

**EFFECT OF FINANCIAL INNOVATION ON PERFORMANCE OF DEPOSIT  
TAKING MICRO FINANCE INSTITUTION IN THIKA TOWN, KENYA**

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**MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENT)**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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**OCTOBER, 2016**

**DECLARATION**

This dissertation is my original work and has not been presented for an award of a degree in any other University.

HUSSEIN ABDI HASSAN

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Signature.....

Date .....

**Supervisor**

This dissertation has been submitted for examination with my approval as a University Supervisor.

Signature.....

Date.....

**DR. BEATRICE OKATCH**

## LIST OF ABBREVIATIONS AND ACRONYMS

APT	Arbitrage Pricing Theory
ARMs	Adjustable-Rate Mortgages
ATM	Automated Teller Machine
CAPM	Capital Asset Pricing Model
CDOs	Collateralized Debt Obligations
DTMs	Deposit-taking Microfinance Institutions
FSD	Financial Sector Deepening
KWFT	Kenya Women Finance Trust
MFIs	Microfinance institutions
R and D	Research and Development
RTGS	Real Time Gross Settlement
TAM	Technology Acceptance Model

## **ABSTRACT**

Financial innovation is considered to be a critical requirement for the growth and profitability of organizations. One of the ways to achieving growth and sustaining performance is to encourage and foster financial innovative practices and creativity internally within the institution. Microfinance institutions (MFIs) play a vital role in the economic development of many developing countries like Kenya. This study investigated on the effect of financial innovation on financial performance of Deposit Taking Micro Financial Institution. This study took on a descriptive survey research design. The study targeted seventy four (74) respondents from four (4) deposit taking microfinance institutions in Thika Town; Faulu deposit taking, Kenya Women Finance Trust DTM, REMU deposit taking, Rafiki deposit taking microfinance institution. Data was collected by using questionnaires administered to the respondents and therefore summarized using descriptive and inferential statistics. Through the use of SPSS software primary data was analyzed with descriptive statistics summarizing and tabulating information. The variables were also regressed to formulate a model that described the effect of financial innovations on financial performance of DTMFIs in Kenya. The research findings indicated that the level of financial innovations adopted by Deposit Taking Micro Finance Institutions in Kenya is a key determinant of financial performance. This study examined the effect of financial innovations on financial performance of deposit taking microfinance institutions in Thika. Results indicate that there have been a number of innovations in this sector which has impacted positively in the performance of microfinance institutions in Kenya. From inferential statistics, there exists a positive relationship between financial performance and the two innovation variables, Product Innovation and organizational innovation. Based on the conclusion, the study recommends that it is imperative for deposit taking micro finance institutions to be involved in continuous research and development not only to offer new products but also products that gratify the consumer. Continuous innovation will provide MFIs an ideal platform upon which they can grow their revenues and hence growth from being micro enterprises to fully pledged financial institutions.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

The term innovation comes from the Latin word “innovare”, meaning, “to make something new” (Burgelman, 2013). Undeniably, the impression of newness is included in some form in all definitions of innovation (Standing and Kiniti, 2011). Innovation can be seen the world’s major area of competitive advantage to many companies of the same industry in the world. It is significant to note that, the term innovation has different meanings.

The description of Innovation can be reflected as developments and new coverings, with an intention of beginning innovation towards economic improvement. Innovation is taken to be an amendment of information to profitable measures in the economy. With Innovation, there is a lot of economic significance because of its capability in the increasing in competence and the profitability of corporations. The main reason for employing innovation is in the goal of organizations to improve business performance as well as have a competitive advantage. Depending on the level of importance they give to innovations, market share and market advantage, are critical variables to grow the market positioning and market share growth (Cho and Pucik, 2005).

#### **1.1.1 Financial Innovations**

The significance of financial innovations is well researched and documented. Among the many scholars, Miller and Merton (1992) indicated the significant effect of new products and services in the financial sector. Empirical studies including Tufano (1989) indicated that in all public listings in the year 1987, 18% (on a dollar-weighted basis) composed of financial

securities existent as at 1974. The innovations were important to commercial banks but also other firms thus enabling them to raise finance in the capital markets at low costs.

Profitably enterprises and individuals are continuously seeking new and enhanced products, processes, through both development initiatives as well as formal research exercises. It may also be conducted through informal “tinkering” or trial-and-error efforts. According to Levine (1997), financial innovation is critical to the economy growth. Finance enhances almost all production activity and a great deal of consumption, positive ramifications throughout an economy and developments in the financial sector will have direct.

Like other economic behaviors, financial innovation, arises in anticipation of material gains which is a result of cost-benefit analysis. This analysis makes possible to grow revenue as well as reducing. This is because high technological change enhances cost reduction and thus effects innovation. Positive change in information technology has meaningfully depressed the cost of accounting-intensive products such as mutual funds. There are other product innovations depending on fast calculations and execution. Index arbitrage transaction and portfolio insurance are examples which have been made feasible by the upgrade in computer processing speeds. An ATM, which has helped reduce bank’s operating costs by replacing the teller functions with automated functions, is among the best innovations in the banking sector that’s been brought by technological innovations.

In a broader sense, financial innovations can be referred to as the development of new financial products and services, better financial processes and new organizational structures for a more developed and complete financial markets that brings down the risks and costs, or delivers an improved service that meets the specific requirements of financial system

contributors. Usually, innovation has produced a widespread focus as a research subject in social sciences with a precise interest on the relationship between innovation and competitive advantage. In a highly turbulent environment, a successful innovation creating a unique competitive position can give the company a competitive advantage and lead to a superior performance (Roberts and Amit, 2003). Normally, profit-seeking enterprises including banks are continuously looking for new and improved products, processes, and structures that can decrease their costs of production, be in a better position to satisfy their customers' needs, and gain higher profits. Bank clients request for variety, ease and new services. They want products that can meet their precise, individual needs. Technology boom in the past eras has helped banks to answer to this challenge.

The growth and globalization of financial markets has strengthened the necessity for changing the present structure and form of the financial system. This is as a result of competition which emerged between traditional commercial banks and other financial institutions. Financial regulations have been altered, typically towards dropping or removing limitations on financial activity, such as interest rate liberalization. This in effect triggers off the motivation for invention.

In Kenya, microfinance institutions in Kenya effecting the new financial innovations have affected their profitability. These includes ATM withdraws, Mobile banking, RTGS, online banking among many others. Due to the innovations, larger customer numbers, deposit and loan portfolios as well as improvement in efficiency and profitability has been realized.

### **1.1.2 Firm Performance**

According to Standing and Kiniti, (2011), the company performance includes three specific areas of firm outcomes financial performance profits, return on assets, return on investment; product market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added. In a survey on the quality, uses and alleged importance of numerous financial and non-financial measures. Therrien, Doloreux and Chamberlin, (2011) report wider disparities between the perceived quality and importance of non-financial measures as compared to financial measures. Perceived inadequacies in a traditional performance measurement system that focuses on financial measures have led many organizations to switch to and put greater emphasis on forward-looking non-financial measures such as customer satisfaction, employee learning and innovation (Standing and Kiniti, 2011).

Financial performance is a measure of how sound a firm can use assets from its primary mode of business and create revenues. Bernardin and Russel (1998) also suggest that the financial performance is the assessment of an organization overall financial strength for a defined period, and can be used for comparison across completion and industry performance. Calantone, Cavusgil and Zhao (2002) further indicate that, there are many different ways to measure financial performance. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. The analyst or investor may look deeper into financial statements and seek out margin growth rates or any declining debt.

#### **1.1.4 Deposit-Taking Microfinance Institutions in Kenya**

Kenyan microfinance sector is one of the liveliest in Sub-Saharan Africa with a diversity of institutional forms and a noble infrastructure to help the poor, microfinance doings remained not regulated until the year 2006. The absence of guideline to allow innovations to take place, made it possible for institutions to be set up easily without any barrier like minimum capital requirements. This environment has made the microfinance industry develop and manage to attain reasonably high outreach.

During the last two decades, commercial banking institutions trading with microfinance joined the field through a green fielding strategy such as Co-operative Bank which has institutional transformation approach. Equity Bank and Family Bank have altered from building societies and K-Rep Bank transformed from an MFI NGO. These institutions offer banking services to small and big clients. A high number of NGO MFIs have emerged and are serving the same market segment which some banks are offering. The NGO MFIs considered ways of expanding their businesses but they are not allowed to collect deposits and therefore have rely either on expensive funding sources (borrowings) or unreliable subsidies and grants.

The Microfinance Act of 2006 and the supportive Deposit Taking Microfinance Guidelines of 2008 have together paved the way for powerful changes in Kenya. With the support of the Financial Sector Deepening (FSD) Kenya, several microfinance institutions in Kenya were registered as deposit-taking microfinance institutions (DTMs). This process has enhanced the growth of microfinances but also has constrained them in terms of requirements for huge resources and capital base. As a result, more challenges have been experienced. In 2009, Kenya Women Finance Trust (KWFT) boarded on its journey into a deposit-taking

microfinance institution with the advantage that it had a large clientele base (over 250,000 women). In May 2013, the Central Bank of Kenya had already licensed nine microfinance institutions offering both deposit taking services as well as lending services. Among them were Faulu Kenya, Rafiki Deposit Taking Microfinance, SMEP, UWEZO Deposit Taking Microfinance Limited, Remu DTM Limited, SUMAC DTM Limited, Century Deposit Taking Microfinance Limited, U and I Deposit Taking Microfinance Limited and Kenya Women Finance Trust (KWFT). The above 9 MFIs was the sample for the study.

## **1.2 Problem Statement**

An organization which is competing in fast changing markets with fast changing technology must make things happen, it must innovate. If it does not innovate it risks being overtaken by competitors. Sometimes a business underestimates the competitive challenges it faces. The risk of this happening is high when competitors react to potential challenges in much the same way (Abernathy and Utterback, 2005). The role of financial innovations on efficiency and cost reductions in the financial sector is paramount to the successful and profitable service delivery in the sector. Financial innovations play a significant role in improving the efficiency of the financial sector as well as reducing the costs of banking transactions for customers. The financial sector has, for the past decade, witnessed various improvements and new technologies with the main purpose of improving the service delivery of the financial sector.

