

**EFFECTS OF BEHAVIORAL FACTORS, FINANCIAL INNOVATIONS AND  
FINANCIAL LITERACY ON FINANCIAL INCLUSION OF MICRO-  
ENTERPRISES IN EMBAKASI EAST CONSTITUENCY, NAIROBI  
COUNTY, KENYA**

**By**

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BUSINESS MANAGEMENT  
(FINANCE OPTION)**

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## DECLARATION

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## **DEDICATION**

I dedicate this work to my family for their invaluable love and encouragement throughout this PhD program. In addition, I dedicate this work to all Finance scholars and practitioners who advocate for financial inclusion for enhanced overall well-being.

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## ABSTRACT

Financial inclusion generally viewed as the process of enhancing access and usage of formal financial services has emerged as an area of global concern and study. Previous studies have found mixed results on direct effects of behavioral factors and financial inclusion, suggesting that further scholarly examination incorporating moderating and mediating variables into financial inclusion models are required. The main objective of this study was to examine the conditional indirect effects of financial literacy on the relationship between behavioral factors and financial inclusion through adoption of financial innovations. The specific objectives examined the direct effects of the three behavioral factors (self-control, confidence, and social proof), financial innovations and financial literacy on financial inclusion. In addition, the mediating effects of financial innovations on the relationship between the three behavioral factors and financial inclusion was investigated. The moderating effects of financial literacy on the relationship between the behavioral factors and financial innovations as well as financial inclusion was further explored. The study was grounded on the behavioral life cycle theory and the prospect theory which are part of behavioral finance theories. Explanatory research design was adopted to understand the relationships between the variables under investigation and cluster sampling design utilized to identify the sample. Primary data was collected using a questionnaire from a sample of 486 out of a population of 2,194 licensed micro enterprises in Embakasi East Constituency of Nairobi County. Data was analyzed using descriptive and inferential statistics. Multiple regression modelling including Process Macro Analysis using Model 59 (Hayes, 2018) was undertaken. Findings indicated significant positive effects of self-control ( $\beta = .265$ ,  $\rho=.000$ ), Confidence ( $\beta = .241$ ,  $\rho=.000$ ), Social proof ( $\beta = .212$ ,  $\rho=.000$ ), financial innovations ( $\beta = .194$ ,  $\rho=.000$ ) and FL ( $\beta = .137$ ,  $\rho=.000$ ) on financial inclusion. In addition, the results showed that financial innovations mediated the relationship between each of the behavioral factors and financial inclusion as attested by the  $p$ -values and confidence intervals of bootstrapping results which did not include zero; self- control ( $\beta = .0941$ ,  $\rho = .00$ ; BootLLCI= .0436; BootULCI= .1496), confidence; ( $\beta = .1019$ ,  $\rho = .00$ ; BootLLCI= .0524; BootULCI= .1595) and social proof ( $\beta = .1036$ ,  $\rho = .00$ ; BootLLCI= .0512; BootULCI= .1616). The conditional direct effects of financial literacy on the relationship between self-control and financial inclusion ( $\beta= 0.149$ ,  $\rho=0.008$ ; BootLLCI= 0.626, BootULCI=0.2371) and social proof and financial inclusion ( $\beta= .1449$ ,  $\rho = 0.001$ ; BootLLCI= 0.0580, BootULCI=0.2315) was significant based on bootstrapping intervals which did not include zero. The conditional indirect effects of financial literacy on the relationship between the three behavioral factors and financial inclusion via financial innovations were evident based on confidence intervals which all excluded zero. The study contributes to financial theory building through establishment of the mediating role of financial innovations on the relationship between the three behavioral factors and financial inclusion and this relationship is conditional across the levels of financial literacy. Therefore, it is recommended that finance practitioners should give emphasis to encouraging positive behavioral tendencies, improving users' financial literacy levels, and encouraging adoption of innovations in the finance sector for enhanced financial inclusion in Kenya.

## TABLE OF CONTENTS

DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES .....	x
LIST OF FIGURES .....	xii
OPERATIONAL DEFINITION OF TERMS .....	xiii
ABBREVIATIONS .....	xvi
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.0 Overview .....	1
1.1 Background of the Study .....	1
1.1.1 Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya	6
1.2 Statement of the Problem.....	7
1.3 Objectives of the Study.....	9
1.3.1 General Objective.....	9
1.3.2 Specific Objectives.....	9
1.4 Research Hypotheses .....	12
1.5 Significance of the Study .....	14
1.6 Scope of the Study .....	15
<b>CHAPTER TWO .....</b>	<b>17</b>
<b>LITERATURE REVIEW .....</b>	<b>17</b>
2.0 Introduction.....	17
2.1 Conceptual Analysis of Financial Inclusion .....	17
2.1 Empirical Review of Prior Studies on the Relationship between Study Variables	24
2.1.1 Behavioral Factors and Financial Inclusion .....	24
2.1.2 Financial Innovations and Financial Inclusion.....	26
2.1.3 Financial literacy and Financial Inclusion .....	30
2.1.4 Age, Gender, Economic activity, and Financial Inclusion.....	34
2.2 Summary of the Empirical Review .....	34
2.3 Theoretical Framework.....	35

2.3.1 Behavioral Finance Theories.....	36
2.3.2 Diffusion of Innovation Theory .....	41
2.3.3 Capabilities Theory .....	42
2.4 Conceptual Framework.....	44
<b>CHAPTER THREE .....</b>	<b>47</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>47</b>
3.0 Introduction.....	47
3.1 Research Philosophy.....	47
3.2 Research Design.....	49
3.3 Study Area .....	50
3.4 Target Population.....	50
3.5 Sampling Design and Procedure .....	51
3.6 Data Collection Instrument .....	53
3.7 Data Collection Procedures.....	55
3.8 Data Measurement .....	55
3.8.1 Dependent variable (Financial Inclusion) .....	55
3.8.2 Independent Variable (Behavioral Factors) .....	56
3.8.3 Mediator variable (Financial Innovations) .....	57
3.8.4 Moderator Variable (Financial Literacy) .....	57
3.8.5 Control variables .....	59
3.9 Reliability and Validity Tests .....	59
3.9.1 Reliability Tests.....	59
3.9.2 Validity Tests .....	61
3.10 Pilot Test Study.....	64
3.11 Data Processing and Analysis .....	65
3.11.1 Sample Adequacy and Sphericity .....	66
3.11.2 Descriptive Statistics .....	66
3.11.3 Inferential Statistics.....	67
3.11.4 Statistical models.....	69
3.12 Hypotheses Testing.....	72
3.13 Assumptions.....	77
3.14 Ethical Considerations .....	79
3.15 Limitations .....	80
<b>CHAPTER FOUR.....</b>	<b>82</b>

<b>DATA ANALYSIS, INTERPRETATION AND DISCUSSION .....</b>	<b>82</b>
4.0 Introduction.....	82
4.1 Response Rate.....	82
4.2 Data Preparation, Cleaning and Screening .....	83
4.2.1 Missing Values .....	83
4.2.2 Outliers.....	83
4.3 Sample Characteristics.....	84
4.3.1 Demographic characteristics against study variables.....	85
4.4 Descriptive statistics .....	92
4.4.1 Financial Inclusion .....	92
4.4.2 Self-control.....	94
4.4.3 Confidence .....	95
4.4.4 Social Proof.....	97
4.4.5 Financial Innovations .....	98
4.4.6 Financial literacy .....	101
4.5 Reliability Analysis.....	102
4.6 Factor Analysis .....	103
4.6.1 Factor Analysis for Financial Inclusion .....	105
4.6.2 Factor Analysis for Self-control.....	107
4.6.3 Factor Analysis for Confidence.....	108
4.6.4 Factor Analysis for Social proof .....	109
4.6.5 Factor Analysis for Financial Innovations .....	110
4.7 Data Transformation for main variables .....	113
4.8 Correlation Analysis .....	114
4.9 Assumptions of Regression Models.....	115
4.9.1 Normality .....	116
4.9.2 Linearity .....	117
4.9.3 Heteroscedasticity .....	119
4.9.4 Multicollinearity.....	119
4.9.5 Autocorrelation.....	120
4.10 Testing of Hypotheses.....	121
4.10.1 Test of Direct Effects .....	122
4.10.2 Tests of Moderating effects of FL on Independent Variables and FINN relationships .....	128



4.11 Tests of Moderating effects of FL on the relationship between FINN and FI.	136
4.12 Tests of Conditional Direct Effects of BF on Financial Inclusion.....	138
4.13 Tests of Conditional Indirect Effects .....	146
4.14 Summary Results .....	156
<b>CHAPTER FIVE .....</b>	<b>157</b>
<b>SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS</b>	<b>157</b>
5.0 Introduction.....	157
5.1 Summary of the Findings.....	157
5.1.1 Relationship between the IVs, FINN, FL and Financial Inclusion .....	158
5.1.2 Mediating effect of FINN on the relationship between IVs and DV .....	162
5.1.3 Moderating effects of FL on IVs and FINN relationship.....	163
5.1.4 Moderating effects of FL on FINN and Financial Inclusion relationship...	164
5.1.5 Conditional Direct effects of FL on BF and Financial Inclusion relationship.....	165
5.1.6 Conditional Indirect Effects of FL on BF and FI relationship through FINN .....	167
5.2 Conclusions.....	168
5.3 Recommendations.....	170
5.3.1 Managerial and Policy Implication .....	170
5.3.2 Theoretical implication .....	172
5.3.3 Suggestions for Further Research .....	173
REFERENCES .....	175
Appendices.....	189
Appendix 1: Questionnaire Transmittal Letter.....	189
Appendix 2: Questionnaire.....	190
Appendix 3: Moi University Progress Letter .....	195
Appendix 4: NACOSTI Research Approval Letter .....	196
Appendix 5: Nairobi County Government Research Approval Letter.....	198
Appendix 6: List of licensed ME Embakasi East Constituency.....	199
Appendix 7: SPSS Data Output Process Macro Model 4 and Model 59 .....	217

## LIST OF TABLES

Table 2.1: Cognitive theories .....	38
Table 3.1: Paradigms in Research.....	48
Table 3.2: Distribution of the Sample to various clusters.....	52
Table 3.3: Instrument Validity Tests .....	64
Table 4.1 Sample characteristics.....	85
Table 4.2: Demographic characteristics against Financial Inclusion.....	86
Table 4.3: Demographic Characteristics against Self-Control .....	87
Table 4.4: Demographic Characteristics against Confidence .....	88
Table 4.5: Demographic characteristics against Social proof.....	90
Table 4.6: Demographic characteristics against Financial Innovation .....	91
Table 4.7: Demographic characteristics against Financial Literacy .....	92
Table 4.8: Financial Inclusion descriptive statistics .....	94
Table 4.9: Self-control Descriptive Statistics .....	95
Table 4.10: Confidence descriptive statistics.....	97
Table 4.11: Social proof descriptive statistics .....	98
Table 4.12: Financial Innovations descriptive statistics .....	101
Table 4.13: Comparison on Measurement methods for Financial Literacy.....	102
Table 4.14: Reliability Statistics .....	103
Table 4.15: Factor Analysis for Financial Inclusion.....	106
Table 4.16: Factor Analysis for Self-control .....	108
Table 4.17: Factor Analysis for Confidence .....	109
Table 4.18: Factor Analysis for Social Proof.....	110
Table 4.19: Initial Factor Analysis for Financial Innovation.....	111
Table 4.20: Final Factor Analysis for Financial Innovation .....	113
Table 4.21: Data Transformation.....	114
Table 4.22: Correlation Analysis .....	115
Table 4.23: Normality Test.....	117
Table 4.24: Linearity Test.....	118
Table 4.25: Heteroscedasticity Test .....	119
Table 4.26: Multicollinearity Test .....	120
Table 4.27: Autocorrelation Test .....	121
Table 4.28: Multiple Regression Results for Testing Direct Effects .....	124

Table 4.29: Self-control, Financial Innovations and Financial Inclusion .....	126
Table 4.30: Confidence, Financial Innovations and Financial Inclusion.....	127
Table 4.31: Social proof, Financial Innovations and Financial Inclusion .....	128
Table 4.32: Financial Literacy, Self-Control and Financial Innovation .....	130
Table 4.33 Financial Literacy, Confidence and Financial Innovations .....	132
Table 4.34: Financial Literacy, Social Proof and Financial Innovation .....	134
Table 4.35: Financial Literacy, FINN and Financial Inclusion .....	137
Table 4.36: Financial Literacy, Self-Control and Financial Innovation .....	139
Table 4.37: Financial Literacy, Confidence and Financial Inclusion .....	142
Table 4.38: Financial Literacy, Social Proof and Financial Inclusion.....	145
Table 4.39: Financial Literacy, Financial Innovation, Self-Control, and Financial Inclusion .....	148
Table 4.40: Financial Literacy, Financial Innovation, Confidence and Financial Inclusion .....	151
Table 4.41: Financial Literacy, FINN, Social proof & Financial Inclusion .....	154
Table 4.42: Summary of Hypotheses Testing Results .....	156
Table 5.1: SPSS Output Model 4 (Self-control, FINN and Financial Inclusion) .....	217
Table 5.2: SPSS Output Model 4 (Confidence, FINN and Financial Inclusion).....	219
Table 5.3: SPSS Output Model 4 (Social Proof, FINN and Financial Inclusion) .....	221
Table 5.4: SPSS Output Model 59 (Self-control, FL, FINN and FI).....	223
Table 5.5: SPSS Output Model 59 (Confidence, FL, FINN and FI) .....	226
Table 5.6: SPSS Output Model 59 (Social proof, FL, FINN and FI) .....	229

## LIST OF FIGURES

Figure 2.1 : Use of and access to financial services. ....	18
Figure 2.2 Conceptual Framework .....	46
Figure 3.1: Analytical Model for testing effects of direct effects of the variables on FI .....	70
Figure 3.2: Analytical Model for Hypotheses H <sub>02</sub> .....	71
Figure 3. 3: Statistical Model for testing Hypotheses H <sub>03</sub> , H <sub>04</sub> , H <sub>05</sub> and H <sub>06</sub> .....	72
Figure 4.1: Moderating effects of Financial Literacy on Self-Control & FINN relationship .....	131
Figure 4. 2: Moderating effects of Financial Literacy on Confidence & FINN relationship .....	133
Figure 4. 3: Moderating effects of Financial Literacy on Social Proof & FINN relationship .....	135
Figure 4.4: Conditional effects of Financial Literacy on SC & FI Relationship .....	140
Figure 4.5: Conditional effects of FL on Confidence & FI Relationship .....	143
Figure 4.6: Conditional Indirect effects of FL on SC & FI Relationship via FINN ..	149
Figure 4.7: Conditional Indirect effects of FL on Confidence & FI Relationship via FINN .....	152
Figure 4.8: Conditional Indirect effects of FL on Social proof & FI Relationship through FINN .....	155

## OPERATIONAL DEFINITION OF TERMS

The following definitions are provided to ensure uniformity and understanding of these terms throughout the study. The researcher developed all definitions not accompanied by a citation.

