenya. In western Kenya, (Mweresa and Muturi, 2018) investigated the influence of investing decisions on profitability of different sugar processing firms owned by government and discovered that investment decisions noteworthy influenced the business achievement of sugar companies in western Kenya. Investment decisions comprises purchase of farm machinery, farm equipment, construction of modern dairy farms,

milking machines and milk parlors. A dairy farmer has to make investment decisions on type of dairy farm machinery to purchase in order to improve efficiency and effectiveness of dairy farm activities such as milking and automated feeding systems therefore minimize production costs hence improve business achievement.

### **2.3.4 Application of new technology**

This is the ability of a farmer to employ technology in dairy farm operations in order to achieve efficiency in farm operations such as usage of contemporary milking machines as compared to hand milking that saves on time, requires few laborers and quality of milk is high. In United States of America (USA), (Khanal, Gillespie & MacDonald, 2010) assessed the adoption of information technology, management practices and modern production systems in US milk production and outcomes of findings depicted that adoption of IT enhanced milk production therefore improved profitability of the dairy farms. Gitonga (2014) in Githunguri sub-county, Kiambu county in Kenya discovered areas of application of new technology among smallholder dairy farms includes areas such as animal breeding technologies, animal fodder and concentrates management, use of information management system to maintain up to date records and automated milking systems that help to save on labor and reduce production costs. Adoption of new technology also entails usage of farm machinery, use of information management systems for record keeping, use of artificial insemination technology to improve cow breeds, automated watering system, modern dairy farmhouses and animal feed production machines. Use of information management system helps in decision making that lead to increased business performance in the long run.

### **2.3.5 Climatic and environmental considerations**

Dairy farming is greatly affected by the changes in climatic and environmental conditions. The seasonal availability of animal feed considerably impacts milk yield by cows and hence affect business performance of MSE's in dairy sector. In Kenya, climate change and variability are shown by irregular and unexpected rains, strong downpours, increasing temperatures and generally unfavorable weather (GOK 2018). Droughts contribute to water constraint consequently causing a drop in milk output (Kasulo, et al., 2012). The endoparasites, ectoparasites, bacterial and viral infections influence the productivity of MSE's in dairy business. There is also considerable

evidence that change in climate predisposes prevalence of livestock diseases BCDP, (2013). The effect of climate, environmental, parasites and diseases on productivity of MSE's in dairy sector can be minimized through use of resistant breeds of cows, deworming against internal parasites, use of acaricides to control external parasites, regular vaccination and biosecurity measures to prevent spread of diseases. Treatment of diseases and spraying against parasites is expensive and this increases production costs consequently reducing the business performance of the MSE's in dairy sector. Other empirical research investigations have demonstrated that small scale farmers in Kenya are facing climate change which is lowering agricultural output (Mudavadi et al., 2011). Also, unfavorable climatic circumstances such as protracted dry spells contribute to scarcity of animal fodder hence low milk output by cows and hence decreased financial performance of MSE's in dairy sector.

## **2.4 Empirical Studies**

This area contains empirical studies on the effect that financial decisions have on business performance of MSE's in dairy sector. The financial decisions include financing decisions, investment decisions and adoption of new technology by MSE's in dairy sector.

### **2.4.1 Financing decisions and business performance**

Financing decisions refers to the decisions taken by management in a company addressing the debt-to-equity ratio in capital structure. An organization must maintain an ideal debt to equity ratio to ensure excellent financial success. Xu, Ou and Chan (2016) examined association between debt capital and business operations efficiency. The research study considered fifty two agricultural firms listed on Chinese stock exchange for six years (2009 – 2014). Most of the raw data was from Wind database and the revenue statements and balance sheets of the agricultural organizations on the list. According to the findings by Xu, Ou and Chan debt finance has a major negative effect on business operations performance and diversification methods functions as a partial mediator between debt finance and business operations performance.

In Vietnam, Thi-Doana (2020) evaluated the consequence of funding choices have on business achievement of businesses. The study relied on 102 listed non-financial company firms in HOSE

for eleven years (2008 to 2018). The research study solely evaluated company enterprises listed before 2008 and by the end of 2018. The business achievement of the business enterprises was measured using return on assets. In addition, the study indicated financing decisions have a great influence on financial success of the company operations. Also, more research findings suggest that companies' financial achievement worsened with growth in use of loan capital in capital structure.

Tipape and Jagongo (2019) in Kenya evaluated the influence of financial decisions on Business achievement of family held enterprises in manufacturing sector. The research used a population of 853 business firm's family owned and registered under Kenya Association of Manufacturers (KAM). A stratified sampling strategy was employed to choose a sample of 255 family-owned firms. The study also employed secondary data and primary data such as usage of questionnaires. The study period was five years (2011 to 2015). Audited financial statements and auditors reports acted as sources of secondary data for the manufacturing enterprises that are family held. The availability of financial and human resources has a considerable influence on the growth and survival of manufacturing enterprises that are family held. The studies found that financing decisions and investment decisions have a substantial influence on business achievement of business organizations in manufacturing sector.

Koskei (2019), in Kenya explored the association between capital structure and business achievement of private business organizations. Koskei identified six private sugar manufacturing enterprises that were in operation between 2010 and 2015 and a cross-section survey research deployed during the research period. The secondary data was acquired through secondary data collecting schedule of the six private sugar companies' published financial statements and accounts records. The results of the study demonstrated that debt capital to equity capital ratio and debt ratio had a large impact on the business performance of the six private sugar enterprises.

Njiru and Mwikamba (2020) investigated the accessibility of agricultural financing by smallholder dairy farms in Githunguri sub-county, Kiambu County, Kenya. The main objective of the study

was to establish how availability of bank collateral, fundamental management abilities of individual farmers and interest rates on agricultural credit affected smallholder dairy farms acquiring credit. Githunguri sub-county was the study specific location and descriptive research design was employed. A sample size of 100 participants was established using simple random sampling procedure. Primary data was acquired through one on one interviews and self-administered questionnaires. The timeframe of the study was eight months (January 2019 to August 2019). The outcomes of the study were that access to agricultural credit has a noteworthy effect on milk output and profitability of smallholder dairy farms. The study findings revealed that accessibility of agricultural loans by small scale dairy farmers from financial institutions such as banks was influenced by fundamental management abilities of individual farmers, interest rates and loan security availability.

#### **2.4.2 Investment decisions and business performance**

Investment decisions refers to decisions made by managers of business firms concerning purchase of plant, equipment, manufacturing machines and projects. In most cases commercial firms employs capital budgeting methodologies to examine the economic sustainability of investing in certain projects, buying plants and equipment. (Levy & Sarnat, 1994) Investment decision benefits include fall in production costs, greater sales of goods or products, reduction of business risks, expansion to new business lines or enhanced contributions to the social benefits of the general public and workers.

In Indonesia, Santoso (2019) examined the effect of finance and investment decision on corporate value and business achievement. The research addressed forty-one business businesses from fast moving consumer goods industry with a sample size of 28 business firm's selected using purposive sampling technique. The business firms selected from fast moving consumer goods had been listed in Indonesia stock exchange before the year 2010. Secondary data was acquired from published financial accounts for eight years (2010 to 2017). The ratio of non-current assets to total assets was employed as a criterion to measure asset structure. The study indicated that the asset structure of business organizations in consumer goods industry in Indonesia strongly influenced their corporate value and business achievement.

In Kenya, (Gathungu, Kibe & Wambua, 2020) assessed agripreneurs' investing decisions in clean seed potato farming in Kenyan highlands areas. The research had a target population of 380 farmers and used purposive sample technique to pick Nakuru County from 13 potato farming counties in Kenya. The study deployed cross sectional survey design. Primary sources of data was acquired via face to face interviews and semi-structured questionnaires. The quantitative data obtained was examined and processed using STATA version 13. The conclusions of the study were that investment choices had substantial influence on potato output in Kenyan highlands. The investment selections were influenced by numerous factors such as annual household earnings, season of crops and size of land among others.

In Kenya, Koroti (2014) assessed the outcome that financing and investing decisions have on business performance of sugar producing enterprises. A non-probabilistic sampling method was used to select four sugar companies out of the entire 11 sugar companies operating in Kenya as at 31st December 2013. A descriptive research approach was used to evaluate outcome of financing decisions on financial achievement as computed by ROA. Secondary sources of data from accounts records for a duration of five years was analyzed using regression analysis model. The outcome of the study demonstrated that investing decision greatly influenced business achievement of sugar production enterprises in Kenya.