Shorter product life-cycles, the rising cost of emerging innovations and increasing competition may be responsible for a non-positive connection between innovations and firm performance. For instance, Zhang et al., (2007) conventional that firms can capture rents from their R and D investments only if they can effectively address the appropriability hazards that exist for innovation. They identified two types of hazards: local market related

and local partner related. Due to weak and ineffective laws protecting intellectual property rights, R and D activities may be leaked to local firms and thus internationalizing firms may not realize the full benefits of their R and D investments. Local firms may misuse a multinational corporation's proprietary technologies that are transferred to the local partner (Rosenbusch and Bausch, 2011). Competition, weak appropriability regimes and imitation are some of the factors that prevent firms from fully exploiting their innovations

A number of studies have been done related to innovations and firm performance, for example Geroski et al. (2003) did a study on innovations and firm performance of 721 manufacturing firms in U.K.; Calantone et al. (2002), developed a framework on learning orientation, secure innovativeness and firm performance in the U.S. manufacturing and service industries; Cho and Pucik (2005) examined the innovativeness, value, development, profitability and market worth at the firm level in the U.S. finance industry by using structural equation modeling method. These studies indicate that there is a positive relationship between firm innovation and firm performance. They indicated that innovativeness facilitates the relationship between excellence and development, quality intercedes the connection between innovativeness and profitability.

Studies indicates that, innovations practices and firm performance like innovations practices and firm performance food processing firms in Nairobi, Kenya Moenga (2012) innovations has brought about many challenges for the small scale tea sector in Kenya, Mogire, (2011) did a study on innovations in five star hotels in Nairobi, Onyango (2012) researched on relationship between innovations practices and firm performance cement industry in Kenya, Otila (2012) did a study on innovations practices used in the cosmetic industry in Kenya, Mukasa (2003) did a study on the impact of innovations practices on a firm performance the

case of Access Kenya, Gitonga (2007) did a study on perceived relationship between innovations practices and firm performance at the Ministry of Immigration and Registration of Births, Budi (2012), challenges in the innovations practices of firm performance within Kenya rural roads, these studies identified several critical problems with innovations; weak oversight institutions, poor linkages between procurements and expenditures, delays and inefficiencies and poor records management (Kimutai, 2012).

Drawing these issues from the existing literature together suggests that there are opportunities to investigate practices of financial innovation on financial performance of Deposit Taking Micro Financial Institution, in Kenya.

### **1.3 Objectives of the Study**

The following are objectives that guided the research

#### **1.3.1 General Objective**

The overall objective of this study is to investigate on the effect of financial innovation on financial performance of Deposit Taking Micro Financial Institution

#### **1.3.2 Specific Objectives**

The specific objectives of this study were to:

1. Establish the effect of product innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya
2. Determine the effect of process innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya

3. Establish the influence of marketing innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya
4. Establish the effect of organizational innovation on financial performance of Deposit Taking Micro Financial Institution

#### **1.4 Research Questions**

The research question of this study are:

- i. Does product innovation affect financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya?
- ii. Does process innovation affect financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya?
- iii. Does marketing innovation affect financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya?
- iv. Does organization innovation affect financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya?

#### **1.5 Scope of the study**

The study focused on effect of financial innovation on financial performance of the 4 deposit taking microfinance institutions in Thika. The study concentrates on the Deposit Taking Micro Financial Institution in Kenya. The research was conducted in the 6 month from February 2015 to august 2015.

#### **1.6 Significance of the Study**

The problem and its consequent solutions were applicable for firms and other financial institutions that are implementation of innovations in the company performance. It may also

be relevant to look into advanced ways through which Deposit Taking Micro Financial Institution can increase their competitiveness through the use of innovative technology and strategies for the benefit of their customers. An additional beneficiary in this research may include organizations that are looking to employ innovations and firm performance. The research outcome will focus on influences that should be considered in the firm performance and innovative management.

Furthermore this study is significant as the findings may underwrite to the existing body of knowledge on the effect of financial innovation on effectiveness. This is important not only in Kenya but also across the world for the sake of future of the sector, its clients and human kind in general. The study may also offer useful insights to scholars and sector practitioners through its recommendations on areas requiring further research. This is critical for the development, challenging and improvement of a model of dynamics.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter looks at the information from other researchers who have carried out their research in the same field of study and put it in summary. The specific areas covered here are theories of innovation, the impact of innovations on business growth, the forms of innovation namely; products and services innovation, process innovation, organization innovation, summary of empirical evidences and a chapter summary.

#### **2.2 Theoretical Framework**

This study has considered two frameworks which include: The Technology Acceptance Model (TAM) and Theory of Diffusion of Innovations.

##### **2.2.1 The Technology Acceptance Model**

Davis (1986) indicates that, TAM is a theoretical model that evaluates the impacts of things like system characteristics on user acceptance. This model undertakes that a computer user usually acts quite reasonably and uses information in a methodical manner to decide whether to approve, or not to use this technology in the workshop. Davis (1986) identified three major factors of technology acceptance that relate to cognition and effectiveness in firm performance and were suggested by previous research studies. Davis (1986) started with TRA and reviewed this as a foundation for causal links between supposed worth, supposed ease of use, attitude to using technology and behavioral intent to explicate technology application.

According to Technology Acceptance Model, these two philosophies are of primary implication for technology approval. PU denotes the potential user's particular likelihood that the use of a certain application will upsurge his or her performance. PEOU refers to the extent to which the possible user anticipates the prospective system to be free of effort (Davis, 1988). Upon the commercial banks appreciating the cost of technological innovations as acceptable, they are likely to accept and implement it.

### **2.2.2 Theory of Diffusion of Innovations**

According to Mahajan and Peterson (1985) defines innovation as any object, idea, or practice that the members of the social system term it as new. Further, diffusion of innovation is defined as the manner in which the innovation is passed across all the members of the social system. In this study, the spread and use of information technology in banking industry has spread rapidly across the globe

Even though innovation is good, it takes a long time for it to be embraced, this resistance to change might be a limitation to the innovation theory; however, it will not stop innovation from happening but slow down the spread of the innovation (Sevcik, 2004). There are five fundamental aspects that impact the diffusion of innovation theory. These factors include; friability, relative advantage, complexity, compatibility and observability. This factors influence the rate with which a new idea is adopted; particularly in the banking industry. For instance, if financial institutions observe the benefits of adopting information technology then they will adopt these innovations as long as all the tools for adoption of innovation are available. Moreover, adoption of such innovations will work better in organizations that have adequate resources in terms of funding, enabling environment as well as skilled man power to implement and maintain the new technological platforms.

### **2.2.3 Institutional Theory**

Institutional theory mainly begins with making the distinction between the ‘old’ and ‘new’ institutionalist approach. The pioneer work of Selznick (1949, 1957) established the ‘old’ institutionalist approach, where the unit of analysis was a single organization. Some of the main issues investigated were values, organization-environment interaction, coalitions, influence, power and informal structures (Greenwood and Hinings, 1996). The second group or so called ‘new’ institutionalists focus more on, for instance, organizational fields and their embeddedness, as well as issues of legitimacy, routines, scripts, and schema (Greenwood and Hinings, 1996). Scott and Meyer (1992: 140) used the term institutional sectors as meaning those “characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy from the environment”. With reference to industrial sectors, Erakovic and Powell (2006) emphasize similarities between them and the concepts of ‘institutional sectors’ (Scott and Meyer, 1992) and the ‘organizational field’ (DiMaggio and Powell, 1983). Also, according to these authors, industrial sectors present an, institutionally specific environment that provides resources, legitimacy and organizational networks.

DiMaggio and Powell (1983) suggested that legitimacy has a central role in institutional theory. It is defined as a force that constrains change and pressures organizations to act alike, or to imitate others. This is captured by the concept of isomorphism. Consequently, the institutional environment presents normative forces that pressure organizations to conform in certain ways in order to maintain their legitimacy. The emphasis, therefore, is on imitating the behavior of other similar, successful organizations. Institutional theory are mainly preoccupied with pointing out its lack of attention to the political processes, and to other non-institutional factors shaping the responses of organizations to pressures from the

environment. It is also criticized for a tendency to underestimate the significance of interest and agency (Beckert, 1999), as well as of powerful groups that use their power to enforce institutional compliance (see Covalleski and Dirsmith, 1988). In fact, what seems to have been lacking so far is explicit attention to an organization's strategic behaviors while responding to the institutional processes (DiMaggio, 1988; Perrow, 1985).

#### **2.2.4 Arbitrage Pricing Theory**

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976). It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. The Arbitrage Pricing Theory (APT) describes the price where an asset is given a wrong price and is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. Whereas the CAPM formula requires the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of wrong priced securities. A wrong priced security will have a price that differs from the theoretical price given by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations will be based on, the arbitrageur is in a position to make a theoretically risk-free profit (Ross, 1976).

The basis of arbitrage pricing theory is the idea that the price of a security is driven by a number of factors. These can be divided into two groups: macro factors, and company specific factors. The APT is a substitute for the Capital Asset Pricing Model (CAPM) in that both assert a linear relation between assets' expected returns and their covariance with other random variables. (Ross, 1976). The difference between CAPM and arbitrage pricing theory is that CAPM has a single non-company factor and a single beta, whereas arbitrage pricing

theory separates out non-company factors into as many as proves necessary. Each of these requires a separate beta. The beta of each factor is the sensitivity of the price of the security to that factor.

Arbitrage pricing theory does not rely on measuring the performance of the market. Instead, APT directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. Obvious factors include economic growth and interest rates. For companies in some sectors other factors are obviously relevant as well - such as consumer spending for retailers.