**Behavioral factors:** Factors driven by human behavior (Self-control, Confidence, and Social Proof as per this study) arising from personality, situation, or environmental effects. (Research, 2019)

**Conditional Indirect effects :** Influence of a moderator (Financial Literacy) on the relationship between an independent variable (BF) and a dependent variable (Financial Inclusion) via a mediator (Financial Innovation); variables used in the study are indicated in bracket. (Research, 2019).

**Conditional Process model:** A model that includes both a mediation and a moderation component, thus either the direct and/or indirect effect of X on Y through M is moderated by or conditioned on one or more variables. (Hayes, 2013).

**Confidence:** Degree to which an individual feels capable and assured as regards his/her decisions and behavior. (Fernandes, Lynch & Netemeyer, 2014).

<b>Economic Activity</b>	The main category of business that generated the highest income to the micro enterprise in the previous year. (KNBS, 2016). Three categories or sectors were adopted for the study: Manufacturing, Commerce, and Service & Others. (Research, 2019)
<b>Financial Exclusion:</b>	Inability to access formal financial services in an appropriate form (Sinclair, 2001)
<b>Financial Inclusion:</b>	Usage of formal financial services such as credit, savings, transitional and investment services offered in the formal financial system. (Research, 2019).
<b>Financial Innovations:</b>	Refers to new delivery channels (such as agency banking), new products and services as well as new types of financial intermediaries such as mobile financial service providers offered by telecommunication companies. (Research, 2019).
<b>Financial Literacy:</b>	Possession of knowledge and skills that enables individuals to understand and use financial information (Lusardi & Mitchell, 2014).
<b>Formal Financial Services:</b>	Services offered by regulated financial service providers supervised by specific regulators or government agencies and direct government interventions. (FSD, 2016)

- Micro Enterprises:** A firm, trade, service, industry, or a business activity which has between one and nine persons working in the business, whether they are partially/fully paid or not, inclusive of the owner/s (KNBS, 2016)
- Self-Control:** A person's ability to replace or change their internal responses to stop unwanted behavior tendencies (such as impulses) and thus avoid behaviors arising from these tendencies. (Tangney, Baumeister, & Boone, 2004).
- Social proof:** Social pressure, influence of one's socio-economic environment and approval from peers, family, parents, spouse, and friends in decision-making on the use of formal financial services. (Binoy & Subhashree, 2018).

**ABBREVIATIONS**

AFI	-	Alliance for Financial Inclusion
ANOVA-		Analysis of Variance
BF	-	Behavioral factors
BFT	-	Behavioral Finance Theories
C	-	Confidence
CBK	-	Central Bank of Kenya
CI	-	Confidence interval
CMA	-	Capital Markets Authority
DV	-	Dependent Variable
FE	-	Financial exclusion
FFS	-	Formal Financial Services
FI	-	Financial Inclusion
FINN	-	Financial Innovations
FIT	-	Financial Intermediation Theory
FL	-	Financial Literacy
FS	-	Financial Services
FSD	-	Financial Sector Deepening (FSD) programme established in 2005 to support the development of financial markets in Kenya as a means to stimulate wealth creation and reduce poverty.



G20-	Group of twenty (International forum comprising of Nineteen Countries and European Union established in 1999 with focus on financial stability)
IOSCO -	International Organization of Securities Commissions
IRA -	Insurance Regulatory Authority
IVs -	Independent Variables
KBA -	Kenya Bankers Association
KMO -	Kaiser-Meyer-Olkin
KNBS -	Kenya National Bureau of Statistics
ME -	Micro Enterprises
MFS -	Mobile Financial Services
NACOSTI -	National Commission for Science, Technology, and Innovation
OECD -	Organization for Economic Co-operation and Development
SASRA -	Sacco Societies Regulatory Authority
SC -	Self Control
SID -	Society for International Development
SP -	Social Proof
SPSS -	Statistical Packages for the Social Sciences
UNDP-	United Nations Development Program
WB -	World Bank

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Overview**

This chapter presents the background of the study on the effects of behavioral factors, financial innovations, and financial literacy on financial inclusion of micro-enterprises in Nairobi, Kenya. The background of the study, statement of the problem, objectives, research questions, significance and scope of the study are also presented.

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

In the theory of Finance, financial inclusion (FI) which is majorly seen as the process of enhancing access and usage of formal financial services (FFS) has emerged as a serious matter of global concern and study. Indeed, this sprouts from a generally agreed proposition held by most finance scholars and practitioners that, when one is included in the formal financial system, such a person is able to meet their desired economic goals, optimize opportunities and possibly improve their wellbeing, a position that was augmented by the resolutions of the G-20 Summit held in Seoul in 2010 (Atkinson & Messy, 2013). An effective FS facilitates provision of payments services, mobilizes and pools savings, allocates capital appropriately and ensures provision of risk management systems and financial instruments to all those who require the services at the most competitive prices. It is therefore possible that inclusion into such a system shall indeed improve an individual's economic status and quality of life and propel a country's economic growth at macro level (Allen, Demirgüç-Kunt, Klapper & 2016; Beck, 2016; Demirgüç-Kunt *et al.*, 2018; FSD,2016; Lanie, 2017; Neaime & Gaysset, 2018; Onaolapo, 2015; Zins & Weill, 2016).

The groundbreaking work of Schumpeter (1911) in King and Levine (1993), laid the foundation on recognition of the relationship between FS and economic development,

a position that seems agreeable to other scholars as such as Allen *et al.*, (2016); Gwalani & Parkhi (2014); King and Levine (1993), Sethi and Acharya (2018); Sharma (2016). Research undertaken by policy entities such as the World Bank (WB, 2014) acknowledges that through mobilization of savings, FI helps in injection of additional capital to the financial markets which can then be loaned to those in need, hence reducing capital constraints faced by financial institutions in addition to promoting growth of existing FS providers, thus improved profitability. Indeed, while recognizing the positive nexus between finance and economic growth, and its enabling ability to drive realization of approximately 41% of the Sustainable Development Goals (SDGs), there is a drive to achieve universal FI (access) by the year 2020 (WB, 2018).

Whereas the importance of FI is generally understood and accepted, there is scanty empirical data on the factors that fortify the same, thus a growing body of knowledge in this trajectory. Financial literacy (FL) and optimization of financial innovations holds the key in enhancing FI (Demirgüç-Kunt *et. al.*, 2018; Grohmann, Klühs & Menkhoff, 2017; Xu & Zia, 2012). Beyond skills and knowledge, budding studies on behavioral finance theory recognizes the impact of psychological or behavioral factors (BF) such as risk aversion, overconfidence, imitation, self-control among others on financial decisions. (Houston, 2010; Jurevičienė & Ivanova, 2013; IOSCO & OECD, 2018). In addition, while there are emerging studies that link FI to users of financial services level FL and behavioral tendencies, less attention has been given on how financial innovation (FINN) interacts with these variables to influences the level utilization of formal financial services, in the midst of other well-researched variables such as age, gender, employment and income among others. The interaction of these variables forms the journey of this thesis, but first a brief overview on the impact of each of the variables on FI.

Behavioral finance theory (BFT) continues to gain prominence arising from its recognition of diversity of factors that comes into play in the individual's decision-making process beyond the rational thinking subscribed to by earlier economics/finance scholars such as Life Cycle Hypothesis by Modigliani and Brumberg (1954) as well as Ando and Modigliani (1963), Portfolio Theory by Markowitz (1952), Efficient Market Hypothesis by Fama (1991), among many others (Jurevičienė & Ivanova, 2013; Odean & Barber, 2004). There is a growing body of research that considers effects of behavioral factors (BF), broadly classified as emotions, framing, heuristics, market influence and perceptions, on financial decision making (Aşıkoğlu & Boyukaslan, 2016; Binoy & Subhashree, 2018; Gathergood, 2012; Strömbäck, *et al.*, 2017; Jurevičienė & Ivanova, 2013; Waweru, Mwangi & Parkinson 2014). It has been conjectured that behavioral biases are responsible for suboptimal financial decision-making.

For example, studies suggests that consumers' preference for materialism leads to higher indebtedness (Nye & Hillyard, 2013). In addition, self-control issues may make people to deviate from their long-term plans for financial security and engage more in debt for immediate satisfaction and less saving. Similarly, inadequate long-term planning, preference for mental accounting (separating money into different accounts based on some criteria, which in most case is illogical), occurrence of critical events among others, influence decision-making and ultimately financial well-being. On the other hand BF such as possession of self-control, confidence in use of financial information, deliberate thinking, optimism, willingness to take informed risks have been suggested to lead to optimal usage of FS (Benton, Meier, Sprenger, 2007; Binoy & Subhashree, 2018; Gathergood, 2012; Miotto & Parente, 2014; Strömbäck *et al.*, 2017). Studies that recognize BF on utilization of financial services are at nascent stages (Binoy & Subhashree, 2018). Majority have dwelt on investments decisions on assets

traded in securities markets and corporate finance as observed by Aşıkoğlu and Boyukaslan (2016); Waweru, Mwangi and Parkinson (2014, among others. Thus, this study contributed to enrichment thereof with the focus being on BF that influence financial decisions outside securities exchange, by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

Financial Innovations (FINN) such as mobile financial/money services, internet banking, card payment systems and agency banking among others, can be broadly classified into three categories; those that provide new delivery channels, new products, and new types of financial intermediaries (Beck, 2016, WB, 2018). Demirgüç *et al.*, (2018) suggests that FINN have the potential of enhancing FI through expanding opportunities for access and utilization of diverse FS. However, there is scanty research on diverse aspects of FINN such as information, digital credit and investments, effects of innovations on financial stability among others (Cadena & Schoar, 2011; Francis, Blumenstock & Robinson, 2017; Ozili, 2018).

In addition, FINN has the potential of fostering positive behavioral factors and financial discipline, for example there are studies that suggests that reminders through short message service (SMS) may lead to increased savings (Kast, Meier & Pomeranz, 2010; Karlan, McConnell, Mullainathan and Zinman, 2010) and enhanced loan repayment (Cadena & Schoar, 2011; Jones, Loibl & Tennyson, 2015; Karlan, Morten & Zinman, 2012). In addition, scholars have highlighted the impact of FINN on modification of behavior for enhanced usage of financial services such as encouraging savings by appealing to peoples' gambling tendencies as well as provision of price or lottery linked financial products or accounts. (Abraham, Akbas, Ariely & Jang, 2016; Atalay, Bakhtiar, Cheung & Slonim, 2014). It was hypothesized that adoption of various forms

of financial innovations (mobile financial services, agency banking, emerging products and use of FS information) available in Kenya's setting mediates the relationship between BF and usage of financial services, the same of which were empirically studied for theory building and informed decision making by finance practitioners. This attempted to contribute to closing of the gaps observed by earlier scholars such as Fernandes et al., (2014); Kim, Zoo, Lee and Kang (2017); Yeo and Fisher (2017), that few studies have considered the effect of FINN on FI.

Financial literacy (FL) also denoted as financial knowledge or financial education (Houston, 2010; Lusardi & Mitchell, 2014), is generally understood to be the possession of knowledge and skills that enables individuals to understand and use financial information. Houston (2010), suggests that FL components entails understanding and usage of knowledge on money basics such as time value and personal finance accounting, borrowing, investing and protection of resources, an argument pursued by many subsequent studies such as Fernandes *et al.*, (2014), who suggested a more inclusive definition of the concept. FL has been theorized to have a strong positive relationship with financial decision-making on areas such as savings, investments and debt management as well as enhancing information and users' confidence that then drives demand for FS. (Grohmann, 2018; Grohmann *et al.*, 2017).

Theory has it that individuals with low FL don't actively participate in formal financial markets, have low chances of planning for retirement, make sub-optimal financial decisions such as having high consumption rates, borrowing at higher interest rates, easily fall prey to financial scams, save less and have low capability to handle macroeconomic shocks, among others (Lusardi & Mitchell, 2014). These individuals have fewer assets and participate less in the FFS relative to their more financially

literate counterparts. (Cole, Sampson & Zia, 2011; Klapper, Lusardi & Oudheusden, 2014; Lusardi & Tufano (2008), Lusardi & Mitchell, 2011; Lusardi & Mitchell, 2014; Lusardi, Mitchell & Curto 2014). Whereas a growing number of studies recognizes the place of FL in financial decision-making, there is dearth of research on its moderating role on the relationship between BF and FI. This pursuit was an attempt to build on earlier studies such as Adomako *et al.*, (2015) who focused on FL's moderating role in the relationship between access to finance and firm growth.