### **2.4.3 Adoption of new technology and business performance**

The application of technology by MSE's in dairy industry helps to lower the production costs and hence improve business performance. The application of technology in dairy farm operations helps to reduce time, save on labor and improve efficiency and effectiveness thereby strengthening the competitive edge of dairy farming. The most frequent technology in dairy farming is the use of contemporary milking machines, animal feed production machinery, automated feeding and watering systems, artificial insemination technologies and computerized information management systems for record keeping.

Tawaf and Russanti (2015) used a survey research approach to assess the adoption of appropriate technology on small scale dairy farmer's revenues in Indonesia. Starting 1st April to 30th June 2015, this research study was carried out among members of dairy milk procurement cooperatives

and small-scale dairy producers in Subang district. The researcher collected primary data utilizing survey method from 30 individuals that were picked randomly. The basic factors of production affected the dairy farmers' income thus Cobb Douglas analysis method was used to assess required technology. The outcome of the research showed that the application of new technology in building cow sheds, animal feeds formulation, animal breeding methods and feeding management had a noteworthy influence on dairy farmers' revenues and business achievement.

El-Osta and Morehart (2013) studied the connection in the middle of adoption of new technology and milk output in United States of America (USA). Secondary data used was obtained from Agricultural Resource Management study. The study period was May 2013 and primary data was collected from respondents via uniform resource locator (URL). The study discovered that adoption of new technology positively influenced milk production leading to increased sales revenues therefore increased profitability of the dairy farms. Finally, implementation of technology promotes efficiency in dairy farm operations and saves on labor expenses hence increased business performance of dairy farms.

In USA, (Khanal, Gillespie and MacDonald, 2010) examined application of information technology (IT), management applies and modern milk production systems. The study employed data of six years (2000 to 2005) from ARMS dairy version, carried out by Economic Research Service (ERS), National Agricultural Statistics Service (NASS) and United States Department of Agriculture (USDA). The study targeted 24 states out of the total states 50 in USA, the data sets included 870 and 1814 observations between the years 2000 to 2005. The results of the study demonstrated that information technology (IT) leads to higher dairy milk production and which in turn boosts profitability and business achievement of dairy farms.

Gitonga (2014) in Githunguri sub-county, Kiambu County in Kenya studied the trends of adopting contemporary dairy farming methods among small scale dairy farmers. The study was done during February to May 2013 and deployed descriptive research design. The researcher deployed 98 small scale dairy farmers as target population in Kiambu County. The study utilized both primary sources of data and secondary sources of data that included key informants guide, observation and

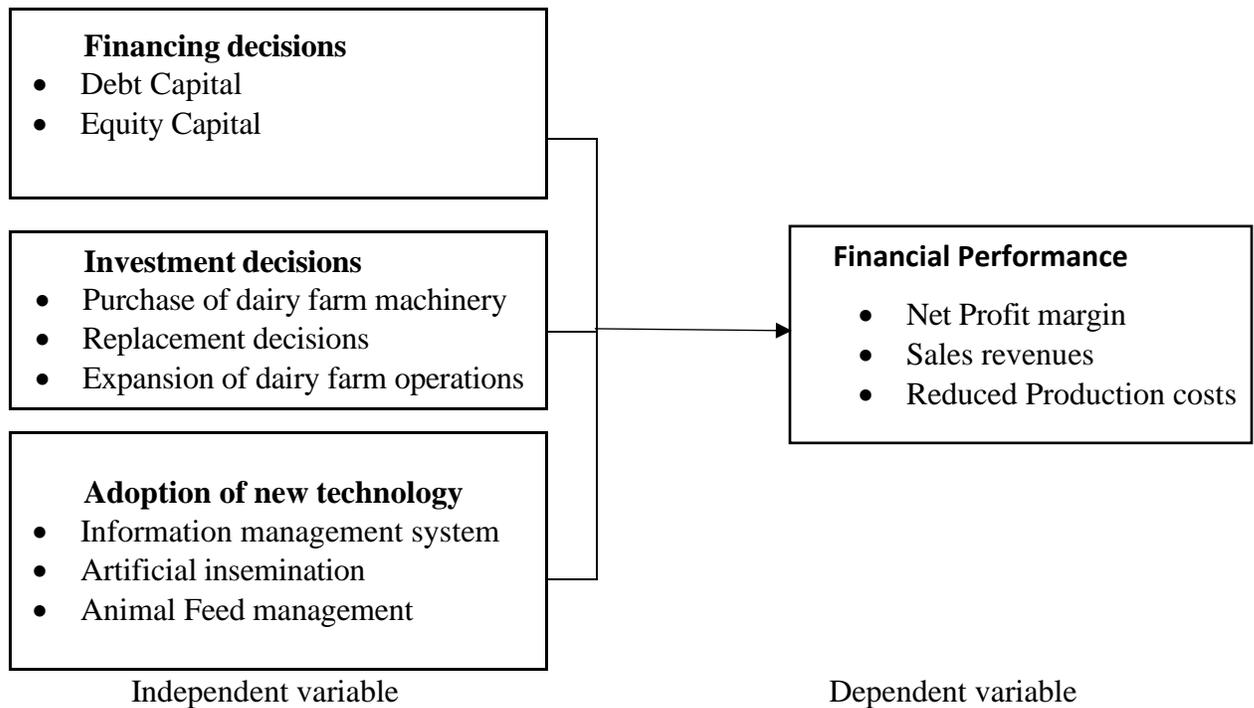
questionnaires. The results of the study were that areas of application of new technology include dairy cow's genetic enhancement, dairy cow's nutrition (balanced animal feeds, concentrates and fodder), animal breeding technologies, animal feed management and modern milking machines. The application of technology permitted development of herd genetic potential, better animal feed formulation, saves time, saves on labor expenses, enhanced efficiency and effectiveness in dairy farm operations such as milking, animal feeds management and feeding cows. This helps to increase financial achievement and profitability of dairy farms that have adopted use of technology.

Makau, VanLeeuwen and Wichtel (2018) examined the use of cell phone technology in training dairy farmers. Analysis was done in Meru County, Kenya. The research used a sample size of 40 smallholder dairy farmers that were selected using simple random sampling approach for a time span of four months (June 2017 to September 2017). Questionnaire was issued to acquire primary data from 550 dairy farmers. Cell phone technology was used in sending short messages to dairy farmers on management techniques of dairy farms and prevention of diseases including mastitis in dairy cows. The findings of the research discovered that the use of cell phone technology in sharing short messages to dairy farmers was an excellent tool of training smallholder dairy farmers.

## **2.5 Conceptual Framework**

A conceptual framework is used to show the relationships between independent variables and dependent variable. The research focused on financial decisions as independent variable while financial performance is the dependent variable. Financing decisions entails using debt or equity capital, investment decisions entail purchase of dairy farm machinery, expansion of dairy farm operations and diversification strategies. Adoption of new technology relates with use of IT, animal breeding technologies and fodder management.

**Figure 1: Conceptual framework diagram**



## **2.6 Summary of literature review**

This issue presents a summary of literature study of past studies that reveals financial success of MSE's in dairy industry is highly influenced by financial decisions that comprise financing decisions, investment decisions and adoption of new technology in dairy farm operations. In summary most researchers, scholars and academicians are in agreement that with appropriate financing decisions, investment decisions and technology there is reduction in production costs, saves on time, saves on labor, increases efficiency and effectiveness in dairy farm operations such as milking and feeding which in turn enhances financial performance in long run but there is need for more research for factors affecting profitability of MSE's in dairy industry.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter involves the study approach to be deployed and approaches a researcher will employ to obtain data. These covers research design, population under study, sampling method adopted, collection of data and data analysis.

#### **3.2 Research Design**

The research project deployed descriptive research design because it is a useful approach of acquiring and evaluating data so that research topics under discussion are addressed. The descriptive study design describes the state of circumstances as they are without affecting the outcome (Khan, 2008). A descriptive survey gives a framework for detailed exploration of the research topic consequently to get additional insights. A descriptive research design is highly preferred since it permits results to be generalized. In Kenya, Kamau (2021) effectively employed descriptive study design to investigate factors influencing business achievement of MSE's in dairy industry in Githunguri sub county, Kiambu County.