### **2.3 Empirical Review**

One of the essential instruments used by managers for growth strategies to enter new markets, in order to increase the current market share and to provide the company with a competitive advantage innovativeness (Bilgihan, Okumus, and Kwun 2011). Over a short run, the introduction of new products results in a competitive advantage which in turn leads to improved profitability of institutions. However, in the long run, the huge profits decline due to imitation by competitors. Continued innovation and change will however enhance constant profitability. (Sharma and Lacey, 2004). According to Varis and Littunen (2010), organizations engagement in innovation activities leads to improvement of performance. When the stream of newness and innovations shrinks, firms' economic structure calms down in an inactive state with little growth. Consequently, innovation plays a weighty role in creating the changes of performance and competition among firms, regions and even countries (Metcalf, 1998).

According to Standing and Kiniti, (2011); Kocand Ceylan, 2007), Innovation and firm performance has been shown in a number of empirical studies A study by Deshpande, Farley and Frederick (1993) among Japanese firms indicated that innovativeness is positively related to organizational performance in terms of profitability, size, market share, and development rate. Dwyer and Mellor (1993) found that Australian firms adopting a technologically offensive strategy had the highest percentage of new products developed and achieved the highest level of performance. Another study based on Canadian firms (Roberts, 1999) also demonstrated a significant return to innovation on a wide variety of business performance measures including market share and return on investment. A study among SMEs, operating in the food industry in Greece (Salavou, 2002), also found that product innovation was a significant determinant of business performance. R and D spending results in new products and process efficiencies, leading to competitive advantage that in turn improves performance (Aboody and Lev, 2000). However, the impact of innovation on firm performance is not always positive. The major discussions are focusing on the lines of: new products and services, new production process and new organizational forms:

### **2.3.1 Product innovation and Financial Performance**

A product innovation is the overview of a good or service that is new or has been improved with respect to its characteristics or intended uses (Standing and Kiniti, 2011). This includes significant improvements in technical conditions, components and materials, incorporated software, user friendliness or other functional features (e.g replacing inputs with materials which have improved characteristics: better textiles, strong composites and environmentally friendly plastics.

Tufano (1989) did a research on operations Innovation and first mover advantages. The objective of the study was to determine whether operations products innovators enjoy first mover advantages. The data was collected from 1,944 publicly traded securities, where he specifically, used a sample of 58 innovation to test whether investment banks that create new securities benefits by charging higher prices (underwriting charges) than imitators or by capturing large quantities. The study was conducted over the period 1974-1986. Tufano concluded that investment institutions which developed new financial products didn't charge higher prices prior to imitation and in the long run charges lower than its competitors. However the innovator would get more business that its competitors due to the earlier entry advantage.

Lynch and Tan, (2011) in their study young agents with low wealth-income ratios counter factually hold more stock than young, rich agents and old agents using the standard portfolio choice model with i.e. stock returns and labor income. The paper matches the countercyclical volatility and pro cyclical mean of U.S. labor income and finds that, consistent with U.S. data; young, poor agents now hold less stock than both young, rich agents and old agents, and no stock a large fraction of the time. Our results suggest that the predictability of labor income growth at a business-cycle frequency, particularly the countercyclical variation in volatility, plays an important role in a young agent's decision making about her portfolio's stock holding. Mortgage loans are one suite of products that have experienced a big change. In 1980, long-term fully amortizing fixed-rate mortgages were the norm and this product was offered primarily by few institutions (Pasha, 2009). Furthermore, these loans required one to make substantial down payments and one had to have a good credit history and the accumulated equity was quite illiquid.

These characteristics have markedly evolved. The first big change occurred in the early 1980s with the widespread introduction of various types of adjustable-rate mortgages (ARMs), which had previously been banned by federal regulators. In USA, Tax Reform Act of 1986, which ended federal income tax deductions for non-mortgage consumer debt, prompted an increase in home equity lending. One mortgage innovation more directly tied to technological change is subprime lending, which was originally established on the use of statistics for better risk measurement and risk-based pricing to compensate for these bigger risks. However, the subprime mortgage calamity has uncovered significant challenges in the underlying statistical models (Rakesh, 2007). Other examples of product innovations are; Airtel and Safaricom mobile phone money transfer services M-pesa and Zap to tap the potential for small scale transactions at reasonable costs. Equity Bank partnering with Safaricom to introduce the M-kesho service, Products tailored to suit specific status groups such as Excel, Priority, Premier and Executive Banking services Bank accounts tailored for specific age groups such as Barclay's Bank's Junior eagle account for children, premier and premier life banking for the affluent.

### **2.3.2 Process innovation and Financial Performance**

A process innovation is the employment of a new or better production or delivery method. This includes noteworthy changes in techniques, equipment or software e.g. installation of new or better manufacturing technology, such as automation equipment or real-time sensors that can adjust processes, computer-aided product development (Standing and Kiniti, 2011).

The past 25 years have witnessed significant changes in banks production procedures. The use of electronic transmission of bank-to-bank retail payments has expanded as a result of general customer acceptance, online banking and cheque conversion. In regard to

intermediation, there has been a solid movement toward a confidence on statistical models. For example, credit scoring has been progressively used to substitute for manual underwriting and has been extended even into relationship-oriented products like small business loans. Similar credit risk measurement models are also used when creating structured financial products through "securitization". Statistical modeling has also become central in the overall risk management processes at banks through portfolio stress testing and value-at-risk models – each of which is geared primarily to assessing portfolio value in the face of profound significant changes in financial asset returns. Real Time Gross Settlement (RTGS) system is a funds transfer mechanism in which transfer of money takes place from one bank to another on a real time and Gross basis. Real time means the transactions are processed as they are received. Gross settlement means the transactions are settled on one to one basis without batching with any other transaction. RTGS system is primarily for large value transactions. As soon as transactions are remitted by the paying bank they are credited in the receiving bank (Bencivenga and Smith, 2011).

He and Tian (2013) examined the effects of operational management innovation on firm performance. Their baseline results show that firms covered by a larger number of analysts generate fewer patents and patents with lower impact. To establish causality, they used a difference-in-differences approach that relies on the variation generated by multiple exogenous shocks to analyst coverage, as well as an instrumental variable approach. Their identification strategies suggest a negative causal effect of analyst coverage on firm innovation. This evidence is in line with the assertion that analysts put forth too much demands on business managers to meet immediate goals, impeding the company's investment in long-term innovative projects. We further discuss possible underlying mechanisms through which analysts impede innovation and show that there is a residual effect of analysts on

innovation even after controlling for these mechanisms. This paper offers novel evidence on previously under-explored adverse cons.

According to Lerner (2006), the origins of management innovation in US financial Service firms between 1990 and 2002; He identified two sources -Wall Street Journal Index (WSJI) from Wall Street articles as an innovation indicator and Factiva Database. Of the total 20916 observations or entries in the journal only 651 new stories meets the required criteria for innovations. The distribution was further reclassified into various panels and industry of innovators. The analysis focuses on the nature of the financial institutions that undertake the innovations. He estimates both pool and random effects panel data models under different specifications e.g. negative binomial, poisson. He finds that smaller firms account for a disproportionate share of the innovations, as do less profitable firms though their profitability increases significantly in subsequent years. Older, less leveraged firms and those located in regions with more financial innovation are more innovative.

Asset securitization is the process by which assets which have not been traded are transformed into new forms of assets. Its mainly utilised by large originators of retail credit specifically mortgages, credit cards and automobile loans. As at end of 2007, private ABS issues and government sponsored mortgage pools totaled almost \$9.0 trillion in U.S. credit market debt outstanding.

On the other hand, as attend of 1990, these figures were \$1.3 trillion. A current innovation in the structured finance/securitization area is the introduction of collateralized debt obligations (CDOs). Introduced in mid-1990s, CDOs are now more than \$1.5 trillion (Longstaff and Rajan, 2006)

Innovations in information technology (both hardware and software) and financial theory prompted a revolution in bank risk managing over the past two decades. Two popular approaches to assessing and supervising financial risks are stress-testing and value-at-risk (VaR). Whichever way, the idea is to identify the level of capital required for the bank to continue being solvent in the face of unlikely hostile environments.

### **2.3.3 Marketing innovation and Financial Performance**

A marketing innovation is the application of a new marketing method involving substantial changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations are directed at better addressing customer needs, opening up new markets e.g. implementation of a significant change in the design of a furniture line to give it a new look and widen its appeal.

Service innovation relates to enhanced account access and new ways of payment-each of which better meets consumer demands for convenience and ease. Automated Teller Machines (ATMs), which were introduced in the early 1970s and diffused rapidly through the 1980s, have since improved access to accounts and value by providing customers with around the clock access to funds (Rakesh, 2007). ATM cards have since been largely replaced by debit cards, which bundle ATM access with the ability to make payment from a bank account at the point of sale. With time remote access has migrated from the telephone to the personal computer. Online banking, which allows customers to monitor accounts and originate payments using “electronic bill payment,” is currently used. Stored-value, or prepaid, cards have also become abundant (Montiel, 2000).

According to the Munk and Sorensen, (2010), the optimal portfolios when interest rates and labor income are stochastic with the expected income growth being affine in the short-term interest rate in order to encompass business cycle variations in wages. A body which is the study of Income Dynamics (PSID) data supports this relation with considerable difference across individuals in the slope of this affine function. The slope is crucial for the valuation and riskiness of human capital and for the optimal stock/bond/cash allocation both in an unconstrained complete market and in an incomplete market with liquidity and short-sales constraints.

Debit cards have become pay-now instruments connected to a checking account whereby transactions can happen either instantly using online (PIN based) methods or in the near future with offline (signature based) methods. Consumers normally have the choice of using online or offline methods, and their selection often centers on the particular benefits. Online debit allows the cardholder also to withdraw cash at the point-of-sale, and offline provides float (Bencivenga and Smith, 1991). There were around 26.5 billion debit transactions in the U.S. during 2006. This is up from 6.5 billion transactions in 1999 a four-fold increase (ATM and Debit News, 2007).

As households and firms rapidly adopted internet access during the late-1990s, Savings and Credit Co-Operatives established an online presence. According to De Young (2005), the first bank websites were launched in 1995: nearly one-half of all U.S. on the year 2002 banks and thrifts operated transactional websites. As of 2007, report from bank call data indicate that 77.0% of Savings and Credit Co-Operatives offer transactional websites (and these banks control 96.8 percent of commercial bank deposits (Reddy, 2005).