### **1.1.1 Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya**

KNBS (2016), is one of the most recent publication on the status of Micro Enterprises (those with 1-9 employees, Small (10-49 employees) and Medium (50-99 employees) enterprises in Kenya. According to the study, ME forms the bulk (92.2%) of the three categories and are key players in Kenya's economic growth owing to the large number of employment opportunities it creates value addition and provision of affordable goods and services. The study contains a detailed profile of the MEs and other related enterprises in Kenya; for example, education levels of the owners were found to be at certificate level and above (63.5%), majority of the licensed business owners were male, and the highest number of the licensed businesses were in Nairobi (18% thereof) KNBS (2016).

However, ME's face several constraints that mainly revolves around funding, with the main sources being savings, loans from friends and family, and other informal sources. To encourage greater bank-led financing, CBK has been championing for ways to enhance increased funding to the sector. Shortage of operating funds due to increased operating expenses, declining income, and losses incurred from the businesses, was the main factor for closure of business as reported by 29.6% of the firms that closed in the year of study (2016). The study further observed that utilization of mobile financial

services was gaining ground amongst ME, though majority did not have a dedicated pay bill account. On utilization of loans the survey findings were that it was more difficult for enterprises to access loans from commercial banks than from other small financial institutions. Reasons for not taking loans included high interest rates or lack of collateral to support the loan application, among others. Other challenges faced by the enterprises are numerous regulatory requirements, lack of markets, stiff local competition, poor infrastructure (roads, power, and water supply) and insecurity.

Owing to the financial constraints faced by ME in Kenya, despite their huge potential in shaping the country's economic growth, this study found it ideal to study how behavioral tendencies, perceptions on adoption of financial innovations and level of financial literacy affects financial inclusion, utilization of diverse forms of formal financial services, by these key players in Kenya's economy. The study further investigated the interaction between the three behavioral factors (self-control, confidence, and social proof), adoption of financial innovations and financial literacy in influencing financial inclusion of owners of ME. The study therefore contributed towards comprehensive documentation of factors that affect financial inclusion and made recommendations to inform policy directions and finance theory growth.

## **1.2 Statement of the Problem**

Prior studies suggest higher levels of financial inclusion (from access point of view) has been observed in Kenya, given the estimation that 75.3% of adult population had an account in a formal financial institution in the year 2015, and that by the year 2017 this had risen to 82%. (FSD, 2016; Demirgüç *et al.*, 2018). Finance scholars have conjectured that realization of benefits of financial inclusion is premised on optimal usage of the financial services, hence studies on factors that drive enhanced usage of



diverse types of financial services are emerging as a key area of investigation at the global arena (Grohmann, 2018; Park & Mercado, 2015). Among these studies, those which explore the relationship between behavioral factors are at nascent stages, yet behavioral finance theories attest that these factors affect economic decisions (Binoy & Natarajan, 2018). Self-control, confidence, and social proof are among the behavioral factors that have been conjectured as having a significant effect in financial decision-making (Strömbäck *et al.*, 2017; Fernandes *et al.*, 2014). Thus, the research diverted from the commonly studied decision-making on investments traded in securities markets as well as factors that drive access to financial services and explored the relationship between behavioral factors and financial inclusion (usage dimension) of micro enterprises who have been less studied, yet they face constraints in accessing formal financial services.

Studies on the role of financial innovations have inferred its effects on modification of behavior while others have theorized its potential to enhance usage of financial services, however to our knowledge scanty research have examined its mediating effect on the relation between behavioral factors and financial inclusion. Thus, this study moved a step further and attempted to determine the extent to which the adoption of financial innovations mediates the relationship between behavioral factors and financial inclusion in the era of emerging technology driven financial products and intermediary channels in Kenya. Furthermore, whereas prior studies recognize the impact of Financial Literacy on economic decisions, gaps exist on measurement, definition among other aspects of FL (Stolper & Walter, 2017). This study has contributed towards enhanced measurement of financial literacy by utilizing both test-based (objective tests) and self-assessed measures (perceptions), in the pursuit of

understanding the moderating effects of financial literacy on the relationship between behavioral factors and Financial inclusion, which has been seldom studied.

Finally, it has been argued that micro based studies provide clearer understanding of the relationships between variables (Grohmann *et al.*, 2017) and that models that simultaneously account for both moderation and mediation effects (Fairchild & MacKinnon, 2009; Hayes, 2013), allows for complete analysis of mediation effects due to recognition of contexts/ circumstances under which the mediation mechanisms are occurring. To our knowledge, there is scanty research that has examined the hypothesized buffering effect or otherwise of financial literacy on the indirect relationship between behavioral factors and financial inclusion through adoption of financial innovations, a perspective which was explored in this study, hence contributing to the advancement of finance theory on the financial inclusion phenomenon.

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

The General and Specific objectives of the study are as outlined below:

#### **1.3.1 General Objective**

The main objective of the study was to examine the conditional indirect effects of financial literacy on the relationship between behavioral factors and financial inclusion through adoption of financial innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

#### **1.3.2 Specific Objectives**

Specifically, the study sought to:

- i. Examine the direct effects of:

- a. Self-control on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
  - b. Confidence on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
  - c. Social proof on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
  - d. Financial Innovations on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
  - e. Financial Literacy on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- ii. Establish the mediating effects of adoption of Financial Innovations on the relationship between:
- a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
  - b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
  - c. Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- iii. Examine the moderating effects of Financial Literacy on the relationship between:  
(*a* side of the conceptual framework)
- a. Self-control and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
  - b. Confidence and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

- c. Social proof and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- iv. Establish the moderating effects of Financial Literacy on the relationship between adoption of Financial Innovations and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. ( $b_1$  side of the conceptual framework).
- v. Investigate the moderating effects of Financial Literacy on the relationship between: ( $C'$  side of the conceptual framework):
  - a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
  - b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
  - c. Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- vi. Establish the conditional indirect effects of Financial Literacy on the relationship between:
  - a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya, through adoption of Financial Innovations.
  - b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya, through adoption of Financial Innovations.

- c. Social Proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya, through adoption of Financial Innovations.

#### **1.4 Research Hypotheses**

The research hypotheses outlined below guided the study:

**H<sub>01</sub>:** There is no statistically significant direct effect of:

- a. Self-control on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- b. Confidence on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- c. Social proof on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- d. Financial Innovations on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- e. Financial Literacy on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya

**H<sub>02</sub>:** Adoption of Financial Innovations does not have mediating effects on the relationship between:

- a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- c. Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**H<sub>03</sub>:** Financial Literacy does not moderate the relationship between:

- a. Self-control and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- b. Confidence and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.
- c. Social proof and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**H<sub>04</sub>:** Financial Literacy does not moderate the relationship between adoption of Financial Innovations and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**H<sub>05</sub>:** Financial Literacy does not moderate the relationship between.

- a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya
- c. Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya

**H<sub>06</sub>:** There is no statistically significant conditional indirect effect of Financial Literacy on the relationship between:

- a. Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.

- b. Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.
- c. Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.

### **1.5 Significance of the Study**

The research findings are valuable to diverse individuals and institutions as highlighted below: The results are useful to financial institutions such as banks, mobile financial service providers, insurance companies among others in shaping their organizational customer education and marketing strategies. This can cultivate positive behavioral change for increased utilization of formal financial services, which will in turn enhance the institution's competitiveness and profitability. In addition, these institutions can use the findings and conclusions of the study to shape their innovations strategies based on customer perceptions to realize benefits from the investments on emerging technologies and operational models.

From the findings the government through financial services regulatory agencies such as Sacco Societies Regulatory Authority (SASRA), CBK and IRA, can derive key factors that influences the utilization of formal financial services. The findings thus facilitate the identification of user related factors that affect optimal utilization of formal financial services, in addition to the required improvements on intermediation for enhanced financial inclusion and consequently realization of attendant benefits such as economic and social development. Financial services associations will acquire useful information for their policy shaping and advocacy strategies for effective legal and economic environment for the benefit of their members, who are major players in

enhancing the usage and quality of financial services in Kenya as observed by Lubis (2018).

The findings of the study have endeavored to add to the body of knowledge on the direct and indirect variables that influences the FI phenomenon specifically behavioral factors, financial innovations and financial literacy and provides room for further academic discourse on other variables. This thesis journey was therefore an attempt to contribute towards convergence of finance theory on the FI phenomenon. Furthermore, the study provides useful information, which can be used by finance practitioners to influence policy for optimal utilization of financial services thus improvement of overall well-being.

### **1.6 Scope of the Study**

This research focused on the conditional indirect effects of financial literacy on the relationship between behavioral factors and financial inclusion through adoption of financial innovations by micro enterprises in Embakasi East Constituency of Nairobi County in Kenya. While the study recognized that there could be other behavioral factors such as commitment to goals, materialism, optimism privacy concerns, comfort levels, impulsiveness, among others, (Binoy and Subhashree, 2018; Fernandes *et al.*, 2014; Nye, 2013) that may affect utilization of formal financial services, this study was limited to the investigation of the effects of self-control, confidence, and social proof factors as independent variables. Furthermore, effects of adoption of financial innovations which has been identified to carry behavioral effects to enhance financial inclusion and financial literacy which has been theorized to influence decision making and were studied as mediator and moderator variables, respectively. Some of the earlier studies such as Tuesta *et al.*, (2015) argue that usage of financial services such as



ownership of an account/s, credit and debit cards, formal credit and electronic payments is influenced by a person's level of education, income, and age. Furthermore, activity levels and performance for the various micro enterprises vary according to the economic activity they are engaged in. (KNBS, 2016). Thus, based on prior studies, age, and gender of the owner of the Micro Enterprise as well as the economic activity ME is prevalently engaged in, were adopted as control variables in order to ensure adequate modeling of the explanatory variables on the Financial Inclusion phenomenon. The data for the study were collected in the months of May and June 2019.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

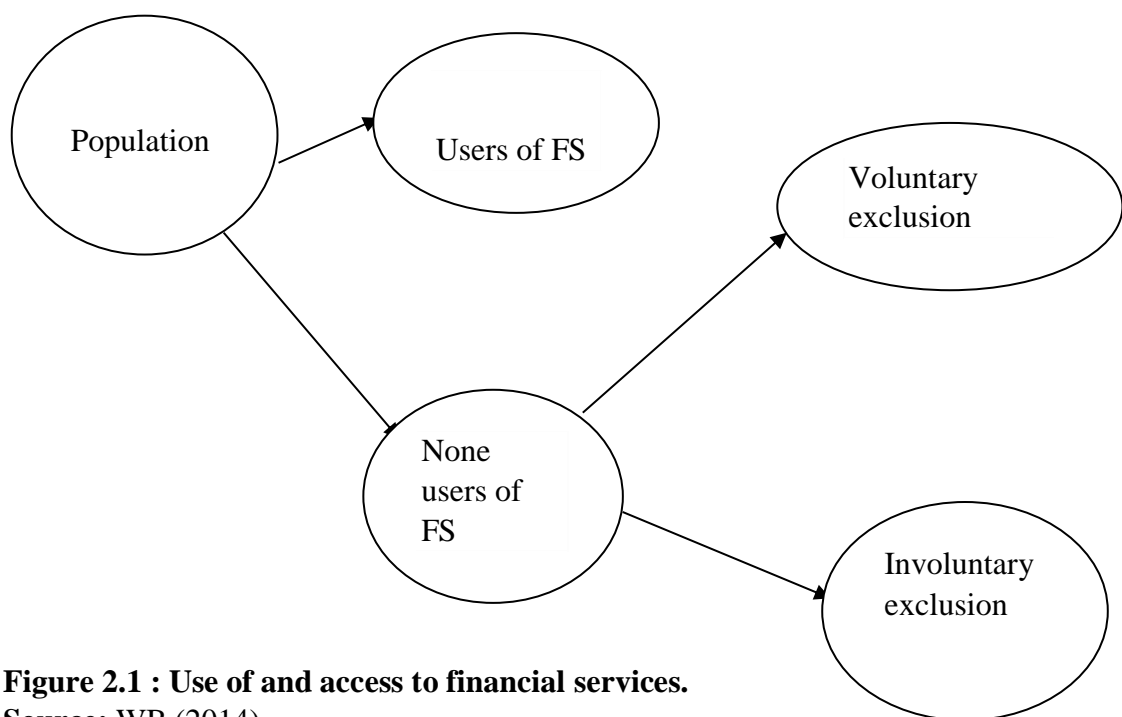
This chapter outlines the analysis of FI concept, theoretical framework, review of prior empirical studies and the conceptual framework for the study.

#### **2.1 Conceptual Analysis of Financial Inclusion**

The term financial inclusion (FI) has been defined differently by finance scholars and practitioners largely influenced by period and the context of study. Leyshon and Thrift (1999) are considered some of the earlier scholars to study the FI concept, their focus being on the antonym thereof financial exclusion (FE); which they considered as the processes that prevents the poor and disadvantaged social groups from gaining access to the financial system. They observed that FE amplifies geographical differences in levels of income and economic development. Sarma (2008) considers FI as the ease of access, availability, and usage of the formal financial system by all members of the economy. FI has been theorized within the broader issue of social exclusion of certain societal groups such as the poor and the disadvantaged. Finance scholars and practitioners considers the ownership of an account at a formal financial institution (FFI) such as a bank, credit union, cooperative, post office, or microfinance institution or a mobile money account as a primary indicator of access to financial services (Demirgüç-Kunt *et al.*, 2018). The focus on ownership of an account stems from the argument that ownership of an account in a FFI is an entry point into the formal financial sector given that it facilitates usage of payments services, savings, and access to credit among other formal financial services (Demirgüç-Kunt & Klapper 2012).

WB (2014) observes that when considering the FI concept, it is worthwhile to distinguish between the use of and access to financial services (Figure 2.1). Whereas

actual usage can easily be observed, access may be tricky since some individuals and firms may have access to, but voluntarily opt not to use all or some of the FS. In addition, some may have indirect access, such as use of a relative or a friends account or mobile number to transact. It is further observed that some part of the population may not use FS because they do not need them or because of cultural or religious reasons. Those involuntarily excluded are attributed to factors such as insufficient income, high risk, lack of information, inappropriate products, and price barriers, among others.