#### **3.3 Population**

According to Mugenda & Mugenda (2012) established a population as the targeted objects or individuals which the study has concern in. Population is expounded as a complete set of data in which a sample is derived from. The study will target 280 registered MSE's in dairy industry as mentioned in Murang'a County Integrated Development Plan (2018).

**Table 3.1: Target Population**

<b>Sub-County</b>	<b>Target Population</b>
Kangema	55
Mathioya	45
Kiharu	40
Gatanga	50
Maragwa	25
Kandara	35
Kigumo	30
<b>Total</b>	<b>280</b>

Source: Murang'a County Integrated Development Plan (2018).

### 3.4 Sample Design

This research study chose 84 MSE's in dairy industry in Murang'a County. It's as indicated by (Gay, Mills & Airasian, 2006) that a data set to be a truly representative dataset, the study sample must be anywhere from 10% and 30% of target group to attain normal distribution. A simple random sampling procedure was applied to select a sample where all participants were given equal chances of being selected. The respondents were selected randomly from entirely the seven sub-counties in Murang'a County. 84 MSE's in dairy industry selected represent 30% of the target population under consideration.

**Table 3.2: Sample Size**

<b>Sub-County</b>	<b>Target Population</b>	<b>Sample Size</b>
Kangema	55	17
Mathioya	45	13
Kiharu	40	12
Gatanga	50	15
Maragwa	25	8
Kandara	35	10
Kigumo	30	9
<b>Total</b>	<b>280</b>	<b>84</b>

Source: Murang'a County Integrated Development Plan (2018).

### **3.5 Data Collection**

The research project effort utilized primary sources of data and employed questionnaires as the main data gathering technique. A questionnaire provides an effective avenue for collecting wide variety of information and is easy to evaluate and generalize enormous volumes of information. Questionnaires are prevalent since the data can be collected very conveniently and the responses can readily be programmed (Saunders, Lewis & Thornhill, 2019). The questionnaires would be split into three separate parts; the first section shall gather information on MSE's demographic characteristics of respondents, the second section provides a Likert scale research questions and lastly the third section collects data on financial performance of MSE's in dairy sector.

### **3.6 Data Analysis**

Data analysis comprises collecting, summarizing and categorizing collected raw data in order to give insights on patterns and trends. SPSS statistical software was utilized in data analysis in order to get logical trends and predictions.

#### **3.6.1 Diagnostic Tests**

A pretest was carried out with few workers in MSE's in the dairy sector using sample questionnaires in way to evaluate the adequacy of replies according to the data analysis goals and objectives. Pilot study strengthened the validity and reliability of pretest questionnaires and was carried out in Kiambu County due to its similarities and physical proximity to Murang'a County in cattle rearing. The primary data collected was subjected to reliability and validity check. Reliability is the regularity and stability of research tool in measuring what is stated to be measured. The analysis utilized Cronbach coefficient alpha to evaluate the validity of the questionnaires. An alpha coefficient of 0.7 and above as the reliability indicator is deemed good. Validity analyzes whether a research tool is accurate in getting the anticipated outcomes. The researcher engaged seasoned research professionals and experts in dairy industry.

#### **3.6.2 Analytical model**

The research study utilized both inferential and descriptive procedures to examine raw information gleaned and with the aid of SPSS statistical software. Descriptive statistics is quantitative in nature and comprises frequency, percent's, standard deviation and average to note the data obtained.

Inferential statistics aids in producing predictions with the use of a regression model that is used to link dependent variable and independent variables and present them in tables and graphs. The analytical model was generated as shown below.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Where:

Y = Financial performance

X<sub>1</sub> = financing decisions

X<sub>2</sub> = investment decisions

X<sub>3</sub> = use of technology in dairy farming

$\beta_1, \beta_2$  and  $\beta_3$  = Regression Coefficients

$\beta_0$  = Constant

$\varepsilon$  = Error term

### **3.6.3 Significance Tests**

Tests of significance enables a researcher to examine evidence in favor of a population in which a sample is being used to predict truth about the population.

Ho. Financing choices had no substantial impact on monetary performance of MSE's in dairy industry in Murang'a County.

Ho. Investing decisions have no substantial impact on monetary performance of MSE's in dairy industry in Murang'a County.

Ho. Adoption and application of Technology has minimal impact on monetary performance of MSE's in dairy industry in Murang'a County.

### 3.6.4 Operational Measurement of Variables

Variable Type	Variable	Indicators	Measurement
Dependent	Business achievement	Net Profit Margin	Net profit/Sales (100%)
Independent	Financing Decisions	Debt Ratio	Total Liabilities/Total Assets
Independent	Investment Decisions	Total Asset Turnover	Sales/Total Assets
Independent	Application of new technology	Expenditure on Technology to Assets	Expenditure on Technology/ Total Assets

## CHAPTER FOUR

### DATA ANALYSIS, FINDINGS AND DISCUSSIONS

#### 4.1 Introduction

Chapter four comprises studying raw information, exegesis of outcomes and discussion of the results based on research particular and general objectives. General objective is to study the impact of financial decisions on profitability MSE's within dairy sector in Murang'a County, Kenya. This chapter starts with the rate of responses of the people taking part, preceded by the demographic data about the people taking part and finally the research factors; financing decisions, investment decisions and application of new technology in MSE's in dairy industry. Additionally, this chapter will also cover both regression analysis and diagnostic testing.

#### 4.2 Response rate

The targeted population of this research project was 280 MSE's in the dairy sector according to Murang'a CIDP (2018) and the sample size is 84 MSE's that comprise 30% of the target population. The responses are as reflected in table 4.1.

**Table 4.1: Rate of Responses**

Sub Counties	Size of the Sample	Responses received	Rate of the Responses (%)
Kangema	17	14	82.35
Mathioya	13	11	84.62
Kiharu	12	8	66.67
Gatanga	15	12	80
Maragwa	8	6	75
Kandara	10	7	70
Kigumo	9	6	66.67
<b>Total</b>	<b>84</b>	<b>64</b>	<b>76.19</b>

Source: Author (2022)

Out of the 84 questionnaires provided to the participants, 64 were filled and successfully returned therefore yielding to a rate of response of 76.19%. According to Kothari (2012), stated that a rate of response of fifty % is deemed to be average, sixty % to seventy % is assumed to be adequate and 70% and above is great for analysis of data. Finally, Mugenda & Mugenda (2003) stated that a return rate of 50% and above is regarded appropriate for purposes of data analysis.

### 4.3 Demographic Features of the Respondents

The demographic features of the participants includes the name of dairy farms, number of years the farmers have been involved in dairy production and number of workers in dairy farms.

#### 4.3.1 Milk processing companies where farmers deliver raw milk

The MSE's in dairy industry in Murang'a County listed the cooperative societies and dairy processing enterprises at which they delivered their raw milk. The results are as depicted in table 4.2.

**Table 4.2: Milk processing companies where farmers deliver raw milk**

<b>Milk processing company</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Aspendos Dairy Limited	20	25
Ruchu DFCS	5	6.25
Murang'a County Creameries	10	12.50
Brookside Dairy Limited	15	18.75
Kahuro Dairy Society	4	5
Gikoe Dairy Society	2	2.50
Kandara DFCS	7	8.75
Gaichanjiru Dairy Cooperative	9	11.25
Umoja-Kaweru Dairy Cooperative	3	3.75
Kanjama DFCS	5	6.25
<b>Total</b>	<b>80</b>	<b>100.00</b>