Relating to online banking, the primary line of research has been aimed at understanding the determinants of bank adoption and how the technology has affected bank performance. Furst, Lang, and Nolle (2002) find that U.S. national banks (by the end of the third quarter of 1999) were more likely to offer transactional websites if they were: larger, younger, affiliated with a holding company, located in an urban area, and had higher fixed expenses and non-interested income. In relation to online bank performance, De Young, (2007) indicated that internet adoption improved the United States community bank profitability largely through deposit-related charges. Online banking was associated with less costs and higher profits for a sample of Spanish banks. The research conclude that the internet channel is an accompaniment to rather than a substitute for physical bank branches (Hernando and Nieto, 2007).

According to Reddy (2006), prepaid cards are instruments whereby cardholders “pay early” and in advance puts aside some cash for future use. By distinction, debit cards are “pay-now”, and credit cards are “pay later”. The monetary value of the prepaid card resides either of the card or at a remote database. According to Mercator Advisory Group, prepaid cards accounted for over \$180 billion in transaction volume in 2006.

Prepaid cards can be defined as either as closes systems for example a retailer-specific gift card or “open” systems for instance payment-network branded card, like Travel permit Visa and MasterCard). As a cash substitute, closed-system prepaid cards have been effective on university campuses, as well as for mass transit systems and retailers.

#### **2.3.4 Organizational innovation and Financial Performance**

An organizational innovation is the implementation of a new organizational business practices, firm organization or external relations. Organizational innovations can be

improving workplace satisfaction and thus labour productivity, gaining access to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies e.g. first-time introduction of management systems for general production or supply operations, such as supply chain management, business reengineering, lean production, quality management system (Standing and Kiniti, 2011).

Factors that affect the sector are organization innovations and institutional innovations. They relate to changes in business structures, establishment of new types of intermediaries and changes in the legal and supervisory framework. Some of the innovations include; disseminate customer information to lenders and Credit Reference Bureaus which collect and manage within a provided regulatory framework. Banks getting into stock brokerage services commercial banks are moving to acquire stock brokerage and investment banks to get involved in the stock market activity for instance Co-operative Bank Kenya, Equity Bank and NIC Bank offering insurance services on behalf of insurance companies, Islamic Banking that is guided by Islamic Sharia Law. The Islamic banks include First Community Bank, Gulf African Bank and Barclays Bank of Kenya.

A study done on the effect of operations performance on firms innovative activities indicates that using a rich data set on innovation for a large number of Italian firms over the 1990s. There is evidence that banking development affects the probability of process innovation, particularly for firms in high-tech sectors, in sectors more dependent upon external finance, and for firms that are small. The evidence for product innovation is much weaker and not robust. (Benfratello, Schiantarelli and Sembenelli, 2008).

Kaustia and Knüpfer (2012) studied on how peer performance has an impact the adoption of organization innovations and investment styles, this is especially in areas with better

opportunities for social learning. The likelihood that an entry does not decrease as returns fall is zero, consistent with people not talking about decisions that have produced poor outcomes. Market returns, media coverage, local stocks, omitted local variables, short sales constraints, and stock purchases within households do not seem to explain these results.

## **2.4 Knowledge Gap**

According to Mbogo & Ashika (2005) on their study on factors influencing product innovation in micro finance institutions in Kenya, results from this finding indicates that there is a positive correlation between legal environment, liquidity management and human resources for MFIs and product innovation hence performance of micro finance institution. A study done by Mwangi (2007) on factors influencing financial innovation in Kenya's securities market the findings indicates that the technology directly affects financial institution performance.

Cull et al. (2009) investigate the performance of MFIs under the pressure of competition from formal banks, measuring competitive pressure by using bank penetration variables such as the number of bank branches per capita and per square kilometer. Their results show that MFIs faced with high competition tend to reduce the breadth of outreach but will focus more on the depth of outreach, i.e., more loans to women borrowers and smaller loans. However, the effect on other performance indicators, such as profitability, appears to be weak.

None of these studies covered the four types of financial innovation conclusively; the study therefore intended to fill these pertinent gaps in literature by studying the selected independent variables on the influence of financial innovation on financial performance of deposit taking microfinance institutions in Thika Town, Kenya. This study will add value to

existing literature by providing empirical evidence on the influence of innovativeness on the financial performance of deposit taking microfinance institutions in Kenya and fill the existing contextual and conceptual gaps.

## **2.5 Research Hypothesis**

The following are research hypothesis;

1. H<sub>0</sub>: There is no significant relationship between product innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya  
H<sub>1</sub>: There is a positive significant relationship between product innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya
2. H<sub>0</sub>: There is no significant relationship between process innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya  
H<sub>1</sub>: There is a positive significant relationship between process innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya
3. H<sub>0</sub>: There is no significant relationship between marketing innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya  
H<sub>1</sub>: There is a positive significant relationship between marketing innovation and financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya

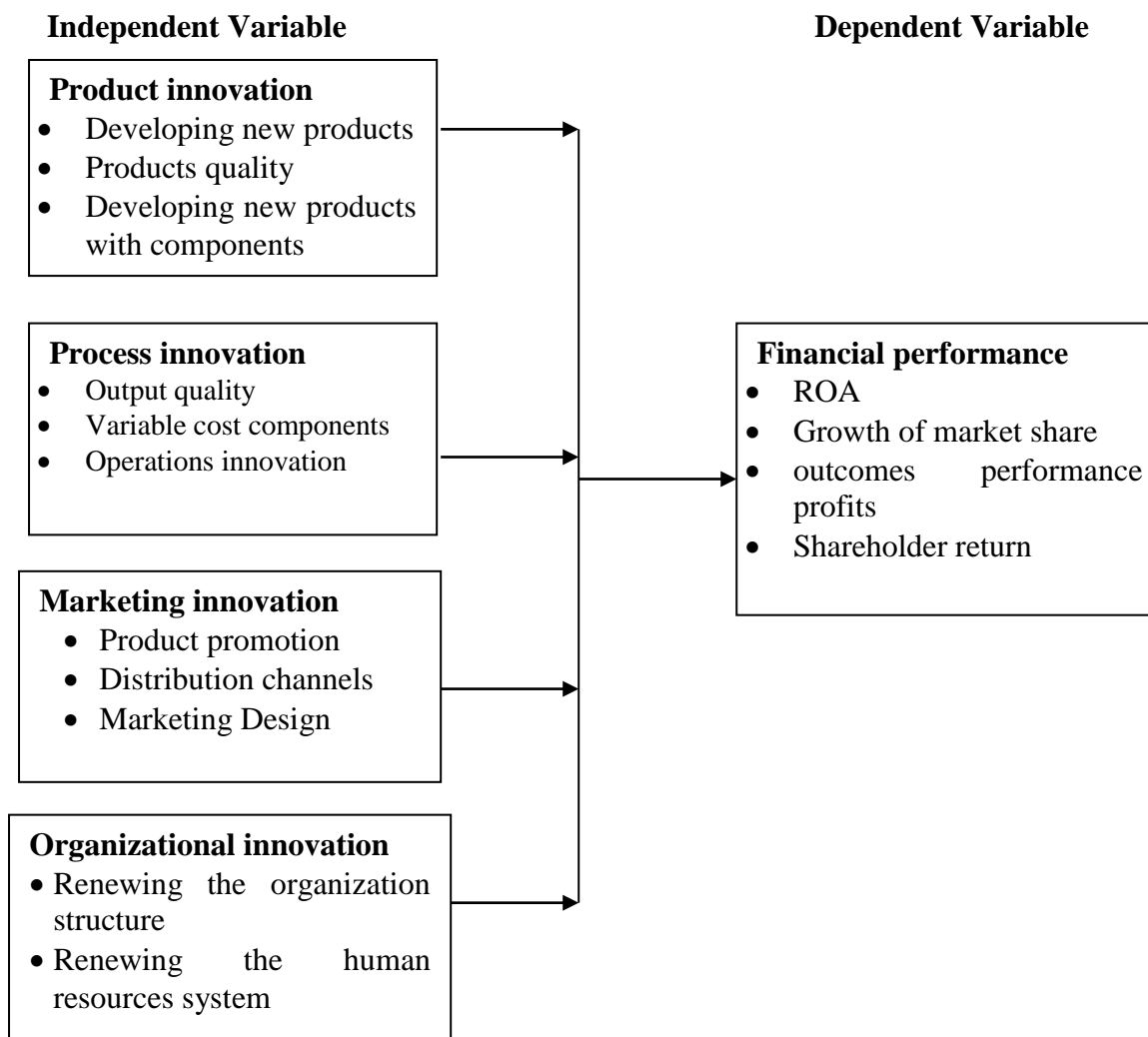
4.  $H_0$ : There is no significant relationship between organizational innovation and financial performance of Deposit Taking Micro Financial Institution

$H_1$ : There is a positive significant relationship between organizational innovation and financial performance of Deposit Taking Micro Financial Institution

## 2.6 Conceptual Framework

The conceptual framework illustrates the relationship between the independent and the dependent variables in a diagrammatical presentation

**Figure 2.1: Conceptual Framework**



## 2.7 Operationalization of variables

This section analyses the operational definition of variables on the effect of financial innovation on financial performance of deposit taking micro finance institution in Thika Town, Kenya. Variable are given in Table 1.