**Figure 2.1 : Use of and access to financial services.**

**Source:** WB (2014)

From the pioneer study of Sarma (2008), three dimensions of the FI concept were suggested; accessibility (proxied by number of bank accounts against population), availability (number of outlets per population) and usage (volume of deposits and credit versus Gross Domestic product (GDP)). These components were put together to develop a composite model for measurement of the FI (named index of FI) which was an improvement of earlier models developed by policy entities such as United nations

Development Program (UNDP) (Sarma, 2008). The three dimensions of FI have been used in subsequent studies with the variations/ improvements and measurement thereof, for example Samundengu (2014) considers usage in terms of permanence and depth of financial service and product (regularity, frequency, and duration of use over time).

Those populations that are underserved and unserved with formal FS are the focus groups for the Alliance for Financial Inclusion (AFI), which is the world's leading organization on FI policy and regulation. AFI supports policymakers to increase access to quality financial services and considers FI from three dimensions; access, usage and quality of financial services and has developed a composite score for assessing a country's FI score (Hughes & Marwa, 2016). Kenya's position on FI matters is being championed by the CBK, which continues to be an active AFI member (CBK, 2018). Mehrotra and Yetman (2015) cautions central banks against greater FI which results from rapid credit growth and rapid growth of relatively unregulated parts of the financial system given that it may affect financial stability. The Center for Financial Inclusion has a more comprehensive approach to FI and defines full financial inclusion as a "state in which everyone who can use them has access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, with respect and dignity" (<http://www.centerforfinancialinclusion.org/>).

Interests in studying the FI concept is attributed to earlier studies that established the relationship between financial growth and economic development such as Goldsmith (1969) in Clamara, Peña and Tuesta (2014) and Schumpeter (1911) in King and Levine (1993) as well as many other subsequent studies. However, there is need to look beyond the relationship between the two variables (economic growth and financial development) and focus on factors that drive FI from both users and providers of financial services point of views, thus the growing interest in dissecting the factors that

determine the level of FI for its various dimensions (Allen, *et al.*, 2016 among others). Clamara *et al.*, (2014), suggested that although FI has become a key issue, further studies should be undertaken to facilitate data collection and theoretical developments on the phenomenon. A review of previous studies undertaken on the FI concept is highlighted in the subsequent paragraphs, the same of which informed the gaps that were pursued in this study.

In developed economies such as Europe, Australia, and United States of America (USA) which have higher levels of FI as documented in diverse research undertaken under auspices of the WB (such as Demirgüç *et al.*, 2018; WB, 2014 among many others), studies on the FI concept have focused on factors that drive exclusion of some sections of the population. For example, Chambers (2010) undertook an explorative study on financial exclusion in the United Kingdom and observed although the banking industry and the government were working towards greater FI, the same would only be realized if the two institutions created a conducive environment such as legal and regulatory framework and engaging more on corporate social responsibility. In addition, drivers of FE should be addressed and that the banking code of conduct as well as financial education should be enhanced. According to the study, majority of those who faced difficulties in accessing FS were women, unemployed and younger population.

Lamb (2016) undertook a study to explore the relationship between financial exclusion (FE) and financial capabilities in Canada through collection of data from users of fringe finance. These persons were observed to be using high-cost unconventional financial services mainly offered by payday loan companies and pawnshops (those organizations who loan moneys against valuables deposited by loanees), owing to their inability to meet requirements of FFI. The conclusion of the study was that when education and

income are controlled, fringe finance users do not have lower levels of financial capability than those who do not use fringe finance hence their exclusion from formal financial services could be attributed to their low socio-economic status rather than a lack of financial knowledge.

Karp and Nash-Stacey (2015) undertook a study on FI in the USA using a developed FI index and theorized that, whereas the country is regarded as having a well-developed and deep financial system; FI continues to be a challenge for many communities and households. The degree of FI was determined using complexity of FS being utilized beyond the checking accounts. The results from the study were that technology was the most important contributor to FI in U.S. metropolitan areas, specifically mobile, internet and computer access, as well as digital account access and use. In addition, they observed that race, citizenship, and inequality are other key factors for FI in the USA.

In their study on factors that matter for FI in Peru, Clamara *et al.*, (2014) observed that those with severe challenges in accessing formal financial services were women, non-urban dwellers and the young. Additionally, mortgages and other forms of loans were observed to be better drivers of FI than savings products. Allen *et al.*, (2016) considered three dimensions of FI (ownership of an account, using the account to save and frequency based on the number of withdrawals per month) in their exploratory global study on individual and country characteristics associated with FI and the policies that are effective for enhancing inclusion of the vulnerable sections of the population. The study concluded for enhanced FI to be realized there is need to ensure that access fees are lowered and that service providers are located closer to the users on FS, protection of customer rights and political stability is ensured.

African countries continue to register growth in access to FI due to development in the financial sector including adoption of emerging technologies such as mobile money transfers and banking, albeit behind their developed peers (Triki & Faye, 2013). Some of the factors that have been theorized as drivers of FE include inadequate money, high user fees for the various services, lack of appropriate documentation such as ownership documents and lengthy distance to location of service providers (Demirgüç-Kunt & Klapper (2012). Taking the access dimension of FI, Lanie (2017), observed that West African countries trail other developing countries, notwithstanding the intensive efforts by government agencies in that region. Key factors attributed to low FI were mainly attributed to employment and educational levels in addition to other common factors identified in other regions. Zins and Weill (2016) had earlier undertaken a study on FI phenomenon cutting across 37 African Countries and observed that being a gender, wealth, education levels and age were key drivers of ownership and usage of an account, with a unique contribution on diversity of factors for informal financial services (credit and savings). Their findings of these earlier studies lay the foundation for further studies on both informal and formal finance usage in diverse environments.

Afande and Mbugua (2015) studied the role of agency banking, which is one of the forms of FINN for greater FI in Kenya. Whereas agency banking attracts additional charges, the study found out that the same was not an inhibitor of adoption of the innovation mainly because of the convenience it accords to the customers. However, for enhanced optimization of the innovation service providers should address liquidity challenges and ensure spread of service providers for ease of access as well as ensuring that security measures are put in place. Location of bank agents was suggested as the strongest predictor of FI. Nthambi (2015), researched on the effect of FI on the financial performance of commercial banks in Kenya. The study incorporated the

effects of bank ownership (moderator) and bank stability (mediator) on the relationship between FI and financial performance. The dependent variable (financial performance) was measured using return on assets (ROA), return on Equity (ROE), net interest margin (NIM) and non-performing loans (NPL). The results of the study were diverse for example, it lacked sufficient evidence to reject the hypothesis that bank stability does not significantly mediate the effect of FI on financial performance of commercial banks in Kenya. In addition, the study results were inconclusive on the moderating effect of foreign and government ownership on the effect of FI on bank financial performance as measured by ROA and ROE but were conclusive on NIM. The study concluded that the joint effect of FI, NPL and Z-score is greater than the individual effect of FI on financial performance of commercial banks in Kenya.

Mwangi (2017) studied the dynamics of FI (use of credit, savings, investment, transactionary and pension products offered by prudentially regulated institutions) and welfare in Kenya. The study used data that had been collected from Kenya's financial access surveys undertaken in years 2006, 2009, 2013 and 2016 (FSD, 2016), in order to track the impact of FI on welfare. The findings of the study were that per capita income was the main driver of FI in Kenya (demand following hypothesis). Further that usage of transactionary accounts, insurance and portfolio of investments have a major impact on welfare and that FI reduced exposure to poverty. The study recommended that FS user fees should be reduced to spur economic growth.

Based on emerging academic and policy studies on Kenya FI landscape, it appears that access and penetration of FS has significantly improved over time, this being attributed to presence of an enabling policy environment that has seen adoption of innovations such as agency banking, mobile financial services, among others. For example, using the access dimension, the number of adults with an account realized a growth of 50%



over a ten-year period with those formally included estimated at 75.3% of adult population in the year 2015 (FSD, 2016). In addition, Demirgüç *et al.*, (2018), observed improved access levels in Kenya, with 82% of adults owing an account at a FFI in the year 2017. Having been motivated by work of earlier scholars reviewed above among others, this study moved beyond ownership of an account to dwell deeper on the usage dimension of FI and the way it interacts with other variables as documented in the subsequent sections of this thesis document. This was based on the conjecture that it is through usage of financial services that improved financial well-being is realized.

## **2.1 Empirical Review of Prior Studies on the Relationship between Study Variables**

This section outlines previous studies undertaken on the relationship between the various explanatory variables (behavioral factors, financial innovations, and financial literacy) and financial inclusion.

### **2.1.1 Behavioral Factors and Financial Inclusion**

Emergent empirical studies have considered different behavioral factors and their influence in the use of financial services (FI). For example, Lown, Kim, Gutter and Hunt (2014) studied the relationship between self-efficacy (SE) and savings among middle and low-income households in the United States of America (USA). The study, which was premised on the Social Cognitive Theory observed significant positive effects of high self-efficacy with savings behavior. Meier and Sprenger (2010) studied the effect of present-biased preferences (desire for immediate consumption) on credit card borrowing among USA households. The results were that those that lack of self-control are bent to heavy credit thus the results agreed with behavioral economics models of present-biased preferences, as regards usage of financial services.

Gathergood (2012) considered the effect of self-control and financial literacy on consumer over-indebtedness on usage of FS, data having been collected in the United Kingdom. The study concluded that lack of self-control and FL are positively associated with non-payment of consumer credit and self-reported excessive financial burdens of debt. Thus, users of FS who exhibit self-control problems have a tendency to use quick access but high-cost credit items such as payday loans are likely to suffer income shocks, credit withdrawals and unforeseen expenses on durables hence exposed to diverse risks. Self-control was seen to have a higher impact on over-indebtedness as compared to FL. In order to appreciate how people, make decisions on use of FS (financial decisions), Strömbäck *et al.*, (2017) investigated the effect of individual differences in self-control, optimism, deliberative thinking in financial decision-making. The study was a cross sectional survey wherein data was collected for Swedish population. It extended the behavioral lifecycle hypothesis beyond savings behavior, to include general financial behavior mainly savings, debt management, planning and investment. The control variables in the study were income, age, sex, educational attainment, and financial literacy. The findings suggests that people with good self-control are more likely to save money earned, have better general financial behavior, feel less anxious about financial matters, and feel more secure in their current and future financial situation. Optimism and deliberative thinking were found to have positive effects on savings behavior independent of self-control. In addition, FL, income and being a female have a positive effect on savings behavior. The study confirmed applicability of BLC beyond savings hence credence for use of the theory in the resent study.

Binoy and Subhashree (2018) undertook an exploratory research on behavioral factors that influence the continued usage of formal financial services among the low-Income

households in India using behavioral finance theories. Factor analysis of 31 behavioral features/variables derived from various literature were considered during the study. It was concluded that twenty-five items thereof grouped into five categories; impulsiveness, commitment to goals, social proof, self-efficacy, and comfort level as well as privacy concerns had strong relationship with continued usage of formal financial services among the Low-Income Households. The ones with the highest internal consistency based on Cronbach's alpha value, which were impulsiveness (self-control), social proof, and self-efficacy (confidence), were subjected to further study through this current research with the items being adjusted appropriately to suit the context of the study.

In an empirical study that was aimed at determining the behavioral factors that affect individual investors' decision-making processes in Turkey, Aşıkoğlu and Boyukaslan (2016) tested 35 specific propositions with 460 individuals. Their study was premised on behavioral finance theories with outcome confirming tendencies for the individuals to demonstrate optimism, risk aversion, avoiding regret, herding, and representative bias, gambling, and framing biases. Their study identified five behavioral variables named as Affirmation, Hetero-Emotional, Prophecy, Contrast and Adverse Advertisement / Social Circle Tendency, which they recommended for further studies. While pursuing this gap, this study undertook further studies on two of the variables; self-confidence and social circle tendency (herein referred to as social proof) for further testing on their impact on financial decision making in order to enhance knowledge creation on behavioral finance theories.

### **2.1.2 Financial Innovations and Financial Inclusion**

Studies on the effect of financial innovations (FINN) on FI are emerging, some of which were reviewed within this section. Beck (2016) suggested that FINN could be viewed

from three dimensions. Firstly, new delivery channels such as agency or correspondence banking and secondly new products such as those being provided by banks and insurance companies in liaison with other FFI. Thirdly new types of financial intermediaries have emerged commonly telecommunication service providers who provide independent mobile based financial services (Mpesa, Airtel Money, Telkom Kash among many others) or in conjunction with banks (such as Mshwari, KCB Mpesa and many others in Kenya).

Siddik *et al.*, (2014) adopted the innovation of diffusion theory as well as the decomposed theory of planned behavior (modified by addition of a variable “perceived financial cost”) to study factors influencing behavioral intention to adopt (or continue to use) mobile banking in Bangladesh. This was premised on realization that mobile banking is one of the emerging FINN aimed at increasing the efficiency of the individual account holder by saving time as well as eliminating space shortcomings to access bank services; however, the innovation had not been widely accepted in Bangladesh despite the country’s central bank issuing the relevant guidelines in year 2011. The findings of the study were that perceived financial cost, perceived risk and subjective norm were the most influencing factors that affects people’s behavioral intention to adopt (or continue to use) mobile banking, hence should be addressed in order for the country to realize universal FI.