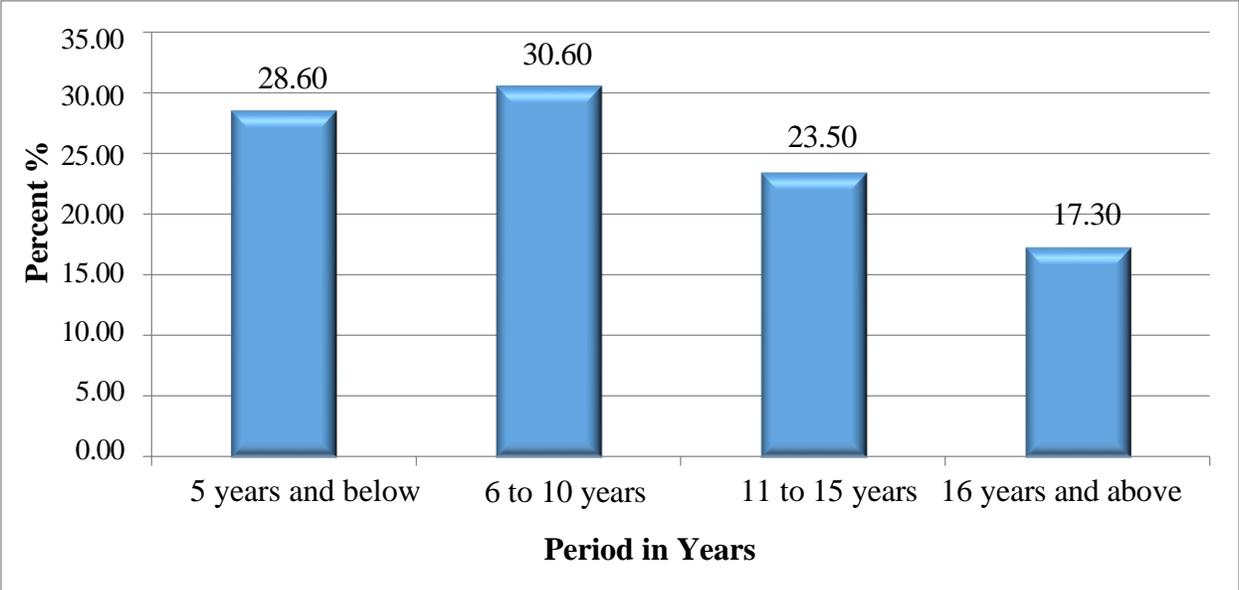
**Source: Author (2022)**

The table 4.2 findings imply 25% of the participants were taking their raw milk to Aspendos Dairy Limited, 6.25% to Ruchu DFCS, 12.5% to Murang'a county creameries, 18.75% indicated Brookside Dairy Limited, 5% to Kahuro dairy society, 2.5% to Gikoe dairy society, 8.75% indicated Kandara DFCS, 11.25% to Gaichanjiru dairy cooperative, 3.75% indicated Umoja-Kaweru dairy cooperative and finally 6.25% indicated Kanjama DFCS. Majority of MSE's in dairy industry take their raw milk to Aspendos Dairy Limited.

### 4.3.2 Duration of dairy farm existence

The participants were needed to enter accurately the number of years they have been in dairy farm business. The results are indicated in figure 2.

**Figure 2: Duration of Dairy Farm Existence**



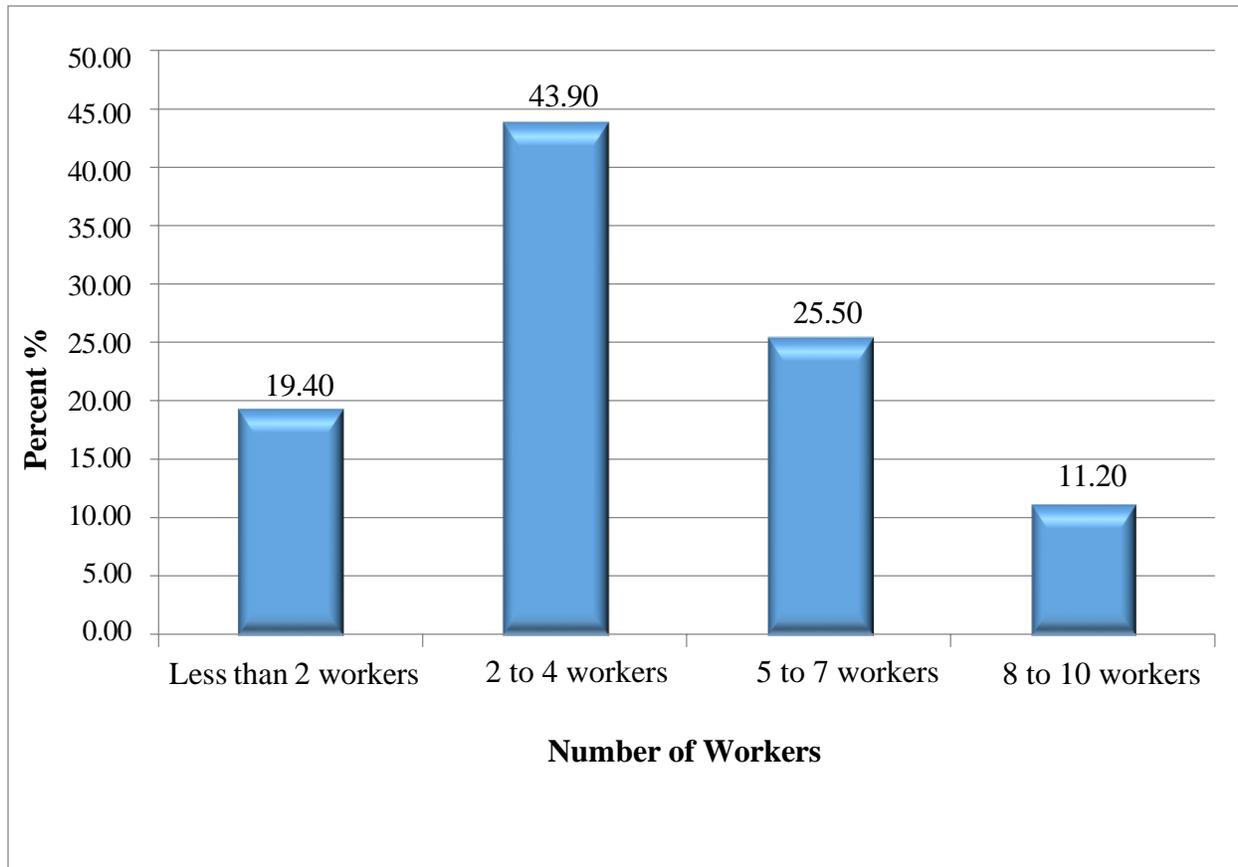
**Source: Author (2022)**

The results in figure 2, 28.60% of the MSE's in the dairy sector have been in dairy farm operations for 5 years and below, majority of the MSE's in dairy sector 30.60% have been in existence for between 6 to 10 years, 23.50% of the MSE's in dairy sector have been in operation for 11 to 15 years and finally only 17.30% of the MSE's in dairy sector have been in existence for 16 years and above. This suggests that bulk of the micro and small companies (MSE's) in the dairy sector in Murang'a County have been in existence for six to ten years.

### 4.3.3 Number of Workers in dairy farms

The participants submitted in questionnaire the number of workers they have engaged in their dairy farms. The findings are as seen in figure 3.

**Figure 3: Number of Workers in Dairy Farms**



**Source: Author (2022)**

From the results, 19.40% of the MSE's in dairy sector have less than two workers, majority of MSE's in dairy sector 43.90% have between two and four workers while 25.50% of the MSE's in dairy sector having five to seven workers and finally only 11.20% of the MSE's in dairy sector have between 8 to 10 workers. This means most of the (MSE's) in dairy industry in Murang'a County have an average of two to four staff in their dairy farms.

## 4.4 Research Variables

The participants filled the research questions in questionnaire using a Likert scale of five, where one indicated zero effect, two indicated little influence, three indicated moderate effect, four indicated high effect and lastly five indicated extremely high effect. The arithmetic mean of Likert scale study questions is commonly understood as 1 to 1.5 is zero extent, 1.5 to 2.5 is little extent, 2.5 to 3.5 is moderate extent, 3.5 to 4.5 is considerable extent and in addition 4.5 to 5.0 is very great extent (Nulty, 2011).

### 4.4.1 Financing Decisions and Business Performance

One of the specific objectives was to investigate the impact of funding decisions on business performance of MSE's in dairy sector throughout Murang'a County. This same respondents indicated the degree of influence of following funding decisions and finance practices on their dairy farms. The observations are as presented in table 4.3.