**Table 2.1: Operationalization of variables**

Objectives	Variable	Indicators	Measurement	Scale	Data collection methods	Tool of Analysis
Establish the effect of product innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya	Product innovation	<ul style="list-style-type: none"> <li>• Developing new products</li> <li>• Products quality</li> <li>• Developing new products with components</li> </ul>	Frequency Percentage Mean Standard deviation	Ordinal Nominal	Questionnaires Observation	Quantitative
Determine the effect of process innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya	Process innovation	<ul style="list-style-type: none"> <li>• Output quality</li> <li>• Variable cost components</li> <li>• Operations innovation</li> </ul>	Frequency Percentage Mean Standard deviation	Ordinal Nominal	Questionnaires Observation	Quantitative
Establish the influence of marketing innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya	Marketing innovation	<ul style="list-style-type: none"> <li>• Product promotion</li> <li>• Distribution channels</li> <li>• Marketing Design</li> </ul>	Frequency Percentage Mean Standard deviation	Ordinal Nominal	Questionnaires Observation	Quantitative
Establish the effect of organizational innovation on financial performance of Deposit Taking Micro Financial Institution	Organizational innovation	<ul style="list-style-type: none"> <li>• Renewing the organization structure</li> <li>• Renewing the human resources system</li> </ul>	Frequency Percentage Mean Standard deviation	Ordinal Nominal	Questionnaires Observation	Quantitative

## **2.8 Chapter Summary**

The foregoing literature review highlights the innovations on firm performance in these challenging times of changing external environments. It is consequently important that MFIs implement the relevant strategies for competitive advantage that led to incredible firm performance. It's true that effectiveness of monetary transmission mechanism hinges on changing forms and character of financial diversity and depth of financial markets. In this context, the author contends that with an increasing role of innovations, investors have greater options to diversify their financing away from banks through the issue of bonds and equities. Accordingly, such changes in the innovation system impact on the effectiveness of monetary policy by increasing or decreasing lags from changes in the Central Bank policy rate to the cost of funds to business and households, as well as relative returns of different asset classes for savers and investors. For instance, greater reliance on alternative sources of innovations by business and corporations may delay speed and magnitude of transmission of policy rates to the actual cost of operation management.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the research methodology that was used, with an aim to achieve the objectives of the study. Attention was focused on research design, study population or target population, sampling techniques, sample size, data collection instruments, data collection procedure and data analysis procedures.

#### **3.2 Research Design**

This study took on a descriptive survey research design. According to schindler (2006). people or events through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated. This was a descriptive study where the researchers gathered data from the 4 deposit taking microfinance institutions in Thika. The study employed both quantitative method through analysis of the innovations to provide predominantly quantitative and qualitative data to the study. In this study, a census was applied.

#### **3.3 Target Population**

The target population in a research study is the total number of individuals in a group or the number of groups that the researchers are intending to work with (Cooper and Schindler 2001). In this study, the targeted population was the seventy four (74) respondents from four (4) deposit taking microfinance institutions in Thika Town; Faulu deposit taking, Kenya Women Finance Trust DTM, REMU deposit taking, Rafiki deposit taking microfinance institution.

**Table 3.2: Target Population**

List Companies		Target Population
Faulu Kenya DTM	Top level Managers	2
	Middle level Managers	3
	Subordinates	22
KWFT DTM	Top level Managers	1
	Middle level Managers	1
	Subordinates	8
REMU DTM	Top level Managers	1
	Middle level Managers	4
	Subordinates	11
Rafiki DTM.	Top level Managers	1
	Middle level Managers	5
	Subordinates	15
Total		74

### **3.4 Sampling Design**

According to Adèr, et al., (2008), sampling is concerned with the selection of individual observations with an intention to yield some knowledge about a population of concern especially for the purposes of statistical inferences. Observable measures is considered to measure one or more properties of an observable entity that has been enumerated to distinguish the objects. The sampling technique that was employed in this study was a census with a clear preference on this based on the fact that the population sample is small.

### **3.5 Data Collection**

The study used primary data collection methods. Primary data involved administration of questionnaires to the selected employees of the Deposit Taking Micro Financial Institution in the study. Administration of the questionnaires helped the research in each and every departmental unit. The questionnaires was used because they allow the respondents to give their responses in a free environment and helped the researcher get information that would not have been given out had interviews been used. The questionnaire was self-administered to all the respondents.

### **3.6 Pilot testing**

According to Trochim (2006), Pilot testing is a small-scale trial, where a few examinees take the test and comment on the mechanics of the test. In test development projects of all kinds, the trialing of new items is typically taken into Pilot Testing. They point out any problems with the test instructions, instances where items are not clear, and formatting and other typographical errors and/or issues. In the case of computer-based testing, pilot-test examinees also comment on any issues with the computer interface. Once all issues with the test items and forms have been addressed, the tests are ready for large-scale field testing. The primary purpose of field testing is to construct an initial picture of test validity and reliability. The test is administered to 10 examinees and the raw data is used in the psychometric analysis.

#### **3.6.1 Validity of Instruments**

Joppe (2010) provides the following explanation of what validity is in quantitative research where validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and often look for the answers in the research of others.

Wainer and Braun (1998) describe the validity in quantitative research as "construct validity". The construct is the initial concept, notion, question or hypothesis that determines which data is to be gathered and how it is to be gathered. They also assert that quantitative researchers actively cause or affect the interplay between construct and data in order to validate their investigation, usually by the application of a test or other process. In this sense, the involvement of the researchers in the research process would greatly reduce the validity

of a test. Data quality was incorporated in the entire study process especially at the data collection point to include completeness of questionnaires, legibility of records and validity of responses. At the data processing point, quality control included; data cleaning, validation and confidentiality. There are three types of validity which was addressed and stated; *Face validity* with pre-testing of survey instruments is a good way used to increase the likelihood of face validity. *Content validity* the use of expert opinions, literature searches, and pretest open-ended questions helped to establish content validity.

### **3.6.2 Reliability of Instruments**

Joppe (2010) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Reliability refers to consistency of measurement; the more reliable an instrument is, the more consistent the measure (Mugenda and Mugenda, 2003). To enhance reliability of instruments, a pilot study was done through administering questionnaire randomly 10 questioners to other financial institution, the area has similar characteristic as the case under study. Gliem and Gliem (2003) established Alpha value threshold at 0.7 thus forming study's benchmark. Alpha was established for every objective which formed a scale as shown in Table 4.1.

**Table 3.3: Summary of Reliability Coefficients for Variables of the Study**

<b>Variable</b>	<b>Cronbach Alpha</b>	<b>Comment</b>
Products innovation and financial performance	0.891	Reliable
Process innovation and financial performance	0.831	Reliable
Marketing innovation and financial performance	0.765	Reliable
Organizational innovation and financial performance	0.761	Reliable
<b>Overall</b>	<b>0.812</b>	<b>Excellent</b>

The ten questionnaires were pre-tested through a pilot test with individuals from the same organizations to avoid double inclusion of pre-test participants in the main study. Products and process innovation showed the highest levels of reliability at 0.891 and 0.835 respectively on financial innovation. Marketing innovation 0.765; and organizational innovation showed the lowest level of 0.761 but above the 0.700 measure that is recommended as evidence that the measurement items have a high measure of internal consistency for underlying constructs of the questionnaire. An alpha score of 0.70 or more indicate that the instrument is reliable. Their feedback helped in making vital adjustments to enhance reliability and validity of the study findings. To ascertain the reliability of the data collection instrument were examined by professionals who include researchers and supervisor.

### **3.7 Data Analysis**

The filled questionnaires were edited for wholeness and uniformity, checked for errors and omissions and then coded to SPSS and analyzed qualitatively and quantitatively. Qualitatively the data was sought into themes, categories and patterns. This enabled the researcher to make general statements in terms of the observed features hence conceptualization according to Saunders (2007).

Data from questionnaires was summarized, coded, tabulated and analyzed. Editing was done to improve the quality of data for coding. Coded data was then fed into the statistical package for social sciences (SPSS) version 21. This version of SPSS is advantageous because it offers a more user friendly interface and can easily be linked with Microsoft office utility programs. Descriptive statistics were used. Editing involves going through the questionnaires to see if respondents responded to questions and see if there are blank responses. Tabulation involves counting the number of cases that fall into various categories. Descriptive statistics which include standard deviation, mean was then computed, each for the outsourcing strategies. Standard deviation represented the degree of variability in the responses.

A multiple regression model was used in determining the level of influence the independent variables have on dependent variable as shown below:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3+ \beta_4X_4 + \varepsilon$$

Where;        Y                        = Performance of DTMs

$\beta_0$                         = Performance of DTMs in absence of financial innovation

$\beta_1, \beta_2, \beta_3, \beta_4$     = Beta coefficients of the independent variables

$X_1$                         = product innovation

$X_2$                         = process innovation

$X_3$                         = marketing innovation

$X_4$                         = organizational innovation

$\varepsilon$                      = Error Term

### **3.8 Ethical Consideration**

The study was conducted in an ethical manner. The respondents were explained the purpose of the study and they were assured that the information given was treated as confidential and

their names will never be divulged. Informed consent was sought from all the participants that agree to participate (Zinkmund, 2000). A research approval was also sought. The researcher personally administered the questionnaire to the respondents.

Their confidential information was only accessed by the researcher and the supervisor. They are not required to provide any identifying details and as such, transcripts and the final report will not reflect the subjects identifying information such as their names, in the case they are not comfortable with it. After the study has been completed and a final report written, the tools used to collect data will be destroyed.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND FINDINGS**

#### **4.1 Introduction**

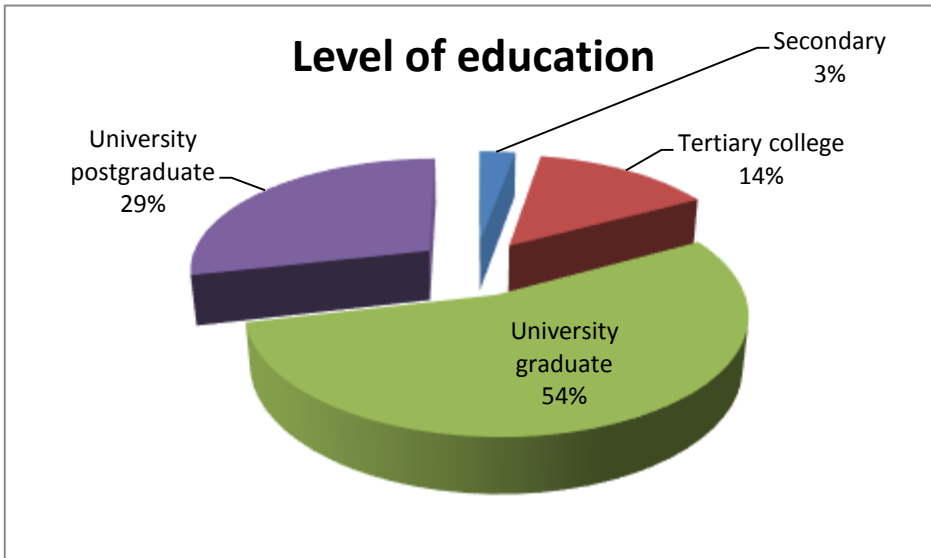
This chapter presents the research findings and interpretation of study data. The study investigated on the effect of financial innovation on financial performance of Deposit Taking Micro Financial Institution. Data was collected from four (4) deposit taking microfinance institutions in Thika Town; Faulu deposit taking, Kenya Women Finance Trust DTM, REMU deposit taking, Rafiki deposit taking microfinance institution.