Al-Jabri and Sohail (2012) undertook a similar study in Saudi Arabia that focused on factors affecting mobile banking adoption, one of the emerging FINN. Using Diffusion of Innovation as a baseline theory, data was obtained from 330 actual mobile banking users. The findings of the study were that relative advantage, compatibility, and observability are responsible for adoption of the innovation. Trialability (that is

innovation that allows experimentation on limited basis) and complexity had no significant effect on adoption whereas perceived risk causes negative impact on adoption of MFS. Yeo and Fisher (2017) delved on the adoption and use of mobile financial services and their relationship with consumers' financial capability in the USA using the Technology Acceptance Model (TAM) and the Theory of Planned Behavior. The results of the study were that perceptions on usefulness, behavioral control and subjective norms had significant effects on usage of the innovation and that financial capability was attributed to increased usage thereof.

Jones and Tennyson (2015) focused on the FINN in form of informational nudges on consumer credit card debt repayment behaviors in the USA. The findings suggests that disclosures required under the Credit Card Accountability Responsibility and Disclosure (CARD) Act introduced in 2009, were effective in inducing households to increase the amounts of credit card debt paid off each month, more so for those who pay off balances in full each month. Those who revolve credit from one month to another did not show significant change in behavior even with the introduction of the innovation. Karlan *et al.*, (2010) had earlier undertaken a similar study focusing on effect of reminders on savings; data was collected from three settings (Philippines, Peru, and Bolivia). In the experiment's clients were provided with monthly reminders to save towards a target, the findings were that on average the clients saved 6% more than individuals who did not, with a p-value of 0.079 or 0.065. The study did not find any significant difference between findings in each of the settings. The study theorized that reminders change intertemporal allocations, and improve consumer welfare, by providing associations between future expenditure opportunities and today's choices that mitigate the attentional failure. Hence, the predictions from their model were that reminders enhances saving more so when they focus on future goal or opportunity, thus

validating the behavioral theories such as mental accounting associated with Thaler (1990).

While considering factors that affect mobile banking (M-Banking) usage in Kenya, Lule *et al.*, (2012) applied TAM associated with Davies (1986) to predict user 's acceptance of information technology using two variables: perceived usefulness and perceived ease of use. Having conducted a survey of four hundred and fifty (450) users of the innovation, the results suggest that the two variables had significant effects on customers attitude towards the financial product. Cadena and Schoar (2011) examined the effectiveness of incentives for loan repayment in Uganda using three different treatments. Borrowers were either given a lump sum cash reward upon completion of the loan, a reduction of the interest rate in the next loan the borrower takes from the bank, or a monthly text message reminder before the loan payment is due (SMS). The findings were similar for each of the treatment all of which increase probability of repayment by between 7 to 9 %. The results suggests that simple text messages that help borrowers to better manage their repayment dates have similar effects as the other options that affect cost of capital, more so for younger borrowers. However, Karlan *et al.*, (2012) study on effect of messaging on loan repayment suggest that it improves repayment when it has a personal touch (include the name of the officer who assisted in processing the loan). Timing of the message, loss/gain framing did not have significant effect on repayment of the loan. The divergent views on impact of reminders on savings and credit among prior empirical studies informed this study with focus on effect of information on usage of FS.

FINN through prize linked products have also been theorized to increase use of FS such as the study undertaken by Abraham *et al* (2016) where they examined the effect of

provision of lottery-linked deposit accounts (LLDAs), a savings scheme incorporating lottery-like payoffs to savings account holders. The experiment entailed provision of a mobile savings product to 311 informal residents in Nairobi, Kenya and data on activities undertaken through the bank accounts over a 60-day period was collected. The study observed that there was an increase in account activity in form of additional deposits per day in order to enter into the lottery. The results suggest that LLDAs have the potential to enhance savings among the LIH and that product design has considerable implications on gambling behavior. Extensive empirical studies have also been undertaken effect of agency relying on usage of FS such as Afande and Mbugua (2015) among many others. Having reviewed the benefits and challenges associated with FINN, with a focus on digital finance/mobile financial services and its impact on FI and stability of financial system, Ozili (2018) felt short of subjecting the model to an empirical study. An attempt to test the model was undertaken through this study, excluding the effect on stability on FS which was modelled in the context of financial crisis to test contagion effects or otherwise. Having reviewed extant literature on FINN, FI and development, Kim *et al.*, (2017, observed that whereas there is growth, most of the studies are more aligned to delivery related issues (technology perspective) and less on impact on FI and socio-economic development, a course that was pursued in this research in a developing country setting.

### **2.1.3 Financial literacy and Financial Inclusion**

Lusardi *et al.*, (2010) examined financial literacy (FL) among the young in the USA and observed that one-third of young adults possess basic knowledge of interest rates, inflation, and risk diversification and that FL was strongly related to sociodemographic characteristics and family financial sophistication. Lusardi *et al.*, (2014) sought to find out the FL levels of older people by collecting data in the USA from those who were

more than 50 years old. They found out that majority of the older people were not financially sophisticated to handle basic aspects of risk diversification, asset valuation, portfolio choice and investment fees. Among the respondents, women, the least educated, those of other races (non-Whites), and those above 75 years old had much lower levels compared to their counterparts. The conclusion of the study was that action should be taken both at policy and personal level since lower levels of FL would have negative consequences on usage of savings and pension benefits.

While recognizing that FL helps individuals make more assertive and efficient monetary decisions, Potrich *et al.*, (2015) summarized various studies undertaken of FL concept and further undertook a study in Brazil that aimed at understanding the FL phenomenon through socio-economic and demographic variables. Data was collected from 1,400 individuals and analyzed using both descriptive statistics and multivariate analysis techniques. FL was measured using financial attitude, financial behavior, and financial knowledge. The findings were that that most respondents (67.1%) were classified as having a low financial literacy level whereas men who do not have dependent family members, have higher educational and both individual income and family income levels demonstrated high financial literacy levels. Women with dependent family members, low educational, and income levels were most disadvantaged hence recommendations that policy makers give the category more attention in order to enhance their quality of living. Their study among others formed decision making on control variables of this study.

Cole *et al.*, (2011) undertook a study to determine the effect of FL, prices of FS and continued usage of FS by collecting data in Indonesia. The experimental study involved exposing the targeted group to a FL Education program. The results of the study were that low FL was not a severe impediment to demand for FS, instead the price of FS was



key determinant in opening and continued usage of bank accounts. However, the study found a strong correlation between financial literacy and behavior, a relationship that was subjected to empirical analysis in this study. Klapper *et al.*, (2014) utilized data collected by Gallup World Poll survey (2014) from more than 150,000 nationally representative and randomly selected adults (more than 15 years) in more than 140 economies. FL was measured using four dimensions, knowledge of interest rates, interest compounding, inflation, and risk diversification. The results were that only one in three adults were financially literate. Differences were also observed among countries and groups with women, the poor, and lower educated respondents having lower levels.

Fernandes *et al.*, (2014) considered the effects of FL, Financial Education, and downstream financial behaviors among USA residents. The study utilized prior studies to develop a more comprehensive 13-item scale of measuring FL, which was used with psychological traits such as propensity to plan, willingness to take risks, confidence in information search, self-efficacy, among others. Departing from other prior studies, the study observed that interventions to improve FL explain only 0.1% of the variance in financial behaviors studied, with weaker effects in low-income samples. The partial effects of financial literacy were reduced by psychological traits, yet the latter had been omitted in prior research. The results further indicated that financial education that is not acted upon immediately thereafter has less effect, hence advocacy for just-in time education such as during utilization of a FS such as a loan.

Grohmann (2018) studied the relationship between FL and financial behavior of the Asian middle class (those who make between USD 10 and 100 per day) by collecting data in urban areas of Bangkok, Thailand. The study used standard FL questions commonly deployed in studies undertaken in FL literature such Lusardi *et al.* (2014)

for comparability purposes. The results were that knowledge of interest rates was good; fewer numbers understand inflation issues while only 24% correctly answered the questions on diversification of portfolio. Generally, 17.5% of the respondents answered all three questions correctly, with majority answering two questions correctly. They further observed that higher FL leads to improved financial decision making for optimal use of FS. While recognizing Huston's (2010) argument that FL is expected to influence individuals' behaviors and attitude, Matemane (2018) undertook a study on the relationship between FL and saving habits among black South Africans with a commerce tertiary qualification, working in Pretoria and Johannesburg. Data was collected using a structured questionnaire from 171 participants who work in different sectors of the economy. The findings of the study were that: people with a commerce tertiary qualification were more financially literate than those without, FL was a significant predictor of saving habits and that black South Africans were less financially literate as compared to other categories of people in the country (coloured, Indian and white).

In the quest to understand the relationship between FL and FI, Grohmann *et al.*, (2017) assessed FI from three dimensions; access to finance (ownership of an account), use of FS, and control variables (general country characteristics, financial infrastructure of a country and institutional country characteristics). FL was measured using the four variables (risk diversification, inflation, interest rate and interest compounding), one being considered financial literate if they correctly answered 3 out of 4 questions. The study argued that it was the first empirical study to be undertaken on the relationship between the two variables at country level. The study found a positive and significant relationship between financial literacy and all the measures of financial inclusion adopted. The study theorized that effect of increase in level of FL on access to FS would

be strongest in developing countries and that the effect on usage on FS would be larger in more economically developed countries, which also have a deeper financial system.

#### **2.1.4 Age, Gender, Economic activity, and Financial Inclusion**

Prior studies have documented and empirically tested factors that matter for financial inclusion. There is consensus that gender, age, and economic activities influences level of financial inclusion, and that those who are young, and women are disadvantaged as regards access to formal financial services as compared to their counterparts who are older and are male due to economic reasons such as lack of collateral to support loan applications and cultural factors that are unfavorable to women. Due to the disadvantages in accessing financial services, it is imperative that such categories of the population would be affected in utilizing formal financial services aggravating gender disparities such as in ownership of micro enterprises. Furthermore, choice of economic activity is affected by many reasons including capital requirements and profitability levels with most ME engaging in those sectors that are considered more favorable thus increasing their utilization of formal financial services such as loans from banks and other formal service providers such as SACCOs (Clamara, *et al.*, 2014; FSD, 2016; Levine, & Demirguc-Kunt, 2009; Tuesta, *et al.*, 2015, Faye & Triki, 2013; WB, 2014, KNBS, 2016). Therefore, the three factors; age, gender and economic activity which have been theorized as key determinants for financial inclusion were adopted as control factors in the study for comprehensive investigation of the financial inclusion phenomenon.

#### **2.2 Summary of the Empirical Review**

The empirical studies above reveal the various ways in which the relationships between the explanatory variables; behavioral factors, financial innovations and financial literacy have been modelled with diverse dimensions of financial inclusion, commonly

access and usage of FS. Studies on the various variables are generally reported to be at nascent stages, whereas the FI continues to capture global attention with the target being to achieve universal FI by the year 2020 while also recognizing that the phenomenon (FI) is a catalyst for realization of Global Social Development Goals by the year 2030 (WB, 2018). In addition, from the literature reviewed above, it is observed that the variables investigated by this study have been considered in isolation and commonly direct relationships have been pursued without attention being given to derivation of a comprehensive model that facilitates understanding on how behavioral factors and their interaction with other variables affects financial inclusion. From the foregoing and to the best of our knowledge, a comprehensive model that aims at understanding the extent to which BF (self-control, confidence, and social proof) influences FI, directly or indirectly through FINN and how it interacts with FL as modeled by Hayes (2013) has not been explored. This study contents that components of the financial intermediation theory, behavioral finance theories and capability theory as well as diffusion of innovation theory helped to understand and interpret the findings of the comprehensive model that was tested, and informed recommendations for further research on the FI phenomenon.

### **2.3 Theoretical Framework**

This section outlines the theoretical foundations for this thesis. According to Johnson (2002) in Saunders *et al.*, (2009), theory is a formulation regarding the cause-and-effect relationships between two or more variables. The definition builds on earlier contributions by Whetten (1989) who argued that a complete theory must contain four elements; what factors explain the phenomena under study thus comprehensiveness and parsimony (value that the variables give to the study) should be considered. How the variables are related, why component which concerns itself with the underlying

dynamics that justify the variables (theory) and contextual issues (who, where and when) are the other three considerations suggested by Whetten. Thus, theories help to explain, understand, and challenge existing knowledge on the phenomena under study (Abend, 2013). This study was mainly premised on the Theories outlined in the section below.

### **2.3.1 Behavioral Finance Theories**

Aşikoğlu and Büyükaslan (2016) observes that, the traditional/conventional finance theories were based on the premise that individuals are rational beings hence expected to make rational decisions without the influence of emotions. Thus, individuals were expected to use complex mathematical operations/models and current information while avoiding past mistakes to arrive at optimal decisions. Alienating finance decision-making, (for example in investment decisions aspects such on risks, returns and expectations), from human nature is one of the key criticisms of the traditional theories. Unlike traditional finance theories which focuses on the norm, behavioral finance theories (BFT) aim at modeling the real behavior of individuals such as stock market agents and investors. (Jurevičienė & Ivanova, 2013). Thus, behavioral finance is generally understood as the field of research that studies how individuals make judgments and choices in financial markets. While recognizing the emerging developments that has led to have documentation of ways in which people systematically depart from optimal judgment and decision-making, Barber and Odean, 2007 observes that BFT enriches economic theories/models through inclusion of knowledge on human nature. They argue that BFT, like traditional theories, provide formal hypotheses and predictions, which can be empirically tested. Barak (2006) in Aşikoğlu and Büyükaslan (2016) is of the same opinion and asserts that there is empirical evidence that psychological intuition and or psychological factors (heuristic)

plays an active role in financial investments instead of probabilistic calculations of conventional theories of Finance.

The history of BFT, which is an intersection of the fields of psychology and sociology with the science of finance is traced to the 1890's. Earlier scholars such as Le Bon (1896) in Jurevičienė and Ivanova (2013) is recognized to be one of the pioneer studies to suggest that investors demonstrate irrational behaviors in their actions. This was informed by the realization that many anomalies in the markets are the results of psychological factors, which are inherent in decision-making. For example, Odean and Barber (2007) demonstrated that individual investors are net buyers of noticeable stocks (for example, those in the limelight, high abnormal trading volume, and those with extreme one-day returns). This was mainly attributed to the difficulties experienced by investors in choosing appropriate stocks/shares from several potential ones.