**Table 4.3: Financing Decisions and Business Performance**

	<b>Mean</b>	<b>Standard Deviation</b>
Accessibility to agricultural credit	1.806	0.636
Utilizing retained profits	4.500	1.067
Utilizing long term debts	4.418	1.217
Employing short term debts	2.765	1.290
Use of fintech sources of funds	3.091	1.573
Interest rates on Loans	4.500	0.888
Loan disbursement costs	4.551	0.964
Utilizing finances from SACCO's	4.622	0.843

**Source: Author (2022)**

As indicated in Table 4.3, loan disbursement expenses influenced economic health of MSE's in the dairy sector in Murang'a County by a very considerable amount just as depicted by an average of 4.551 and a standard deviation of 0.964. The participants demonstrated that usage of retained profits as a source of capital positively benefited the financial results of MSE's throughout the dairy sector in Murang'a County to a considerable extent, as indicated by an average of 4.500 and

standard deviation of 1.067. Management of business firms have access to all information and future growth potential thus would choose internal sources of funding as opposed to external sources of funds. Business firms when raising external money frequently prefer debt capital to equity capital. This is because debt capital is not information sensitive and there are chances of loss of control in future due to using equity capital.

The utilization of finances from SACCO's have a very large effect on business performance of MSE's in dairy sector as represented by an average of 4.622 and 0.843 as standard deviation. Agricultural credit gained from SACCO's is utilized to make investments in areas with superior returns such a purchase of pedigree dairy cows that lead to increased milk output and subsequently improved financial success of the MSE's in dairy sector. These findings conform with (Njiru and Mwikamba, 2020) observations that accessibility of agricultural financing favorably affects milk production and profitability of micro dairy farms in Kiambu County. In addition, participants noted that interest rates on loans had considerable impact on the financial results of MSE's within dairy sector as evidenced by a standard deviation of 0.888 and 4.500 mean. Further, the use of fintech sources of funding such as mobile phone loans indicates a moderate impact on the financial performance of MSE's in dairy sector as depicted by an average of 3.091 and standard deviation of 1.573.

The utilization of long term debts have notable influence on business performance of MSE's within dairy industry as depicted by an average of 4.418 and standard deviation of 1.217. Long term obligations may have a detrimental effect on the profitability of a company enterprise if not managed well and may lead to financial risk. The data showed that the utilization of short term debts have minimal influence on the profitability of MSE's in dairy industry in Murang'a County as demonstrated by an average of 2.765 and a standard deviation of 1.290. Finally, accessibility of agricultural financing has little influence on the financial results of MSE's in dairy industry as evidenced by an average of 1.806 and a standard deviation of 0.636. The terms and conditions of bank loans influences accessibility of agricultural finance by dairy farmers.

#### 4.4.2 Investment Decisions and Business Performance

Respondents filled the survey questions in questionnaire addressing the impact of investment choices on monetary results of MSE's in dairy industry in Murang'a County. The outcomes are as mentioned in table 4.4.

**Table 4.4 Investment Decisions and Business Performance**

	<b>Mean</b>	<b>Std. Deviation</b>
Expansion of dairy farms	4.531	0.944
Purchase of dairy farm machinery	4.581	0.994
Construction of cow houses	1.306	0.463
Maintenance of dairy farm structures	2.663	1.512
Leasing other dairy farms	1.684	0.991
Diversification strategies	4.571	0.759

**Source: Author (2022)**

The data in table 4.4 indicated a mean of 4.571 and standard deviation of 0.759 for diversification methods so this suggests diversification strategies have a very large impact on the financial results of MSE's in the dairy sector in Murang'a County. Diversification methods helps dairy farmers to obtain profits from numerous sources. Expansion of dairy farms has a substantial impact on the financial results of MSE's in dairy industry as demonstrated by an average of 4.531 and standard deviation of 0.944. In addition, purchase of dairy farm machinery have a very big influence on the financial performance of MSE's in dairy sector as made evident by a mean of 4.581 and standard deviation of 0.994.

Moreover, construction of cow structures have no impact on the financial results of MSE's in dairy sector as evidenced by an average of 1.306 and standard deviation of 0.463. This is because it takes several years to see the economic benefits of cow houses. Also upkeep of dairy farm infrastructure demonstrated a moderate impact on the business achievement of MSE's in dairy sector as evidenced by a mean of 2.663 and standard deviation of 1.512. Furthermore, leasing other dairy farms had little impact on financial results of MSE's in sector as evidenced by an average of 1.684 and standard deviation of 0.991. Investment decisions are made after comprehensive analysis of

the economic viability of an asset is done and the prospect of recovering cash invested within a suitable time period is determined.

#### 4.4.3 Adoption of new technology and Business performance

The respondents filled the research questions in questionnaire addressing the impact of degree of use of technology in dairy farming on how it affected their business achievement. The findings are as stated in table 4.5.

**Table 4.5: Adoption of new technology and Business Performance**

	Mean	Std. Deviation
Mobile phone technology	4.469	1.027
Information management system	4.693	.935
Animal breeding technologies	4.653	.942
Animal genetic management	4.744	.722
Fodder and concentrates management	4.785	.677
Milk processing technologies	3.020	1.492
Use of milking machines	4.541	1.056
Use of cooling machines	4.622	.925

**Source: Author (2022)**

According to the results in table 4.5, the use of mobile phone technology has a great influence on the profitability of MSE's in dairy industry in Murang'a County as depicted by a middling of 4.469 and standard deviation of 1.027. Furthermore, use of cooling machines has very great effect on profitability of MSE's in dairy industry as demonstrated by an average of 4.622 and standard deviation of 0.925 because cooling machines help to reduce spoilage of raw milk thus improve financial health of MSE's in the dairy sector.

Deployment of animal breeding technologies have a very great impact on the profitability of MSE's in dairy sector as illustrated by 4.653 as average and standard deviation of 0.942. Moreover, animal genetic management greatly influences the profitability of dairy farms as depicted by an average of 4.744 and standard deviation of 0.722. Animal breeding technologies

improves genetic potential of cows leading to increased milk production hence improved business achievement of dairy farms. Moreover, use of milking machines have a very great impact on the profitability of MSE's in dairy sector as indicated by a mean of 4.541 and standard deviation of 1.056. This is because milking machines saves on time, reduces labor costs and therefore leading to improved financial performance of the MSE's in dairy sector.

Use of information management system have a very great influence on the profitability of MSE's in dairy industry as evidenced by an average of 4.693 and standard deviation of 0.935. The information management system enables farmers to maintain up to date records of dairy cows thus make informed decisions that enhance their financial performance over time. Moreover, fodder and concentrate management have a very great influence on the financial results of MSE's in dairy sector as depicted by an average of 4.785 and standard deviation of 0.677. Finally, milk processing technologies have a moderate impact on the financial results of MSE's in dairy industry as indicated by an average of 3.020 and standard deviation of 1.492. Because most MSE's in the dairy sector in Murang'a County do not have milk processing technologies as they are expensive to purchase therefore they deliver raw milk to cooperative societies and milk processing companies.

#### **4.4.4 Financial Performance**

The dependent variable is the earnings performance of MSE's in dairy sector in Murang'a County. This was measured by net profit margin, Return on Investment (ROI), reduction of production costs and monthly incomes. In a scale of one to five, one represented highly decreased, two represented decreased, three represented no changes, four represented increased and five represented highly increased.

**Table 4.6: Business achievement of MSE's in dairy industry**

	<b>Mean</b>	<b>Std. Deviation</b>
Net Profit margin	3.979	1.201
Return on investments (ROI)	3.898	0.766
Reduction in production costs	4.081	0.275
Monthly incomes	4.061	1.368

**Source: Author (2022)**

The table 4.6 findings demonstrates there was an increase in monthly incomes of MSE's in dairy sector in Murang'a County in last three years as depicted by an average of 4.061 and standard deviation of 1.368. In addition, there has been a moderate increase in return on investments (ROI) in last three years as indicated by an average of 3.898 and standard deviation of 0.766. Moreover, there was an increase in reduction of production costs in last three years just like depicted by an average of 4.081 and standard deviation of 0.275 and this consequently results in a rise in profitability of the MSE's in dairy industry. Finally, there was a moderate increase in net profit margin as showed by an average of 3.979 and standard deviation of 1.201 in last three years. This is because with appropriate financing decisions the MSE's in dairy industry are able to access affordable finances, investment decisions and adoption of new technology by MSE's in dairy industry are able to reduce labor costs, save on time and thus increased business achievement of the MSE's in dairy industry in Murang'a county.