The study targeted 74 respondents and questionnaires were distributed out of which only 70 were reimbursed fully completed. This constitutes a response rate of 94.5 percent which is good for the study. According to Mugenda and Mugenda (2003) this response rate was fair and representative since it surpasses the 50% threshold for analysis and reporting, a response rate of 70 percent is good while 77 percent and over is very good. The good turn up can be attributed to the data collection procedures, where the researcher notified potential participants in advance and utilized self-administered questionnaires in which respondents completed and the same was picked shortly. In addition follow up was made when some respondents delayed in handing over the questionnaires. Data analysis and the report of the findings were done using descriptive statistics in the form of tables, figures, frequencies and percentages.

#### **4.2 General information**

##### **4.2.1 Highest Level of Education**

The respondents were asked to specify their highest level of education. Figure 4.1 shows the study findings

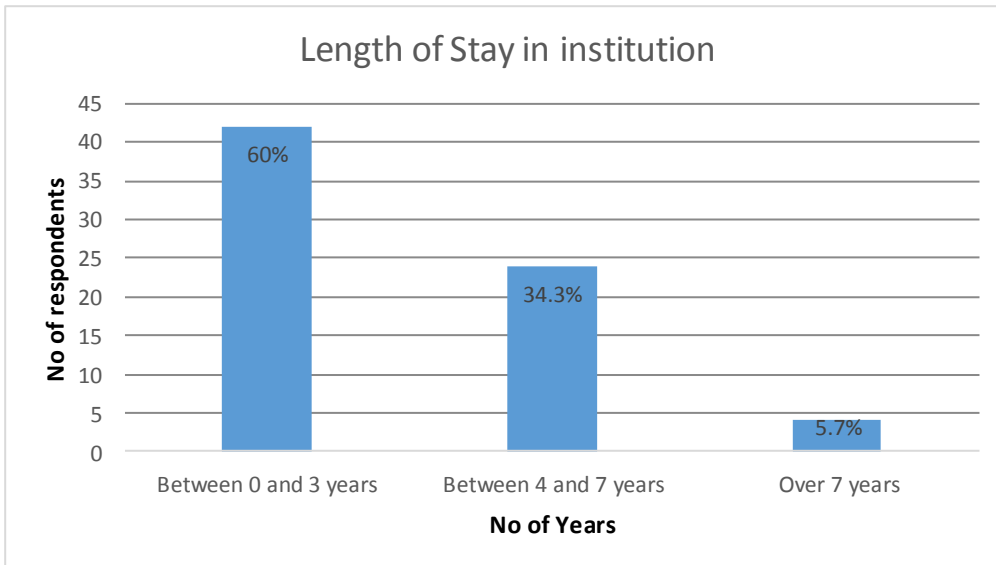


**Figure 4.2: Highest Level of Education**

From Figure 4.1, majority of the respondents 54 percent had undergraduate degree. This was followed by 14 percent who had attained diploma level. 29 percent of the respondents indicated they had a postgraduate degree while 3 percent indicated they had attained a certificate. The findings indicate that majority of the respondents had attained their undergraduate studies and therefore were in a good position to respond effectively and give rich information to our study. The highest level of education in an organization is associated with learning and experience thus the respondents with high level of education are assumed to be more efficient.

#### **4.2.2 Length of Institution Operation**

The respondents were asked to indicate the number of years the organisation has been in operation. Figure 4.2 shows the study findings.

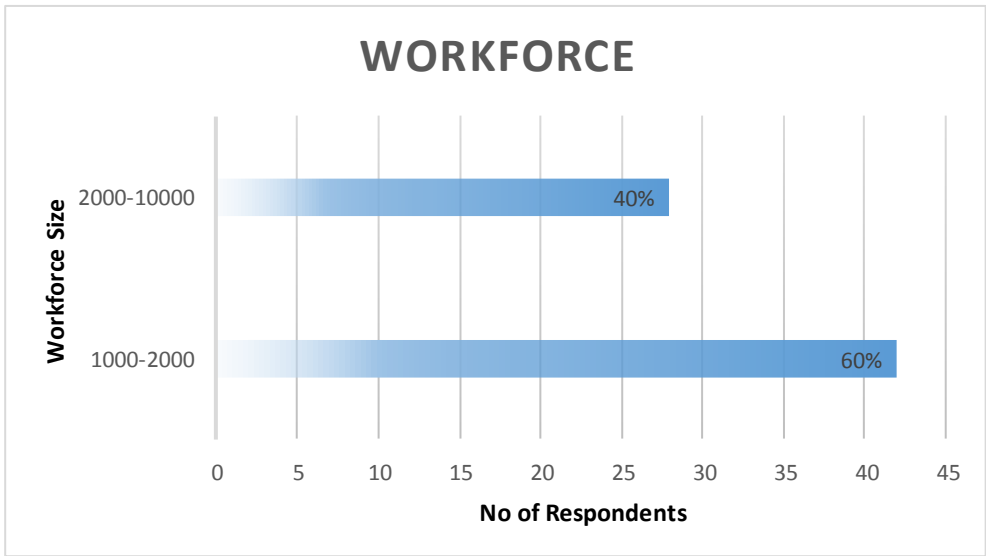


**Figure 4.3: Length of Institution Operation**

The findings in Figure 4.2 indicate that 5.7% of the deposit taking microfinance institutions had been in operation for over 7 years, 34.3% of the deposit taking microfinance institutions had been operation for 4-7 years while another 60% had been in operation for 0-3 years. The number of years an employee worked in an organization meant understanding of the organization's operations hence was considered important in evaluating the respondents' appropriateness as relevant and knowledgeable respondents.

#### **4.2.3 Size of organization/institution workforce**

The respondents were asked to indicate the size of their institutional workforce. Figure 4.3 shows the study findings



**Figure 4.4: Size of institution workforce**

The findings in the Figure 4.3 show that majority of the respondents 60% were of the opinion that their institution workforce was below 1000-2000, this was followed by 40% who indicated that their institution workforce was between 2000-10000. All the respondents were considered to understand the organizational operations hence suitable source of reliable information.

**4.3 Product Innovations and Financial Performance**

The respondents were asked to rate the following factors on Product Innovations. The table below shows the study finding.

**Table 4.4: Product Innovations**

<b>Product Innovations</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Development of new products with technical specifications and functionalities totally differing from the current ones.	70	4.0571	.77806
Innovating newness for current products leading to improved ease of use for customers and to improved customer satisfaction.	70	4.1000	.88711
Developing new products with components and materials totally differing from the current ones.	70	4.1286	.81510
Increasing manufacturing quality in components and materials of current products	70	4.2000	.69366
Decreasing manufacturing cost in components and materials	70	4.2429	.75057
Valid N (listwise)	70		

From the findings Table 4.4, Standard deviation measures the spread of a set of observations and it is the square root of the variance. This means that the standard deviation for product innovation was low therefore most of the respondent agreed to the statement on product innovation. Mean is the arithmetic mean across the observations. It is the most widely used measure of central tendency in table the means are above value 2.5 show that majority of the respondents agreed with the statements in regard to influence of product innovations on financial performance. They agreed that the institution comes up with a new feature for current products thus improved ease of use and satisfaction for customers with a mean of 4.100. They also agreed that the institution decrease manufacturing cost in components and materials of current products with a mean of 4.2429. The institution does develop new products with components and materials totally differing from the current ones as agreed with a mean of 4.1286.

#### **4.4 Process Innovations and Financial Performance**

The respondents were asked to rate the following factors on Process Innovations. Table 4.2 shows the study finding.

**Table 4.5: Process Innovations**

<b>Process Innovations</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Determining and eliminating non value adding activities in delivery related processes	70	2.9143	1.05971
Increase output quality in manufacturing processes, techniques, machinery and software	70	3.0000	1.10335
Decreasing variable cost components in manufacturing processes, techniques, machinery and software.	70	3.4857	1.05971
Determining and eliminating non value adding activities in production processes	70	3.8571	.99689
Valid N (listwise)	70		

The findings in the Table 4.5 shows that majority of the respondents agreed that there was eliminating non value adding activities in production processes and delivery related processes as supported by means of 3.8571 and 2.9143 respectively. The respondents agreed that the institutions amplified output quality in manufacturing processes, machinery and software with a mean of 3.000. They also agreed that there was Decreasing variable cost components in manufacturing processes, techniques, machinery and software with a mean of 3.4857.

#### **4.5 Marketing Innovations and Financial Performance**

The respondents were asked to rate the following factors on marketing innovations. The table below shows the study finding.