Zaleskiewicz (2006), suggest that there are two main categories of BFT; belief-based (cognitive deviation theories) which focuses on judgments (thoughts and perceptions) concerning risks and expected returns, and preference-based (preference theories) which concerns itself with decisions on what as well as when to trade. Jurevičienė and Ivanova (2013) observes that cognitive deviations can be sub-divided into four groups: heuristics, framing, emotions, and market influence. It is observed that other scholars classify the sub-categories of cognitive deviations in different ways; for example, Waweru *et al.*, (2014) considers heuristics to comprise of representativeness, gambler's fallacy, anchoring; overconfidence and availability bias, whereas as Zaleskiewicz (2006) and Jurevičienė and Ivanova (2013) have anchoring and representativeness. However, it was observed that there seems to be consensus in their interpretations. A brief overview of the cognitive theories is outlined in Table 2.1 below.

De Bondt *et al.*, (2015), have documented diverse weaknesses of BFT such as lack of a unified theoretical core as is the case with neoclassical finance. They argued there is no single preference framework to accommodate the features in prospect theory and cognitive theory as well as the multiple explanations that are being given on behavior biases. Having recognized that BFT is an emerging and empirically tested body of knowledge, De Bondt *et al.*, (2015) recommended that BFT elements should be incorporated into the conventional finance theories to explain financial market decisions to make the conventional theories more inclusive.

**Table 2.1: Cognitive theories**

Category	Description
Heuristics	These are mental shortcuts or rules of thumb used in complex decision making, Examples: a) Anchoring- Relying too much on past or specific information. b) Representativeness - Stereotyping in decision making for example resemblance, prospects of recent winners or losers. c) Gambler's fallacy (disposition effect) - tendency to hold onto losing positions for too long and to sell winners too early.
Framing	a) Optimism- tendency to overestimate the likelihood of positive outcomes and to underestimate the likelihood of negative outcomes. b) Mood- Positive mood is associated with strategies that are less effort intensive and more optimism whereas negative mood fosters the contra. c) Control- Believe that one can predict and control the outcomes of purely random events driven by task familiarity, choice, and active involvement. d) Regret Avoidance- Tendency to avoid actions that can create discomfort based on prior decisions, even if the actions are in the individual's best interest. e) Aversion to ambiguity- individuals have negative perception to unknown information such as foreign company shares.
Emotions	a) Overconfidence –Tendency to overestimate one's knowledge, more so when one is an expert in the field. It leads to irrational optimism. b) Self-attribution- Tendency to attribute successful outcomes to one's own skill but blame unsuccessful outcomes on bad luck.
Market influence	a) Imitation (herd behavior) – group thinking even if individually rational. b) Recency- Relying too much on most recent information

**Source: Research 2019**, (Based on Barber & Odean, 2007; Jurevičienė & Ivanova, 2013; Waweru *et al.*, 2014; Zaleskiewicz, 2006; among others)

One of the behavioral finance theories that has been used to explain savings habits is the behavioral life cycle hypothesis discussed below. The Life cycle hypothesis theory is attributed to the classic economic studies of Modigliani (Ando and Modigliani, 1963) who theorized that individuals plan their spending over their lifetimes, taking into account their future income; however, scholars such as Thaler and Benartzi (2004); Shefrin and Thaler, (1998) among others have contested the conclusions. The arguments being put forward are that there is need to recognize imperfections in financial markets, differences in expectations on income and consumption hence emergence of modified version thereof referred to as the behavioral life cycle hypothesis, accredited to Shefrin and Thaler (1988); Thaler & Benartzi (2004).

Shefrin and Thaler (1988) contributed to having the theory behaviorally realistic by introducing effects of self-control in postponing consumption, mental accounting in portioning of income between current and future consumption and framing of wealth/income when received in lump sum as compared to regular income. According to Levin (1998), the three elements of the behavioral life cycle theory are that firstly; individuals tend to utilize all resources at hand for current consumption instead of saving for the future. Secondly, that those who save have overcome this self-control problem by investing in a variety of assets that have different levels of temptation associated with them. Thirdly, that individual first engage in framing (categorizing or setting up mental accounts) for the resources at hand prior to spending such that consumption is affected by way the allocation has been done and the temptation associated with each category, with windfalls and current income being more tempting. In its early formulation, the behavioral life cycle theory focused on saving behavior only, however scholars such as Strömbäck *et al.*, (2017) extended applicability of the theory in determining broader financial behavior such as debt management,



consumption, savings, and investments which affects the overall financial wellbeing of individuals and observed that high self-control and optimism results into positive financial behaviors. Beyond self-control, other psychological and social factors such as confidence also referred to as self-efficacy and social proof have been included to enrich the behavioral life cycle theory in predictions of factors that drive financial decisions (Binoy and Subhashree, 2018; Mauldin, Henager *et al.*, 2016).

The second category of behavioral finance theories is the prospect theory associated with Kahneman and Tversky (1979) who theorized that people's preferences are context-dependent and are strongly loss-averse (Barberis, 2013; Zaleskiewicz, 2006). With reference to gains, the theory argues that people are risk-averse but risk seeking in the presence of losses hence different views on gains and losses, with the latter having a more serious impact on investors emotions. (Kahneman & Tversky, 1979). Risk aversion, loss aversion and mental accounting are some of the components of prospects theory (Waweru *et al.*, 2014). Simply put, risk and loss aversions entail tendency for individuals to repeat the same mistakes then become sorrowful, whereas mental accounting entails sub-optimal decision on investments/cash resources/income based on decisions to have different mental accounts of funds to serve different purposes. Examples of sub-optimal decisions are saving funds for vacation yet holding unpaid credit cards/loan balances, the latter of which is more costly due to interest charges. Prospect theory has been adopted from positive economics point of view, to explain effects of behavioral factors on returns to securities, investment in insurance policies such as annuities, consumptions and saving decisions (for example individuals facing income uncertainties will save more to prevent future pain) and from prescriptive economics view which entails nudging people towards certain behaviors, such as use of lotteries to enhance savings at individual and group levels (Barberis, 2013).

Based on the foregoing, out of the various forms of, this study adopted the behavioral life cycle theory and the prospect theory, both of which are part of Behavioral Finance Theories, to explain the effects of the three behavioral factors (self-control, confidence, and social proof) on financial inclusion of owners of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

### **2.3.2 Diffusion of Innovation Theory**

The Financial Innovation (FINN) variable has been explained in prior studies using the Diffusion of Innovation (DOI) theory associated with French sociologist Gabriel Tarde, who plotted the original S-shaped diffusion curve, followed by Ryan and Gross (1943), who introduced the adopter categories that were later used in the current theory popularized by Everett Rogers. Diffusion of innovation is the process that occurs as people adopt a new idea, product, practice, or philosophy, among others (Kaminski, 2011). Rogers (2003) figured out the diffusion process, and argued that at the initial stages, a few people are open to the new idea and adopt its use. As these early innovators ‘spread the word’, more and more people become open to it, which leads to the development of a critical mass. Over time, the innovative idea or product becomes diffused amongst the population until a saturation point is achieved. Rogers (2003) suggested five categories of adopters of an innovation: innovators, early adopters, early majority, late majority, and laggards, however sometimes, a sixth group is added that is non-adopters. Siddik *et al.*, (2014), observes that diffusion research has examined the adoption and uses of information technology from a diffusion of innovation perspective. They observed that adoption of new technology depends on five attributes; relative advantage, compatibility, complexity, trial ability (an innovation that allows experimentation on a limited basis) and observability (extent of visibility of an innovation to others) thus, innovations that are relatively less observable diffuse more

slowly. Al-Jabri and Sohail (2012) among other previous studies have used the diffusion of innovation theory to explain adoption of innovations in the financial sector in different contexts.

This study considered the theory applicable in understanding perceptions that affect adoption of innovations in the financial sector. Through the data collection tool, elements of the theory such as relative advantage, compatibility, complexity, and observability have been incorporated for data collection on drivers for adoption of FINN by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. Data on perceptions on the adoption of FINN that was hypothesized as a mediator of the relationship between behavioral factors and financial inclusion in Kenya was collected and analyzed to inform theory building.

### **2.3.3 Capabilities Theory**

Capability Theory (CT) also referred to as capability approach, is one of the other theories that supported this study. CT is a broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about social change in society. The theory continues to be applied in diverse fields with the common ones being development studies, welfare economics, social policy and political philosophy studies and policy documents that evaluate inequalities, poverty, and overall people well-being. Robeyns (2005), Robeyns (2003) traces CT to the earlier works of Aristotle and Adam Smith, and observes that the theory in its present form is attributed to the work of economist and philosopher Amartya Sen ( as documented in Sen 1980, 1984, 1999, 2005 among many others ) and philosopher Martha Nussbaum (1988, 1992, 1995, 2004, among others). Kuriakose & Iyer, 2014 observes that CT focuses on what people are effectively able to do and to be; hence, the arguments that people welfare policy designs should focus on individuals'

abilities, quality of their life, and on removing obstacles for people to live valuable lives.

Robeyns (2003) reviewed the work of Sen as quoted above and observed that the economist is considered to be the one that introduced the concept of “capabilities” and “functioning’s” to measure the well-being of a human being and her quality of life. According to Sen, Capabilities comprises of broad set of opportunities to choose and act from thus recognizing a personal ability and the effect of the environment (political, social, and economic) in exercising the same whereas Functioning is realized by the individual as the result of capabilities. Martha Nussbaum built on Sen Work but focused on those capabilities central to one life such as health, bodily integrity, education, and other aspects of individual lives and argued that these attributes cannot be reduced to a single metric without distortion. The main differences between the two scholars’ perception of capabilities are that Nussbaum focused on development of a list of the capabilities and focused more on political liberalism whereas Sen’s CT is generic and has no list even in his later studies such as Sen (2005).

Kuriakose and Iyer (2014) observes that CT as formulated by Sen is driver of the emerging human development theory/approach (HAD). HAD introduced in the 1990’s by the United Nations Development Program, informed the development of the Human Development Index (HDI) as an alternative measure of economic progress and development beyond Gross Domestic Product, commonly used in development economics. HDI is a multi-variate composite index comprising of three perspectives: life expectancy (health and longevity), attainment of education and command over resources for a decent standard of living. This research focused on understand financial inclusion within the broad spectrum of human development; how it enlarges the choices of individuals and enhances both economic and social security. Kuriakose and Iyer

(2014) adopted CT in theory study on the relationship between financial development and human development. They concluded that CT grounds the need to enhance FI to mitigate the exposure of individuals to challenges that come with social exclusion. Lubis (2018) utilized the CT to explore the importance of financial literacy on his thesis and contrasted the theory to the utilitarian theories, which focuses on income/wealth related matters when examining a person's quality of life. In the study, financial literacy was taken as a key component of financial capability, which comprises of other factors such as financial planning, financial self-efficacy, knowledge and attitude towards financial products and ownership of financial products. The study concluded that socio-demographic indicators are useful predictors of levels of financial capability for example positive associations was observed between income, education, and cognitive skills and financial capability, the latter of which was observed to have a positive relationship with quality of life.

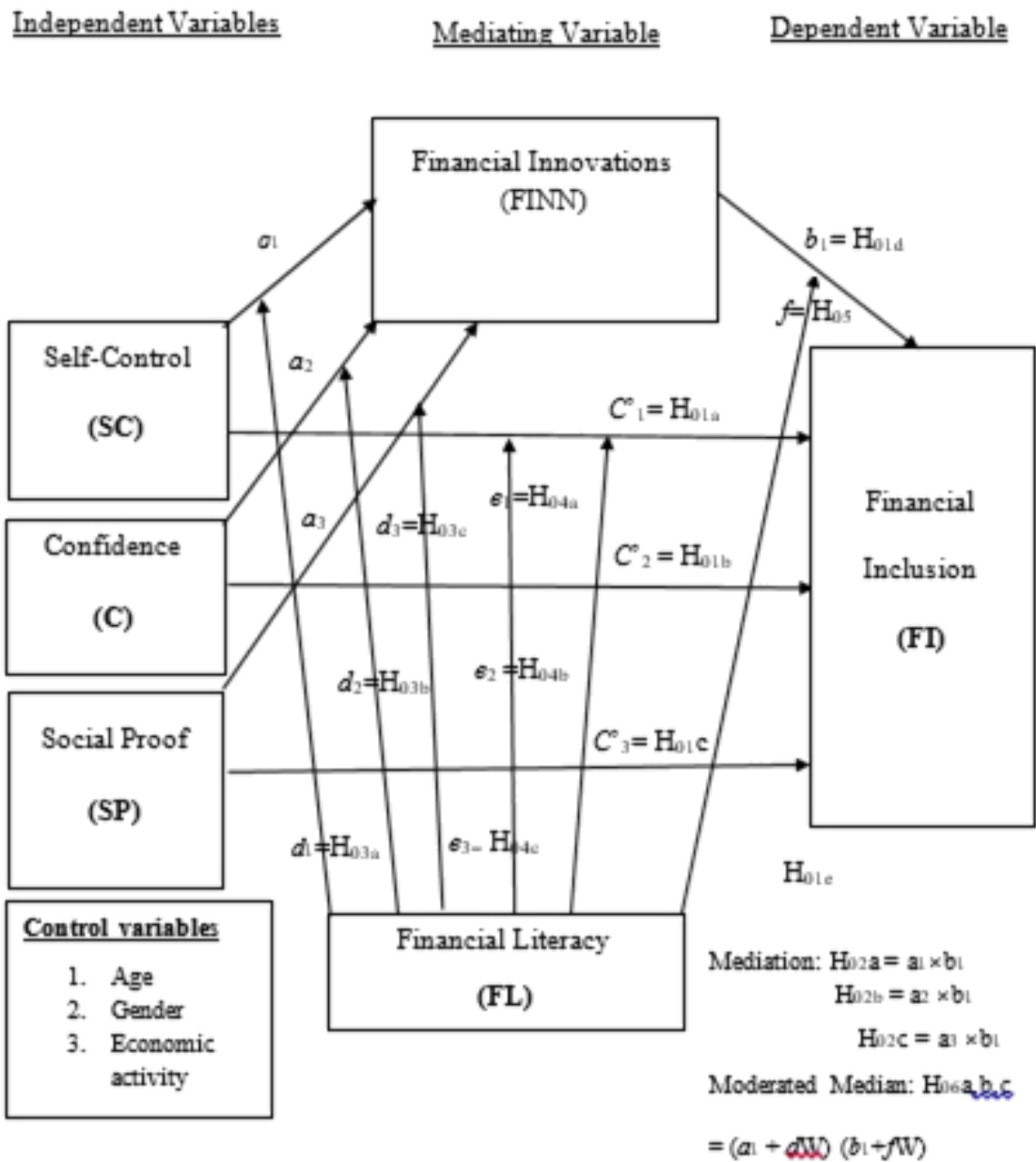
Pursuant to the various ways to which capability theory as formulated by Sen (2005) has been considered by previous researchers in different fields as outlined above, the theory is considered appropriate for understanding the extent to which financial literacy enhances financial inclusion by equipping individuals with knowledge and skills which facilitates informed utilization of financial services for enhanced quality living. It is conjectured that individuals who have higher levels of FL based on the assessment criteria in the data tool, can overcome negative behavioral tendencies for optimal usage of Financial services.