## **4.5 Diagnostic Tests**

The following are the main underlying assumptions for a linear regression model to be considered efficient, normality, no autocorrelation and little or no multicollinearity. When the regression model assumptions are violated then the inferences made are biased and inefficient therefore the results derived cannot be relied upon.

### **4.5.1 Normality Test**

One of the assumptions of linear regression model has been that research data under consideration its distribution is normal and Shapiro Wilk test was used to check normality. Therefore, when p value of null hypothesis is lower than 0.05 significance threshold, we usually reject it because it shows the research data is not normally distributed and if the p value of null hypothesis is greater than 0.05 significance threshold we fail to reject thus the research data is normally distributed from a normal population.

**Table 4.7: Test of Normality**

	<b>Statistic</b>	<b>Df</b>	<b>Sig.</b>
Financial Performance	.969	86	0.061
Financing Decisions	.981	86	0.097
Investment Decisions	.987	86	0.115
Adoption of new technology	.985	86	0.101

**Source: Author (2022)**

The findings are as shown in table 4.7, the p value is 0.101 for adoption and use of new technology, p value is 0.115 for investment decisions, p value is 0.097 for financing decisions and finally p value is 0.061 for financial achievement which is the dependent variable of the MSE's in dairy industry in Murang'a County. From the results, all the variables met the normality test because the p-value obtained in table 4.7 is greater than a significance threshold of 0.05 and the research data under consideration met the assumptions of linear regression model of data being normally distributed.

#### **4.5.2 Autocorrelation Test**

The Durbin Watson check was employed to analyze for stationarity of linear regression model. According to Durbin Watson's tests an assumption is that residuals are not linearly auto correlated. When the d values are within a range of 1.5 to 2.5 it means the research data under consideration has no stationarity.

**Table 4.8: Durbin Watson Test**

<b>Model</b>	<b>Durbin-Watson</b>
1	1.828

**Source: Author (2022)**

The output of Durbin Watson Test in table 4.8 indicated a d value of 1.828 therefore the research data under consideration is free from autocorrelation because the d value is within range of 1.5 to 2.5 and a linear regression model can be generated.

### 4.5.3 Multicollinearity Test

Multicollinearity arises when individual variables have a correlation. The variance inflation factor (VIF) was deployed to measure for multicollinearity. A variance inflation factor above ten requires further analysis Kothari, (2010).

**Table 4.9: Multicollinearity Test**

	<b>Tolerance</b>	<b>VIF</b>
Financing Decisions	.271	3.689
Investment Decisions	.199	5.028
Adoption of technology	.438	2.282

**Source: Author (2022)**

The results in table 4.9 show variance inflation factor (VIF). VIF for financing decisions is 3.689 while the variance inflation factor (VIF) for investment decisions is 5.028 and the variance inflation factor (VIF) for application of new technology is 2.282. The variance inflation factors (VIF) are below ten therefore the independent variables under consideration are not highly correlated.

### 4.6 Inferential Statistics

The inferential statistics consists of regression check and Pearson correlation. Inferential statistics are used to link dependent variable the business performance with independent variables the funding decisions, investing choices and application of technology.

#### 4.6.1. Correlation Analysis

Correlation analysis is usually a statistical tool used to measure the association of two variables under consideration. The research study deployed Pearson correlation analysis method so as to launch connection amid independent variables and dependent variable. The coefficients of Pearson correlation method usually ranges zero to one and strength of correlation is shown when coefficients are almost one.

**Table 4.10: Correlation Coefficients**

		<b>Financial Performance</b>	<b>Financing Decisions</b>	<b>Investment Decisions</b>	<b>Adoption of Technology</b>
Financial Performance	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	64			
Financing Decisions	Pearson Correlation	.799**	1		
	Sig. (2-tailed)	.000			
	N	64	64		
Investment Decisions	Pearson Correlation	.825**	.854**	1	
	Sig. (2-tailed)	.000	.000		
	N	64	64	64	
Adoption of Technology	Pearson Correlation	.489**	.749**	.634**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	64	64	64	64

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: Author (2022)**

The table 4.10 indicates a positive and strong connection between investment choices and financial results of MSE's in dairy sector in Murang'a County with a correlation of 0.825 and p value of 0.000. In addition, the relationship among investment decisions and financial results is noteworthy because the 0.000 p value is below 0.01 significance threshold. Investment decisions entails expansion of dairy farms, purchase of dairy farm machinery, leasing other dairy farms and diversification strategies. This enables dairy farmers to enjoy economies of scale by increasing number of dairy cows, reduce production costs, enhance efficiency in dairy farm operations such as milking and feeding thus improve the business performance. These findings are in agreement with (Farinha and Prego, 2013) observations that investment choices have a strong positive relationship with business firms business achievement.

The findings indicate a positive and strong connection between financing decisions and financial results of MSE's in dairy sector as indicated by a correlation coefficient of 0.799 and a p value of 0.000. The association between financing decisions and financial results is noteworthy because 0.000 p value is below the significance threshold of 0.01. These results are in conformity with

(Njiru and Mwikamba, 2020) that investment decision have positive impact on milk production among smallholder dairy farms.

The findings show a moderate positive relation between adoption of new technology among dairy farms and business achievement of the MSE's in dairy sector in Murang'a County as depicted by a coefficient of 0.489 and p value of 0.000. The association between adoption of technology and financial achievement is noteworthy because p value of 0.000 is below the significance threshold of 0.01. These findings are in line with (Khanal, Gillespie and MacDonald, 2010) discoveries that deployment of technology improves milk output by cows therefore leading to improved business achievement of MSE's in dairy industry.

#### 4.6.2 Regression Analysis

A regression analysis is a statistical procedure used to analyze two variables. The research project deployed the multivariable regression check to establish the connection between dependent variable the business performance and independent variables the funding decisions, investing choices and technological application. The output is as demonstrated in table 4.11.

**Table 4.11: Summary of Regression Model**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860 <sup>a</sup>	.739	.731	.10913

a. Predictors: (Constant), funding decisions, investment choices and technological adoption.

**Source: Author (2022)**

Value depicted by R indicates how independent variables the financing decisions, investment decisions and adoption of new technology can explain dependent variable the business financial performance. This means the higher the R squared value the better independent variables can expound their impact on business financial performance. Therefore, 0.739 that is 73.9% of financial performance of MSE's in dairy industry can be expounded by the independent variables.

**Table 4.12: Regression Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.789	.580		6.538	.000
	Financing Decisions	.244	.054	.534	4.521	.000
	Investment Decisions	.479	.093	.523	5.177	.000
	Adoption of technology	-.391	.128	-.243	-3.051	.003

a. Dependent Variable: Financial Performance

**Source: Author (2022)**

The computed regression equation is:

$$Y = 3.789 + 0.244X_1 + 0.479X_2 - 0.391X_3$$

The findings in table 4.12 show that investment choices have a positive noteworthy influence on the business performance of MSE's in dairy sector in Murang'a County as depicted by  $\beta_2$  of 0.479 and p value of 0.000. When there is a single unit enhancement in investment decisions it leads to a 0.479 unit enhancement in business performance of MSE's in dairy sector. Also, investment choices have a noteworthy effect on the financial achievement as the p value of 0.000 is less than the significance threshold of 0.05. Business firms that can effectively utilize fixed assets experience synergy in profitability. The dairy farms that effectively use dairy farm machinery such as milking machines are able increase their profits in long run.

Moreover, the impact of funding decisions on business achievement of MSE's in dairy industry is positive and noteworthy as indicated by  $\beta_2$  of 0.244 and p value of 0.000. This means a single unit increase in financing decisions would consequently lead to a 0.244 unit increase in business achievement of MSE's in dairy industry. The influence of financial decisions on financial achievement is noteworthy because p value of 0.000 is below the significance threshold of 0.05. The dairy farms that utilize affordable sources of finances such as retained profits are able improve their financial achievement as opposed to use of long-term debts and short term debts that must be repaid with interest and also has disbursement costs hence expensive and thus reduce their business performance.