**Table 4.6: Marketing Innovations**

<b>Marketing Innovations</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Renewing the product promotion techniques employed for the promotion of the current and/or new products	70	4.457	0.55653
Renewing the distribution channels without changing the logistics processes related to the delivery of the product.	70	4.4	0.62322
Renewing the product pricing techniques employed for the pricing of the current and/or new products.	70	4.143	0.85611
Renewing the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features	70	3.957	0.80642
Renewing general marketing management activities	70	4.429	0.69306
Valid N (listwise)	70		

The findings in Table 4.6 indicate that that the respondents agreed that the institution refurbishes the design of the current and/or new products through changes such as in packaging, appearance, shape and volume without changing their basic functional and technical features as supported with a mean of 3.957. They also strongly agreed that the institution renews the product promotion techniques employed for the promotion of the current and/or new products with a mean of 4.457. They equally agreed that they renew general marketing management activities and distribution channels without changing the logistics processes related to the delivery of the product with a mean of 4.429 and 4.4 respectively. The respondents discretely agreed that they renew the product pricing techniques employed for the pricing of the current and/or new products with a mean of 4.143.

#### 4.6 Organizational Innovations and Financial Performance

The respondents were asked to rate the following factors on organization innovations. Table 4.4 shows the study finding

**Table 4.7: Organizational Innovations**

<b>Organizational Innovations</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Renewing the organization structure to facilitate teamwork	70	1.9857	1.47926
Renewing the production and quality management systems.	70	2.1714	1.22736
Renewing the organization structure to facilitate coordination between different functions such as marketing and manufacturing.	70	2.7429	1.23577
Renewing the routines, procedures and processes employed to execute firm activities in innovative manner	70	3.3000	1.28931
Renewing the human resources management system	70	3.3429	1.23811
Renewing the supply chain management system	70	3.0714	1.14615
Renewing the organization structure to facilitate project type organization.	70	3.0714	1.14615
Renewing the in-firm management information system and information sharing practice	70	2.7286	1.30685
Renewing the organizational structure to facilitate strategic partnerships and long-term business collaborations. <sup>9</sup>	70	2.9857	1.49872
Valid N (listwise)	70		

From the findings in Table 4.7, the respondents agreed with the statement provided with the highest rated statement being renewing the human resources management system with a mean of 3.3429. They also agreed that that they renew the routines, procedures and processes employed to execute firm activities in innovative manner with a mean of 3.300 The respondents agreed that there was Renewing the supply chain management system the with a mean of 3.0714 and they also agreed that there was Renewing the organization structure to facilitate project type organization with a mean of 3.0714.

#### 4.7 Firm Performance

The respondents were asked to rate the statement provided on firm performance. Table 4.5 shows the study finding.

**Table 4.8: Firm Performance**

<b>Firm Performance</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Annual sales revenue (KSHs million)	70	3.9714	0.9776
Growth rate of annual sales revenue (%)	70	3.5143	1.29372
Annual export revenue (KSHs million)	70	3.8286	1.0211
Growth of annual export revenue (%)	70	3.8286	1.06283
Market share of primary product (%)	70	3.8429	0.84503
Growth of market share of primary product (%)	70	4.0571	0.77806
Innovation expenses (KSHs million)	70	4.1	0.88711
Growth rate of innovation expenses (%)	70	4.1286	0.8151
Growth of market share of primary product (%)	70	4.2429	0.75057
Share of RD and employees (%)	70	4.2	0.69366

The results in Table 4.8 show that the respondents agreed that the institutions have increased their Annual sales revenue with a mean of 3.9714 and Growth of market share of primary product was supported with a mean of 4.0571. They agreed that there was an increase in growth rate of innovation expenses with a mean of 4.1. The respondents moderately agreed that there was an increase in the Annual export revenue with a mean of 3.8286 and Share of RD and employees was moderately agreed with a mean of 4.2.

#### 4.8 Regression Analysis

To identify the relationship between financial innovation on financial performance of Deposit Taking Micro Financial Institution. The study run a linear multiple regression test to establish the effects of each of the innovations. The findings are discussed in the following sections.

**Table 4.9: Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.737 <sup>a</sup>	.858	.721	.28047

The findings shown in Table 4.9 indicate the extent of disparities on the financial performance which are explained by the independent variables. The R<sup>2</sup> value is 0.858. This means that the independent variables explain 85.8 percent of the disparities in dependent variable. The rest 14.2 percent are explained by other factors.

**Table 4.10: Analysis of Variance ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.310	4	3.577	45.476	.000 <sup>b</sup>
	Residual	5.113	65	.079		
	Total	19.423	69			

a. Dependent Variable: financial performance

b. Predictors: (Constant), product innovation , process innovation, marketing innovation, organization innovation

The results in Table 4.10 show that the independent variables are statistically significant in predicting the financial performance of the DTMFI. The study identified a significant value of p=0.000 showing a statistical significance relationship.

**Table 4.11: Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.431	0.379		-1.137	0.26
1 product innovation	0.5	0.07	0.532	7.133	0.00
process innovation	0.628	0.098	0.478	6.425	0.00
marketing innovation	0.031	0.049	0.045	0.631	0.05
organizational innovation	0.088	0.061	-0.107	-1.438	0.01

a. Dependent Variable: financial performance

The findings in Table 4.11 indicate that when all the factors are held constant the profits will decrease by 0.431 Units. Regression equation:

$$Y = 0.431 + 0.5X_1 + 0.628X_2 + 0.031X_3 + 0.088X_4$$

Y= financial performance

X<sub>1</sub> = product innovation

X<sub>2</sub>= process innovation

X<sub>3</sub> = marketing innovation

X<sub>4</sub> = organizational innovation

α= constant

β=coefficient

ε= error term

### Where

Constant = 0.431, shows that if product innovation, process innovation, marketing innovation, organization innovation all rated as zero, financial performance would be 0.431

X<sub>1</sub>= 0.5, shows that one unit product innovation results in 0.5 units increase in financial performance

$X_2 = 0.628$ , shows that one unit change in process innovation results in 0.628 units increase in financial performance

$X_3 = 0.031$ , shows that one unit change in marketing innovation results in 0.031 units increase in financial performance

$X_4 = 0.088$ , shows that one unit change in organizational innovation results in 0.088 units increase in financial performance.

#### 4.8 Test of hypothesis

**Table 4.12: Hypothesis testing**

Hypothesis	Coefficient P-Values	Conclusion
<p><math>H_0</math>: There is no effect of product innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p> <p><math>H_1</math>: There is a significant effect of product innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p>	$P=0.000 \leq 0.05$	<p><b>Accept <math>H_1</math>.</b></p> <p><b>Reject <math>H_0</math>.</b></p>
<p><math>H_0</math>: There is no effect of process innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p> <p><math>H_1</math>: There is a significant effect of process innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p>	$P=0.000 \leq 0.05$	<p><b>Accept <math>H_1</math>.</b></p> <p><b>Reject <math>H_0</math>.</b></p>
<p><math>H_0</math>: There is no influence of marketing innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p> <p><math>H_1</math>: There is a significant influence of marketing innovation on financial performance of Deposit Taking Micro Financial Institution in Thika town in Kenya</p>	$P=0.05 \leq 0.05$	<p><b>Accept <math>H_1</math>.</b></p> <p><b>Reject <math>H_0</math>.</b></p>
<p><math>H_0</math>: Cost factors do not affect performance of CATIC</p> <p><math>H_0</math>: There is no effect of organizational innovation on financial performance of Deposit Taking Micro Financial Institution</p> <p><math>H_1</math>: There is a significant effect of organizational innovation on financial performance of Deposit Taking Micro Financial Institution</p>	$P=0.01 \leq 0.05$	<p><b>Accept <math>H_1</math>.</b></p> <p><b>Reject <math>H_0</math>.</b></p>

The findings in Table 4.12 show the coefficients of the regression. According to the findings, only two variables, product innovation ( $P=0.000$ ) and process innovation ( $p=0.000$ ) were highly significant in predicting the financial performance of the DTMFI since their p values were also 0 while marketing innovation ( $p=0.53$ ) and organization innovation ( $p=0.01$ ) were also significant with their p values below 0.05.

## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter deliberates the summary of the finding in chapter four. Conclusion and recommendations drawn from these findings are conversed in relation to the objectives of the study which was to investigate on the effect of financial innovation on financial performance of Deposit Taking Micro Financial Institution.

#### **5.2 Summary of Findings**

##### **5.2.1 Product Innovations**

The study found that product innovation affects financial performance of Deposit Taking Micro Financial Institution. The institutions develop new products with technical specifications and functionalities while also developing newness for current products leading to enhanced ease of use for customers and to enriched customer satisfaction.

##### **5.2.2 Process Innovations**

The study however found that process innovation was significant to financial performance of Deposit Taking Micro Financial Institution. It means that most of the customers and cost efficiency mechanisms are much influenced through process and market innovation. This is through exclusion of non-value adding activities in production processes and eliminating non value adding activities in delivery related processes.

##### **5.2.3 Marketing Innovations**

Market innovation in the financial industry has been spurred by research in products and services and new distribution channel systems such as internet and mobile banking as well as

innovation in payment systems. More better-quality financial performance of the institutions that make a conscious effort to innovate. Although this study looked at institutions grouped as a sector, and improved of performance of institutions individually would result into better sector performance by aggregation.

#### **5.2.4 Organizational Innovations**

The study also found that organizational innovation affects financial performance of Deposit Taking Micro Financial Institution. This was done through renewing the human resources management system. The organization renews structure to facilitate teamwork and supply chain management system. The institutions renew the in-firm management information system and information sharing practice.

### **5.3 Discussion of Findings**

From the study results four variables were examined and found to be significant determinants in the financial performance of deposit micro finance institutions. The findings concur with those of Mwangi (2013) who established that there is an unswerving relationship between financial innovation and financial performance of DTMFIs at significant levels. More imperative Product Innovation and organization innovation were found to be significant. While other factors not examined in this study affect Deposit taking Micro finance institutions the two variables plays an essential role in determining the financial performance of Deposit taking Micro finance institutions.

#### **5.3.1 Product Innovations**

From the findings it was found that the institution comes up with a new feature for current products thus improved ease of use and satisfaction for customers. The institution decrease

manufacturing cost in components and materials of current products. The institution does develop new products with components and materials totally differing from the current ones. The respondents agreed with the fact that the institution increases manufacturing quality in components and materials of current products. This is in line with a study by Miller and Merton (1992) who indicated the significant effect of new products and services in the financial sector. The innovations are important to commercial banks but also other firms thus enabling them to raise finance in the capital markets at low costs. Profitably enterprises and individuals are continuously seeking new and enhanced products, processes, through both development initiatives as well as formal research exercises. It may also be conducted through informal “tinkering” or trial-and-error efforts.