## **2.4 Conceptual Framework**

Based on literature reviewed the conceptual model for this research is as provided in Figure 2.2. The conceptual model shows the hypothesized relationship between the independent, moderating, and dependent variables of the study. Usage of financial

services (FI) was adopted as the dependent variable whereas the three behavioral factors; self-control, confidence and social proof were the independent variables. Financial Innovations was hypothesized as the mediator between the three behavioral factors and financial inclusion, whereas financial literacy was conceptualized as the moderating variable. Scanty studies have investigated the moderated effect of financial literacy on the indirect relationship between the three behavioral factors and financial inclusion through adoption of financial inclusion, a gap that the study aimed to fill.

It was hypothesized that financial literacy has a conditional indirect effect on the relationship between behavioral factors and financial inclusion through adoption of financial innovations. Factors that may affect the relationships among the variables under study (age, gender, and type of economic activity that a Micro Enterprise is mainly engaged in), all of which were derived from prior studies on the FI phenomenon, were included as control variables in the study model. The diagrammatic relationship between the study variables is provided in Figure 2.2 below.



**Figure 2.2 Conceptual Framework**  
 Source: Adapted from Hayes (2013)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter outlines the research philosophy, research design, study area, target population and sampling design, data collection, sources of data as well as the data collection instruments deployed in the study. It further provides information on data measurement, reliability, and validity of measurements, how data processing and analysis was undertaken, the analytical model as well as the ethical considerations for the study.

#### **3.1 Research Philosophy**

Research philosophy refers to a system of beliefs and assumptions about the development of knowledge. According to Saunders *et al.*, (2009), these beliefs and assumptions comprises of; firstly, assumptions about human knowledge, what constitutes acceptable, valid, and legitimate knowledge, and how we can communicate knowledge to others (epistemological assumptions). Secondly assumptions about the realities of nature thus views on research objects (ontological assumptions) and thirdly axiological assumptions, which entails the extent and ways to which the researcher's values influence research process. These assumptions inevitably shape the research questions, methods and interpretation of findings and the entire research process. Saunders *et al.*, (2009) provides five main philosophies of research; positivism, critical realism, interpretivism, postmodernism and pragmatism and maps the three fundamental assumptions to each one of them. According to Creswell (2014), there are four alternative research paradigms; post-positivism, transformative, constructivism and pragmatism each with major elements as highlighted in Table 3.1.



**Table 3.1: Paradigms in Research**

<b>Post-positivism</b>	<b>Transformative</b>
a. Determination	a. Political
b. Reductionism	b. Power and justice oriented
c. Empirical observation and measurement	c. Collaborative
d. Theory verification	d. Change-oriented
<b>Constructivism</b>	<b>Pragmatism</b>
a. Understanding	a. Consequences of actions
b. Multiple participant meanings	b. Problem-centered
c. Social and historical construction	c. Pluralistic
d. Theory generation	d. Real-world practice oriented

**Source:** Creswell (2014)

This study leaned towards the post-positivism paradigm, also referred to as empirical-analytic approach, scientific approach, post-positivist approach among others which goes beyond the earlier conceptions of positivism that knowledge is absolute, given the nature of human behaviour and actions (Creswell, 2014; Lukenchuk & Kolich, 2013). The post-positivism paradigm (is based on the assumptions/ belief; causes determines actions (determinism), condensing of ideas into variables for testing (reductionism), making observations of behavior based on measurement criteria and testing of established theories that govern the phenomenon under study so as either to confirm, refute or refine the theory for enhanced understanding. Creswell (2014). The above assumptions are associated with often associated with quantitative research approach which is the method that was adopted by this study. Quantitative approach broadly comprises of experimental studies, relationship research, and surveys. (Saunders *et al.*, 2019; Lukenchuk & Kolich, 2013). Therefore, the study variables and respective measurement dimensions were identified, relationships among the variables were formulated and documented in form of hypotheses, observations of behavior were

obtained using the data collection tool and the relations were tested and the outcome was discussed, based on the theories that underpinned the study, thus contribution to enhanced understanding of the financial inclusion phenomenon. The findings of the study contribute to the discourse on factors that matter for optimal usage of financial services, the focus being on the relationship between users of financial services behavioral disposition and usage of the diverse services offered in the formal financial system. The study empirically tested how perceptions on adoption of financial innovations mediates the relationship between the behavioral factors and financial inclusion and the moderating role of financial literacy in the relationship between the variables.

### **3.2 Research Design**

Research design also referred to as strategies for inquiry are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research (Creswell, 2014). Saunders *et al.*, (2009) observes that explanatory strategies facilitate understanding of causal relationships between variables and that cross-sectional study, which entails the study of a particular phenomenon (or phenomena) at a particular time, is the most common survey strategy in academic business studies. Having adopted a quantitative research design, this study utilized a cross-sectional survey strategy to collect quantitative data on perceptions on the six variables that were being studied with the explanatory strategy adopted to study the relationship between the variables. Data from a sample of owners/representatives of ME that were surveyed, was used to draw inferences on opinions and trends on the conditional direct and indirect effects of financial literacy on the relationship between behavioral factors and utilization of FFS by ME in Kenya, through adoption of financial innovations. The moderated mediated effects were determined using Model 59

developed by Hayes (2013) which continues to attract attention in medical, social, and business studies fields, examples of studies that have used the model include Hayes, (2015), Levant *et al.*, (2015), Li *et al.*, (2016) among others other emerging studies. The detailed process of data analysis adopted by the study is provided in the data analysis section.

### **3.3 Study Area**

A brief background of the study area is important in the understanding of the study findings and subsequent further studies on the FI phenomenon. The data for this study was collected in Nairobi County, which is one of the forty-seven (47) Counties in Kenya established under the country's Constitution (2010). Nairobi County has the highest proportion of micro enterprises and is the main economic hub in Kenya (KNBS, 2016). Nairobi County comprises of 17 constituencies that are further sub-divided into eighty-five (85) electoral wards. Given that ME are the main source of employment in Kenya, Embakasi East Constituency, which had the highest number of licensed Micro Enterprises in Nairobi County based on the records kept by the County Government, was selected as the study area for this Thesis Project.

### **3.4 Target Population**

The population for the study comprises of Micro Enterprises (ME) located in the study area, Embakasi East Constituency of Nairobi County. ME were selected as the population of the study owing to their key role in the economy which is attributed to the large number of people it employs, their significant contribution to total value addition as well as provision of affordable goods and services to a large segment of the poor and middle-income populations in Kenya as documented by (KNBS, 2016). In addition, ME are key customers to providers of financial services in Kenya, which

makes them the appropriate population for the provision of data on financial inclusion and the underlying explanatory variables that are being studied.

The sample frame from which the population and sample for the study was obtained from the Nairobi County licensing records as outlined in Appendix 6 of this thesis document. As observed in the KNBS pioneer study on Micro, Small and Medium Enterprises (KNBS, 2016), the data held at national and county governments have potential challenges such as lack of complete profiles of existing licensed enterprises due to missing/ outdated crucial information such as location, telephone numbers, owner versus business name, among others. The data obtained from Nairobi County had the challenges observed in KNBS (2016).

### 3.5 Sampling Design and Procedure

Saunders *et al.*, (2009) observes that obtaining a representative sample is critical in every research, a matter of which is a tradeoff between precision and confidence, whenever it is not possible to increase the sample size for reasons such as costs. The sample size should also meet the criteria of level of precision, the confidence level, and the degree of variability of the attributes being measured in the population. For this study, the following formula outlined in Singh and Masuku (2014) based on the work of Yamane (1967), was used to calculate the sample size of 486.

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{2,194}{1 + 2,194 (0.04)^2} \quad n=486$$

Where  $n$  is the sample size,  $N$  is the population size and  $e$  is the level of precision. The level of precision adopted was 96% for enhanced accuracy of sample estimates, hence

the value of  $e$  is 0.04 and the population size is 2,194 which when deployed in the formula gave the sample size of 486 as outlined above.

Cluster random sampling entails dividing the population relevant and significant cluster based on one or more elements or attributes, the aim of which is to ensure representativeness, given that each of cluster is represented proportionally within the sample. Saunders *et al.*, (2009). The study observed that that the sample frame already provided for the ME and the respective Ward. Therefore, to select the sample, the study adopted cluster random sampling method to ensure representativeness of the ME by first grouping them according to the five Wards in the Constituency. Thereafter random sampling was used to select the number of ME that would constitute the sample from each cluster based on the proportion of the number of ME in each category (that is ratio of the ME in each cluster versus the study population multiplied by the sample size of 486). The number of ME per cluster is outlined in the Table 3.2 below:

**Table 3.2: Distribution of the Sample to various clusters**

<b>Cluster (Ward)</b>	<b>Population</b>	<b>Sample</b>
Upper Savannah	442	98
Lower Savannah	253	56
Embakasi	555	123
Utawala	569	126
Mihango	375	83
<b>Total</b>	<b>2,194</b>	<b>486</b>

**Source:** Research Data (2019)

To arrive at the information in Table 3.2 above, the data received from the County had both medium and small enterprises form the entire Embakasi Sub-county (12,247 enterprises), hence, the study first selected those which were classified as small (micro) enterprises within Embakasi East Constituency. Each of the ME was then assigned a consecutive number from one to 2,194 and categorized into stratus based on the Ward

that they are situated. Thereafter the data containing the ME input into SPSS and random sampling used to select the ME to be studied per cluster. The procedure within SPSS entailed; choosing the option “Select Cases”, from the Menus tab, "Random sample of cases" and then the “Sample button”. Thereafter, the study selected the option for “exactly so many cases” in which case the number per cluster (such as 98 in the case of Upper Savanna Ward) out of total in that cluster (442) was entered and the output option “delete unselected data cases” was selected. When the command was run, the SPSS software used random sampling method to select ME per cluster, thus ultimately 486 ME out of the population of 2,194 enterprises were identified as the sample for the study, the same of which was considered representative based on the Wards in the study area.

Data was then collected from the owners of the sampled, ME using the data collection tool as further expounded in the section below. Therefore, based on the suggestions of Sedgwick (2014), the unit of observation/ measurement for the study was the owners of the ME, whereas the unit of analysis (being the “who” or “what” for which information is analyzed and conclusions are made) was the Micro Enterprises.

### **3.6 Data Collection Instrument**

Whereas global and national surveys have been undertaken on the FI phenomenon, such as the studies undertaken by Demirgüç-Kunt *et al.*, (2018); FSD (2016) among others, none of these surveys has adequate information for testing as per the objectives of this study. Therefore, primary data was collected using a structured questionnaire administered by the researcher and her assistants. The two research assistants who both post graduate students in one of the Universities in Kenya, were trained prior to the pilot study on how to administer the tool and the ethical requirements to be adhered to

during data collection. The questionnaire was first subjected to expert reviews by the supervisors and other stakeholders (finance scholars and practitioners) prior to deployment for pilot testing. The results of the pilot tests were considered adequate; thus, the tool was subsequently deployed for collecting data for the main study based on the objectives outlined in chapter 1. The questionnaire, which was derived from prior studies and modified to align to variables and context of the study, is provided as Appendix 2 of this thesis document. The owners of the sampled businesses or their representatives responded to the questionnaire.

The questionnaire encompassed both positive and negatively worded items for the Likert type questions, the latter of which were included to minimize response bias given that they enable respondents to be more engaged in the items instead of automatic response. According to Croasmun and Ostrom (2011), negatively worded items are added to the scale to act as “cognitive speed bump that require respondents to engage in more controlled, as opposed to automatic, cognitive processing”. The inclusion of negative worded items, all derived from prior studies, were based on the crucial assumption that the items worded in the opposite ways were measuring the same concept as the positively worded items. The questionnaire collected data using three types of variables; opinion variables (respondents’ feelings, thoughts, or beliefs) to facilitate collection of data on financial literacy and adoption of financial innovations. Behavioral variables (what people do or will do in future) was used to facilitate collection of data on the behavioral factors and usage of formal financial services and finally attributes variables (which collect data on characteristics of respondents) which was outlined in the demographic information section of the questionnaire. The three types of variables (opinion, behavioral and attribute) were in line with suggestions in Saunders *et. al* (2009).