Finally, the results indicate adoption of new technology has a noteworthy negative effect on the business performance of MSE's in dairy industry as depicted by  $\beta_2$  of -0.391 and p value of 0.03. Therefore, a single unit increase in adoption of new technology would lead to a decrease of 0.391 unit in business performance. This means there is a negative inverse relationship between application of new technology and business achievement of MSE's in dairy industry in Murang'a County. Despite the overwhelming evidence of benefits of adopting technology in dairy farming such as use of mobile phone technology for communication, information management system for maintaining up to date records that assist in making informed decisions, animal breeding technologies, animal genetic management, fodder and concentrates management, milk processing technologies, use of milking machines and use of cooling machines that improves efficiency in dairy farm operations such as milking by saving time and reducing labor costs thus improving business financial performance. However, the level of application of new technology among the micro and small enterprises (MSE's) in dairy sector in Murang'a County was quite low due to their high initial cost of acquisition and adoption. Also lack of knowledge and awareness among the dairy farmers highly inhibited adoption of new technology in dairy farm operations.

**Table 4.13: ANOVA Table**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.178	3	1.059	55.737	.000 <sup>b</sup>
	Residual	1.119	60	.019		
	Total	4.297	63			

a. Dependent Variable: Financial Performance

b. Predictors: Constant, Adoption of new technology, investing decisions, funding decisions

**Source: Author (2022)**

The ANOVA table examines the suitability of the data within the model. The F calculated is 55.737 and the F-critical is 2.72 as depicted in Table 4.13. When a regression model has F calculated greater than F critical it is usually considered a good fit. Therefore, in this research project the F calculated is 55.737 thus greater than F critical of 2.72 hence the regression model is suitable and p-value of 0.000 is considered noteworthy because it is below the significance threshold of 0.05. In addition, this implies that the regression model can be used in estimating the impact of financing decisions, investment decisions and adoption of new technology on business performance of MSE's in dairy sector in Murang'a County.

## **CHAPTER FIVE**

### **CONCLUSIONS, FINDINGS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter outlines a bird's eye view of results, deductions and suggestions for further research. The research conclusions and recommendations are used to fulfill the research objective of determining the effect of financial decisions on business performance of MSE's in dairy industry in Murang'a County.

#### **5.2 Discussion of Findings**

##### **5.2.1 Financing Decisions and Financial Success**

The research project discovered that financing decisions has a noteworthy and positive influence on financial success of MSE's in dairy sector in Murang'a County. The finances from savings and credit cooperatives (SACCO's) have a very great effect on the on the business financial performance of MSE's in dairy industry. In addition, utilizing retained profits have a very great effect on financial performance of MSE's in dairy sector. This is because retained profits is a cheap source of finance as opposed to debts that are expensive to obtain and also when obtained dairy farmers incur disbursement costs such as processing fees thus reducing their business financial performance.

Moreover, utilizing long term debts have a great effect on financial success of MSE's in dairy sector. In addition, use of short-term debts such as bank overdrafts showed a moderate effect on the business financial performance of MSE's in dairy sector. The excessive reliance on long term debts by business firms may lead to financial risk and therefore business managers must establish an optimal debt to equity ratio in capital structure. Further, use of fintech sources of funds such as mobile phone loans had a moderate effect on business performance of MSE's in dairy sector.

Finally, interest on loans have a very great effect on the business financial performance of MSE's in dairy sector in Murang'a County. Further, accessibility to agricultural credit has a little effect on the business achievement of MSE's in dairy industry. The terms and conditions by financial institutions inhibit dairy farmers from accessing agricultural credit and most of MSE's in dairy industry do not maintain up to date records thus cannot secure agricultural credit. In addition, loan disbursement costs

such as loan processing fees have a very great effect on business achievement of MSE's in dairy sector. The financial institutions should deploy information communication technology in order to reduce loan disbursement costs during loan application, processing and disbursement of funds.

### **5.2.2 Investment Decisions and Financial Success**

The observations of this research project is that investment decisions have a positive and noteworthy impact on financial success of MSE's in dairy sector in Murang'a County. Purchase of dairy farm machinery have a very great effect on financial performance of MSE's in dairy sector. In addition, purchase of dairy farm machinery such as animal feed making machines that help reduce production costs by reducing cost of animal feeds by formulating feeds at the farm level therefore improving business financial performance of the MSE's in dairy sector in long run.

Moreover, expansion of dairy farms has very great impact on business performance of MSE's in dairy sector. This is because when MSE's in dairy sector increase their herd sizes they enjoy economies of scale, reduced production costs per unit and thus improved financial success. In addition, construction of cow houses has no effect on the business performance of MSE's in dairy sector. This is because it takes many years to gain benefits of constructing cow houses. Leasing other dairy farms have little effect on the business performance of MSE's in dairy sector.

The implementation of diversification strategies has very great effect on financial success of MSE's in dairy sector. Diversification strategies entails investing in other livestock rearing practices such as poultry farming and pig farming and this enhances the business financial performance of MSE's in dairy sector. Finally, maintenance of dairy structures has a moderate effect on business performance of MSE's in dairy sector.

### **5.2.3 Adoption of new technology and Financial Success**

The discoveries in this research project is that adoption of new technology have a noteworthy negative effect on business performance of MSE's in dairy sector in Murang'a County. Milk processing technologies have a moderate effect on the business performance of MSE's in dairy sector. This is because most MSE's in dairy sector in Murang'a County deliver raw milk to cooperative societies or to milk processing companies. This is highly contributed by high initial purchase costs and maintenance costs of such milk processing technologies as most MSE's in dairy industry lack adequate funds.

The use of animal breeding technologies has a very great impact on financial success of MSE's in dairy industry. Animal breeding technologies helps to improve the genetic potential of a herd thus leading to increased milk production hence improved financial performance. In addition, animal genetic management have a very great effect on business performance of MSE's in dairy sector. Information management system have a very great impact on the business financial performance of MSE's in dairy sector. This is because information management system enables farmers to maintain up to date records of dairy cows thus make better decisions that enhance their business financial performance in the long run.

Finally, mobile phone technology has a very great effect on financial success of MSE's in dairy sector in Murang'a County. In addition, fodder and concentrates management have a very great on the business performance of MSE's in dairy sector. However, most of the MSE's in dairy sector in Murang'a County have not adopted technology because of the high initial cost of purchasing and maintaining the technology in dairy farming. Also, most MSE's in dairy industry lack knowledge and information on benefits of adopting technology in dairy farming.

### **5.3 Conclusions**

The research project concluded that financing decisions have a noteworthy and positive effect on the business financial performance of MSE's in dairy sector in Murang'a County. A single unit enhancement in financing decisions would consequently lead to an enhancement by 0.244 unit in business performance of the MSE's in dairy industry. The use of retained profits has a very great effect on business performance of MSE's in dairy sector as opposed to use of debts that are expensive because of high interest rates on loans and the dairy farmers incur loan disbursement costs such as loan processing fees that reduce their financial performance in long run. These results conform with (Ikapel and Kairwa, 2017) that financial decisions influence positively the profitability of sugar processing companies controlled by government.

Further, the research project discovered that investment decisions have a positive and noteworthy effect on business financial performance of MSE's in dairy sector in Murang'a County. The investment decisions such as expansion of dairy farms enables MSE's in dairy sector to increase their herd sizes thus enjoy economies of scale and reduced production costs per unit. A single unit enhancement in

investment decisions would lead to a 0.479-unit enhancement in financial performance of MSE's in dairy sector in Murang'a County. Purchase of dairy farm machinery have a very great effect on business performance of MSE's in dairy sector. This is because investment in dairy farm machinery such as animal feed making machines enables dairy farmers to formulate animal feeds at the farm level hence reduce cost of animal feeds and consequently this leads to improved financial success.

Finally, the research study concludes that adoption of new technology have a noteworthy negative effect on business performance of MSE's in dairy sector in Murang'a County. This depicts that a single unit enhancement on adoption of new technology would lead to a decline by 0.391 unit of business performance of MSE's in dairy industry. This shows a negative inverse relationship between adoption of new technology and business performance of MSE's in dairy sector. In addition, use of milk processing technologies has a moderate effect on financial performance of MSE's in dairy sector. This is because most MSE's in dairy sector deliver raw milk to cooperative societies or milk processing companies. Majority of the MSE's in dairy sector lack adequate funds to adopt modern technologies such as purchase of milk processing technologies and also most of them lack knowledge and information on the benefits of adopting technology in dairy farming.