Study results indicated that the independent variable (product innovation) explain and can therefore predict performance of DTMFIs. The variables could explain 85.8 percent of the variation in financial performance in the DTMFIs ( $r\text{-squared} = 0.858$ ). This designates that the regression model had a strong explanatory power as only 14.2 percent of variation in financial performance in the DTMFIs is not explained by the model.

### **5.3.2 Process Innovations**

The findings shows that majority of the respondents agreed that there was eliminating non value adding activities in production processes and delivery related processes. The institutions amplified output quality in manufacturing processes, machinery and software. The study also found out decreasing variable cost components in manufacturing processes, techniques, machinery and software. This findings conform to studies by Standing and Kiniti 2011 and He and Tian, 2013 who postulates that process innovation is the employment of a new or better production or delivery method. This includes noteworthy changes in techniques, equipment or software e.g. installation of new or better manufacturing

technology, such as automation equipment or real-time sensors that can adjust processes, computer-aided product development.

### **5.3.3 Marketing Innovations**

The findings indicate the institution refurbishes the design of the current and/or new products through changes such as in packaging, appearance, shape and volume without changing their basic functional and technical features. They also strongly agreed that the institution renews the product promotion techniques employed for the promotion of the current and/or new products. They equally agreed that they renew general marketing management activities and distribution channels without changing the logistics processes related to the delivery of the product. The respondents discretely agreed that they renew the product pricing techniques employed for the pricing of the current and/or new products. This is in line with a study by Furst, Lang, and Nolle (2002) who posits that Marketing innovations are directed at better addressing customer needs, opening up new markets e.g. implementation of a significant change in the design of a furniture line to give it a new look and widen its appeal. Service innovation relates to enhanced account access and new ways of payment—each of which better meets consumer demands for convenience and ease. According to the Munk and Sorensen, (2010), the optimal portfolios when interest rates and labor income are stochastic with the expected income growth being affine in the short-term interest rate in order to encompass business cycle variations in wages.

### **5.3.4 Organizational Innovations**

The respondents agreed on the renewing the human resources management system, routines, procedures and processes employed to execute firm activities in innovative manner. The

respondents agreed that there was renewing the supply chain management system and they also agreed that there was renewing the organization structure to facilitate project type organization. This is in line with Standing and Kiniti, (2011) who designates that organizational innovations can be improving workplace satisfaction and thus labour productivity, gaining access to no tradable assets (such as non-codified external knowledge) or reducing costs of supplies e.g. first-time introduction of management systems for general production or supply operations, such as supply chain management, business reengineering, lean production, quality management system.

#### **5.4 Conclusions**

This study examined the effect of financial innovations on financial performance of deposit taking microfinance institutions in Thika. Results indicate that there have been a number of innovations in this sector which has impacted positively in the performance of microfinance institutions in Kenya. From inferential statistics, there exists a positive relationship between financial performance and the two innovation variables, Product Innovation and organizational innovation.

In conclusion, product innovation affects financial performance of Deposit Taking Micro Financial Institution. The institutions develop new products with technical specifications and functionalities while also developing newness for current products leading to enhanced ease of use for customers and to enriched customer satisfaction. Process innovation and market innovation were not significant to financial performance of Deposit Taking Micro Financial Institution. It means that most of the customers and cost efficiency mechanisms are not much influenced through process and market innovation. This is through exclusion of non-value

adding activities in production processes and eliminating non value adding activities in delivery related processes.

Market innovation in the financial industry has been spurred by research in products and services and new distribution channel systems such as internet and mobile banking as well as innovation in payment systems. More better-quality financial performance of the institutions that make a conscious effort to innovate. Although this study looked at institutions grouped as a sector, and improved of performance of institutions individually would result into better sector performance by aggregation.

It can also be concluded that organizational innovation affects financial performance of Deposit Taking Micro Financial Institution. This was done through renewing the human resources management system. The organization renews structure to facilitate teamwork and supply chain management system. The institutions renew the in-firm management information system and information sharing practice.

### **5.5 Recommendations for policy and practice**

Microfinance institutions play a significant role in providing financial access to excepted low income earners and small businesses. However, microfinance institutions cannot be able to convey their roles without having positive financial returns. Therefore, based on the study findings, the study has a number of recommendations. Financial innovation has positive effect on productivity of DTMFs. Therefore, DTMFs need to devote more on research and development so as to come up with more better and customer oriented financial products and services which will go a long way in boosting DTMFIs financial returns.

It is imperative for deposit taking micro finance institutions to be involved in continuous research and development not only to offer new products but also products that gratify the consumer. Continuous innovation will provide MFIs an ideal platform upon which they can grow their revenues and hence growth from being micro enterprises to fully pledged financial institutions.

Organization innovation is vital to microfinance institutions as this provides a good policy towards efficiency in service delivery since this sector is service oriented. Organization innovations require the entire operations of such institutions and can be enhanced through best practices in line with industry standards. This study recommends that actions be put in place in order for Micro finance institutions to improve efficiency through organization innovations.

From the study findings it is recommended that DTMFIs as well as the regulatory bodies should endeavor to innovate for better and cheaper ways of serving customers with shorter transaction turnaround times.

## **5.6 Limitations of the Study**

The finance industry is very competitive thus many respondents had fear of disclosing some relevant information. It therefore took a lot of time to gather adequate data for this research through the respondents who were more cooperative than the management as originally anticipated.

Time allocated for the study was insufficient while holding a full time job and studying part time. This was encountered during the collection of material as well as the data to see the

study success. However the researcher tried to conduct the study within the time frame as specified.

### **5.7 Suggestions for Further Research**

This study only focused on deposit taking microfinance institutions and left out other financial institutions such as SACCOs, banks and other financial institutions. In order to obtain a conclusive decision, future studies should concentrate on other financial institutions to examine the effect of financial innovations on performance of such institutions.

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## APPENDIX II: QUESTIONNAIRE

This questionnaire is meant to collect information on financial innovations and firm performance of Deposit Taking Micro Financial Institution. This information is being sought solely for academic purposes and will be treated with strict confidence. Kindly answer the questions by ticking the boxes provided as will be applicable.

### GENERAL INFORMATION

1. Name of institutions.....

2. What is your highest level of education?

Secondary

Tertiary college

University graduate

University postgraduate

Other (please specify) .....

3. How long have the institution been operating?

Less than 1 year

Between 1 and 3 years

Between 3 and 5 years

Over 5 years

4. What is the size of your organization/institution workforce?

Below 500  500-1000  1000-2000  2000-10000  Over 10000

### **Product Innovations**

5 To what extent do you agree with the following statements? (Select all the appropriate)

Give your ratings in the scale of 1-5 (where 1= disagree, 2= indifferent, 3= Agree to a small extent, 4= Agree to a moderate extent, 5= strongly agree)

<b>Product Innovations</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Development of new products with technical specifications and functionalities totally differing from the current ones.					
Innovating newness for current products leading to improved ease of use for customers and to improved customer satisfaction.					
Developing new products with components and materials totally differing from the current ones.					
Decreasing manufacturing cost in components and materials of current products					
Increasing manufacturing quality in components and materials of current products					

### **Process Innovations**

6 To what extent do you agree with the following statements? (Select all the appropriate)

Give your ratings in the scale of 1-5 (where 1= disagree, 2= indifferent, 3= Agree to a small extent, 4= Agree to a moderate extent, 5= strongly agree)

<b>Process Innovations</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Determining and eliminating non value adding activities in delivery related processes					
Determining and eliminating non value adding activities in delivery related processes.					
Increase output quality in manufacturing processes, techniques, machinery and software.					
Decreasing variable cost components in manufacturing processes, techniques, machinery and software.					

Determining and eliminating non value adding activities in production processes					
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**Marketing Innovations**

7. To what extent do you agree with the following statements? (Select all the appropriate)

Give your ratings in the scale of 1-5 (where 1= disagree, 2= indifferent, 3= Agree to a small extent, 4= Agree to a moderate extent, 5= strongly agree

<b>Marketing Innovations</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Renewing the product promotion techniques employed for the promotion of the current and/or new products.					
Renewing the distribution channels without changing the logistics processes related to the delivery of the product.					
Renewing the product pricing techniques employed for the pricing of the current and/or new products.					
Renewing the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features.					
Renewing general marketing management activities.					

**Organizational Innovations**

8. To what extent do you agree with the following statements? (Select all the appropriate)

Give your ratings in the scale of 1-5 (where 1= disagree, 2= indifferent, 3= Agree to a small extent, 4= Agree to a moderate extent, 5= strongly agree

<b>Organizational Innovations</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Renewing the organization structure to facilitate teamwork.					
Renewing the production and quality management systems.					
Renewing the organization structure to facilitate coordination between different functions such as marketing and manufacturing.					
Renewing the routines, procedures and processes employed to execute firm activities in innovative manner.					
Renewing the human resources management system.					
Renewing the supply chain management system.					
Renewing the organization structure to facilitate project type organization. <sup>7</sup>					
Renewing the in-firm management information system and information sharing practice. <sup>8</sup>					
Renewing the organizational structure to facilitate strategic partnerships and long-term business collaborations.					

### **Firm Performance**

9. To what extent do you agree with the following statements? (Select all the appropriate)

Give your ratings in the scale of 1-5 (where 1= disagree, 2= indifferent, 3= Agree to a small extent, 4= Agree to a moderate extent, 5= strongly agree)

<b><u>Firm Performance</u></b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Annual sales revenue (KSHs million)					
Growth rate of annual sales revenue (%)					
Annual export revenue (KSHs million)					
Growth of annual export revenue (%)					

Market share of primary product (%)					
Growth of market share of primary product (%)					
Innovation expenses (KSHs million)					
Growth rate of innovation expenses (%)					
Growth of market share of primary product (%)					
Share of RD and employees (%)					