#### **5.4 Recommendations**

The research project found that interest rates on loans have a very great effect on financial performance of MSE's in dairy sector in Murang'a County. The research project recommends that banks and SACCO's should lower interest rates on loans in order to make them affordable by majority of the MSE's in dairy industry. In addition, the research project observed that use of retained profits had a very great effect on the business performance of MSE's in dairy industry. This research study recommends that MSE's in dairy industry should strive to utilize retained profits as it is a cheap source of finance as opposed to use debts that are expensive and also farmers incur loan disbursement costs.

The research project discovered that diversification strategies have a very great effect on business performance of MSE's in dairy sector in Murang'a County. The research project recommends that MSE's in dairy sector should implement diversification strategies by investing in other livestock rearing practices such as pig farming, poultry farming and dairy goat farming which will enhance business financial success of dairy farmers in long run. In addition, use of information management system have

a very great effect on business performance of MSE's in dairy sector and this research project recommends that MSE's in dairy sector should use information management system that help to maintain up to date records thus dairy farmers are able to make better decisions that enhance their financial performance in the long run.

Moreover, the research project observed that expansion of dairy farms has a very great effect on the business performance of MSE's in dairy sector because they enjoy economies of scale and reduced production costs per unit. This project recommends that MSE's in dairy sector should increase number of cows so that they can enjoy economies of scale, reduced production costs per unit hence improved business performance. Further, fodder and concentrates management had a very great effect on the business financial success of MSE's in dairy sector. This project recommends that MSE's in dairy sector should ensure there is fodder and concentrates management in order to prevent death of dairy cows during long dry periods due to lack of animal feeds and also make their own animal feeds in order to reduce production costs thus enhance their financial performance.

This research project found out that animal breeding technologies have a very great impact on the business financial success of MSE's in dairy sector. This project recommends that MSE's in dairy sector should improve quality of their herds through improved breeding practices in order to get pedigree cows that have high milk production thus improved business performance. Finally, this research project discovered that use of milking machines had a very great effect on business performance of MSE's in dairy sector. This research project recommends that MSE's in the dairy sector should use milking machines as opposed to hand milking because it saves on time, requires few workers to milk many cows and there is overall reduction in production costs leading to improved financial performance.

### **5.5 Suggestions for Further Study**

The main objective of this research project was to determine the effect of financial decisions on business financial performance of MSE's in dairy industry in Murang'a County. This research project is restricted to MSE's in dairy industry in Murang'a County and therefore its findings and conclusions cannot be generalized to other counties in Kenya or other sectors in agricultural industry. In addition, this research project was limited only to effect of financial decisions that included financing decisions,

investment decisions and adoption of new technology on business financial performance of MSE's in dairy sector. This research project suggests further research studies on factors affecting the business performance of business enterprises in other agricultural sub sectors and in Kenya. This research project implies that 73.9% of business financial success of MSE's in dairy sector in Murang'a County can be expounded by independent variables the funding decisions, investing decisions and adoption of new technology.

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## APPENDICES

### Appendix I: MSE's in dairy industry in Murang'a County, Kenya.

1. Ruchu Dairy Cooperative Society
2. Kangari Dairy Cooperative Society
3. New Nginda Dairy Cooperative Society
4. Kiarutara Dairy Cooperative Society
5. Kahuro Dairy Cooperative Society
6. Kigoro Dairy Cooperative Society
7. Ithiru Dairy Cooperative Society
8. Kagundu-ini Dairy Cooperative Society
9. Gaichanjiru Dairy Cooperative Society
10. Maruka Dairy Cooperative Society
11. Gakungu Dairy Cooperative Society
12. Mwembe Dairy Cooperative Society
13. Kakaki Dairy Cooperative Society
14. Central Abardare Dairy Cooperative Society
15. Kigumo 18 Dairy Cooperative Society
16. Makomboki Dairy Cooperative Society
17. Kiruri Dairy Cooperative Society
18. Kiirathi Dairy Cooperative Society
19. Kiarwaki Dairy Cooperative Society
20. Muraranda Dairy Cooperative Society
21. Kagata Dairy Cooperative Society
22. Gatanga Mwangaza Dairy Cooperative Society
23. Githanha Gaate SHG
24. Uiguano Dairy Cooperative Society
25. Ngararia Dairy Cooperative Society
26. Ichagaki Dairy Cooperative Society
27. Kamahuha Dairy Cooperative Society
28. Sabasaba Dairy Cooperative Society
29. Muthithi Kambi Dairy Cooperative Society
30. Gikoe Dairy Cooperative Society
31. Kanjama Dairy Cooperative Society
32. Wanjegi Dairy Cooperative Society
33. Mbiri Dairy Cooperative Society
34. Umaja Dairy Cooperative Society
35. Umoja - Kamune Dairy Cooperative Society
36. Umoja - Kaweru Dairy Cooperative Society
37. Umoja Kamacharia Dairy Cooperative Society
38. Kahumbu Dairy Cooperative Society
39. Iyegi Dairy Cooperative Society
40. Kagaa Dairy Cooperative Society
41. Kihumbuini Dairy Cooperative Society

**Source: Kenya Dairy Board milk producers.**

## **Appendix II: Questionnaire**

**Dear Participant,**

The main objective of this questionnaire is to gather raw data on the effect of financial decisions on business performance of MSE's in dairy industry in Murang'a County in Kenya. The data collected shall strictly be utilized for academic reasons only. I kindly request all participants to voluntarily respond to the questionnaires and confidentiality shall be guaranteed.

### **Instructions**

- (i) Do not write personal details such as names or mobile contacts.
- (ii) Fill appropriately.

### **Section I: Demographic Characteristics of the respondents**

1. Name the milk processing company/cooperative you deliver milk to .....
2. Tick appropriately the number of years you have been in dairy farming.

5 years and below	[ ]
6 to 10 years	[ ]
10 to 15 years	[ ]
16 years and above	[ ]
3. Fill appropriately number of workers in your dairy farm

2 workers and below	[ ]
2 to 4 workers	[ ]
5 to 7 workers	[ ]
8 to 10 workers	[ ]

## Section II: Financial Decisions

### Part A: Financing Decisions

Using a scale of one to five specify the degree to which financing decisions usually influence the Business achievement of your dairy farm? Where one denote no effect, two denote little effect, three denote moderate effect, four denote great effect and finally five denote very great effect.

<b>Financing Decisions</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
(i) Accessibility to agricultural credit					
(ii) Utilizing retained profits					
(iii) Utilizing long term debts					
(iv) Employing short term debts					
(v) Use of fintech sources of funds					
(vi) Interest rates on Loans					
(vii) Loan disbursement costs					
(viii) Utilizing finances from SACCO's					

### Part B: Investment Decisions

Using a scale of one to five specify the extent to which expenditure choices usually affect the Business achievement of your dairy farm? Where one denote no effect, two denote little effect, three denote moderate effect, four denote great effect and finally five denote very great effect.

<b>Investment Decisions</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
(i) Expansion of dairy farms					
(ii) Purchase of dairy farm machinery					
(iii) Construction of cow houses					
(iv) Maintenance of dairy farm structures					
(v) Leasing other dairy farms					
(vi) Diversification Strategies					

### **Pact C: Adoption of new technology in dairy farming**

Using a scale of one to five specify the extent to which adoption of new technology usually affect the business performance of your dairy farm? Where one denote no effect, two denote little effect, three denote moderate effect, four denote great effect and finally five denote very great effect.

<b>Adoption of new technology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
(i) Mobile phone technology					
(ii) Information management system					
(iii) Animal breeding technologies					
(iv) Animal genetic management					
(v) Fodder and concentrates management					
(vi) milk processing technologies					
(vii) Use of milking machines					
(viii) Use of cooling machines					

### **Section III: Business achievement**

Give a response on how the following listed parameters have affected the business performance of your dairy farm in last three years. Where;

1 = highly reduced

2 = Decreased

3 = Hardly a changes

4 = Increased

5 = considerably increased

<b>Parameters for measuring the business performance</b>	<b>Scale</b>
(i) Net profit margin	
(ii) Return on investments (ROI)	
(iii) Reduction in production costs	
(iv) Monthly incomes	