### **3.7 Data Collection Procedures**

The researcher obtained an introduction letter from Moi University, sought for a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI) and approval to retrieve data on licensed ME in Nairobi County Government. The three documents are attached to this thesis document as Appendixes 3, 4 and 5 respectively. The research permit and the introduction letters from Moi University and the Nairobi County Government were used together with the transmittal letter (Appendix 1) and the questionnaire to collect the data from the respondents for the study. The researcher (and assistants) personally administered the 486 questionnaires to the respective respondents in various locations in Embakasi East constituency of Nairobi County and thereafter, the filled questionnaires were collected from the respondents for analysis.

### **3.8 Data Measurement**

#### **3.8.1 Dependent variable (Financial Inclusion)**

Prior studies indicates that there are four key dimensions of measuring financial inclusion; access (ability to use FS), quality (relevance of FS to the consumer), usage (permanence and depth of usage of FS) and welfare which focuses on impact of FS on the user (Jukan & Softić, 2016). Most studies (such as Allen *et al.*, 2016; Lanie, 2017; Ansar & Hess, 2018; Zins and Weill, 2016) have measured FI through ownership of an account in a commercial bank or with a mobile financial service provider, with ownership of the account being used as an indicator of access. Usage has been conjectured as a key measure of FI because it is through active usage of FS that benefits are realized, (Beck, 2016; Singh & Roy, 2015).

This study adopted the usage dimension of measurement of FI as used by other scholars such as (Binoy and Subhashree, 2018; Grohmann *et al.*, 2017; Singh and Roy, 2015),



with modifications to suit Kenya's environment, as informed by measures adopted in FSD (2016). Thus, usage of financial services (FI) was measured through perceptions on usage of payment services, money transfer services, savings, credit, and investments made through formal financial institutions. Usage of these financial services were theorized to be an outcome of optimal decision making arising from positive behavioral factors, mediated by adoption of financial innovations, and moderated by possession of requisite financial knowledge and skills.

### **3.8.2 Independent Variable (Behavioral Factors)**

Behavioral factors that may affect access and usage of financial services are peculiar to decision makers; however, finance theory generally classifies them into two categories; cognitive deviations and perceptions on profits/gains and losses. Theory has classified cognitive deviations into diverse emotions, framing, heuristics, market influence and perceptions (Baker, 2010; Jurevičienė & Ivanova, 2013, among others). Given pervasiveness of behavioral factors, factor analysis has commonly been used identify the most appropriate items for measurement for example, Binoy and Subhashree (2018) identified six variables (impulsiveness, commitment to goals, social proof, self-efficacy, comfort level and privacy concerns) after analysis of 31 items; Fernandes *et al.*, 2014 (confidence, willingness to take risks and self-control); Nye and Hillyard, 2013 (confidence and values); Strömbäck *et al.*, 2017 (self-control, optimism and deliberative thinking), among many others. Given the expected effects of BF on usage of FS, this study measured BF using three variables: self-control, confidence, social proof based on items in the data collection tool all of which have been tested and considered reliable by other studies. The three BF were deployed as independent variables of the study and their influence on the usage of FS both directly and indirectly as mediated and moderated by FINN and FL respectively was modelled.

### **3.8.3 Mediator variable (Financial Innovations)**

The three dimensions of financial innovations; new channels of FS delivery, new products, and new form of intermediation (Beck, 2016) have been theorized to enhance FI. Financial institutions shape the behavior of users of FS through the information they provide, incentives, reminders diversity of products and delivery channels, hence shaping positive behavior for optimal financial decisions such as prompt repayment of loans, savings, opening of accounts (Atalay *et al.*, 2014; Abraham *et al.*, 2016; Afande & Mbugua, 2015; Cookson, 2018; Karlan *et al.*, 2010; Karlan *et al.*, 2012; Siddik *et al.*, 2014; among many others). Arising from the emerging research on FINN, the phenomenon was measured using perceptions on effects of emerging products, new channels, and intermediaries as well as information on usage of FS. The items that form the measure of the effect of FINN on usage of FS were documented in the questionnaire, all of which were derived from prior studies such as (Afande and Mbugua, 2015; Cole, Iverson and Tufano, 2014; Siddik *et al.*, 2014) as modified to suit the present study. FINN was exhibited to mediate the relationship between BF and usage of financial services (FI) as well as the moderated relationship between BF and FI due to the influence of FL. The mediating role of financial innovations is one of the novel contributions of this study.

### **3.8.4 Moderator Variable (Financial Literacy)**

Scholars (such as Fernandes *et al.*, 2014; Klapper *et al.*, 2017; Lusardi *et al.*, 2014; Lyons & Zeng, 2017 among others) observes that researchers and policy makers have not agreed upon a standard measure of FL. However, in most studies the content of measurement generally includes four main domains: money basics/numeracy, borrowing, investing, and protecting resources. Fernandes *et al.*, (2014) observes that majority of the measurements of FL used in prior studies have been objective

assessment of knowledge and skills with the focus being on how many of the knowledge tests are answered correctly. Building on earlier studies undertaken by Allgood and Walstad (2016); Garber and Koyama, 2016; Houston (2010); Klapper *et al.*, (2015); Lusardi *et al.*, (2014); Lyons *et al.*, (2017) among others, this study measured FL using both self-assessment (perceptions on individual level of FL) and objective FL assessments. The tests for the objective assessment focused on five dimensions risk diversification, inflation/ time value for money, numeracy, compound interest and knowledge of formal financial institutions in Kenya. These tests encompassed basic financial concepts and scores helped to differentiate levels of financial literacy (Klapper *et al.*, 2015).

The outcome of the objective assessment tests was first analyzed in a Microsoft Excel sheet for each respondent. Scores were granted for each respondent per question as either correct or incorrect answer and a composite score of correct answer out of the six questions (FL2 to FL7) was then be derived. This assessment borrows from the process adopted by earlier scholars such as Grohmann *et al.*, (2017); Klapper *et al.*, (2015); Matemane (2018), but with improvements to recognize diversity in levels of FL beyond the dichotomous approach (Financially literate for 75% scores and above and not literate for any low score) that was commonly adopted in prior studies. The results of objective assessment were thereafter compared with self-assessment (question contained in FL1 of the data collection tool) as was adopted by Allgood & Walstad (2016); Lusardi and Curto (2014); among others, in order to compare the outcomes of the two assessment approaches. FL was modelled as a moderator variable in the relationship between the three BF (self-control, confidence, and social proof) and FI through FINN hence addressing the overall objective of the study.

### **3.8.5 Control variables**

The control variables for the study were the age and gender of the ME owner/representative as well as the main economic activity being undertaken by the business. Age was measured in terms of years whereas gender was measured as either male or female (Allen *et al.*, 2016; Demirgüç-Kunt *et al.*, 2018; FSD, 2016; Zins & Weill, 2016). Economic activities were categorized as either manufacturing, commercial/trade as well as service and other sectors. To inform the identification of the relevant economic activity category, sampled ME were requested to select one sector based on their highest source of income in the previous year, as was adopted by KNBS (2016).

### **3.9 Reliability and Validity Tests**

Outlined below is a brief overview of the term's reliability and validity and the relevant tests that were undertaken in this study:

#### **3.9.1 Reliability Tests**

Saunders *et al.* 2009 considers reliability as the extent to which a study's data collection techniques or analysis procedures will yield consistent findings on other occasions, by other observers and whether there is transparency in derivation of meaning from raw data. Their views are like those of Sekeran (2003) who simplifies the concept and argues that reliability of a measure indicates the extent to which it is without bias (error free) and hence ensures consistent measurement across time and the various items. Threats to reliability include subject or participant error, subject or participant bias, observer error and observer bias (Saunders *et. al.*, 2009). These were minimized through use of a structured data collection tool administered within a brief period. Furthermore, to enhance reliability (internal consistency), negatively worded items were included in the research instrument as recommended by Barnette (2000) in Croasmun and Ostrom

(2011) who observed higher Cronbach's alpha for its instruments that included such items.

Croasmun and Ostrom (2011) suggests that when using Likert-type scales, reporting on Cronbach's alpha coefficient for internal consistency reliability (extent to which items in an instrument are consistent among themselves and with the overall instrument) is mandatory. They argued that Cronbach's alpha estimates the internal consistency reliability of an instrument by determining how all items in the instrument relate to all other items and to the total instrument. In this study, reliability of the various items in the data collection instrument, which mostly adopted Likert type scales, was measured using Cronbach's alpha value attributed to Cronbach (1951). Furthermore, since the items for measuring the various variables are multi-point scaled, use of Cronbach's alpha is valid unlike if they were dichotomous, in which case the Kuder and Richardson (1937) formula would have been adopted (Sekeran, 2003).

The value of the Cronbach's alpha ranges between zero and one with values close to 1 reflecting higher internal consistency, however different scholars have provided diverse interpretations to ranges of statistic. For example, Hinton *et al.*, (2004) in Taherdoost (2016), suggested four cut-off points for reliability, which includes excellent reliability (0.90 and above), high reliability (0.70 to 0.90), moderate reliability (0.50 to 0.70) and low reliability (0.50 and below). Other scholars argue that alpha values greater than 0.9 indicate excellent reliability, greater than 0.8 (good) whereas those greater than 0.7 (acceptable), 0.6 (questionable), 0.5 (poor indicators) whereas values below 0.5 are unacceptable. (George & Mallery, 2003; Gliem & Gliem, 2003). Therefore, for this study, measurements of the variables were considered reliable if their Cronbach's values were above 0.6 as suggested by Tavakol and Dennick (2011); Garson (2012) and

DeVellis (1991) in Siddik *et al.*, 2015. Taherdoost, (2016) argued that although reliability is important, it is not sufficient unless combined with validity, hence in this study, the validity tests outlined below were used hand in hand with the reliability tests above.

### **3.9.2 Validity Tests**

Validity in research has been viewed from various dimensions; external validity, internal validity as well as validity of the measurement instrument itself, that is, its ability to tap the concept being studied (goodness of measure) which is further subdivided into; content validity, criterion related validity and construct validity (Sekeran, 2003). External validity (also referred to as generalizability) refers to the extent to which the theory produced by the study is applicable to other environments/populations. (Saunders *et al.*, 2009). To test the robustness of the conclusion of this study, as outlined in Chapter 5, the study recommends that other scholars extend the same to other settings. Tayler and Asmundson (2008), considers internal validity as the degree to which observed changes in a dependent variable could be attributed to changes in an independent variable. Consequently, internal validity is normally assessed in terms of degree (e.g., high, medium, low) rather than one of presence or absence. Indeed, Saunders *et al.*, (2009) agree and suggest that internal validity is the extent to which findings of a study can be attributed to the interventions rather than any flaws in the research design (Saunders *et al.*, 2009). Tayler & Asmundson (2008) outlines the various threats to internal validity, which are: history, maturation, testing, instrumentation, statistical regression, attrition, selection, diffusion or imitation of treatments, experimenter expectancy, among others, all of which mainly applies in studies that adopt experiments design.

Since this study adopted a cross-sectional survey design and data were collected within two months (May and June 2019), the study was not adversely affected by majority of the factors observed by Tayler & Asmundson (2008) (such as attrition, instrumentation, maturation among others). To enhance the level of internal validity, the subjects for study were selected through random sampling as recommended by Tayler & Asmundson (2008) as well as controlling for variables which have been theorized to have an affect utilization of financial services mainly age, gender, and economic activity.

Content validity refers to the extent to which the measurement device, which is the measurement questions (as provided in Appendix 1 in this case) provides an adequate coverage of the research questions for this study as outlined in section 1.5. The measurement questions were derived from adequate literature coverage and were subjected to experts review by the Supervisors and Finance Scholars as recommended by Saunders *et al.* (2009) and Sekeran (2003). Face validity, which is part of the content validity, entails assessment of the degree to which a measure appears to be related to a specific construct. Thus, face validity evaluates the appearance of the questionnaire in terms of feasibility, readability, consistency of style and formatting, and the clarity of the language used. Usually the expected test takers / respondents who may be non-experts (Taherdoost, 2016) may do the judgment, in which case the researcher's colleagues and some ME provided face validity. In this study face, validity of the questionnaire which has been segregated to the four variables of study (FI, BF, FINN and FL) shall be achieved through the feedback/respondent's views to be received from the open-ended questions which have been included in the pilot test instrument in addition to the non-expert views.

According to Sekeran (2003), criterion validity entails ability of a measure to differentiate between individuals in a criterion it is expected to predict. Two aspects of criterion validity are suggested; concurrent validity (the scale should differentiate individuals who are known to be different) and predictive validity (instrument ability to differentiate individuals based on a future criterion, that is make accurate predictions). In this study, criterion validity shall be assessed using correlation tests and outcome accordingly. Construct validity entails how well the results of the measure fits the theories around which the measure is derived from. Therefore, as Taherdoost (2016) puts it, construct validity is an indication of how well the constructs (concept, ideas, or behavior) have been operationalized. Two aspects of construct validity exist; convergent validity (extent of correlation of outcome of two different instruments measuring the same concept or degree relatedness of outcome of two variables that are expected to be related) and discriminant validity (two variables which are expected to be uncorrelated based on theory are confirmed empirically to be unrelated based on the results of the measure). The above instrument validity tests and how they were assessed in this study are as summarized in the Table 3.3 below. As recommended by Borau *et al.*, (2015), confirmatory factorial analyses were undertaken to test the validity of the measurements prior to them being used to test the conditional indirect effects as outlined in the research model all within SPSS.



**Table 3.3: Instrument Validity Tests**

<b>Validity Test</b>	<b>Brief Description</b>	<b>Assessment criteria</b>
Content	Whether the measure adequately measures the concept	Expert (Supervisors and Finance Scholars) review comments
Face	It is part of content validity and focusses on relevance, reasonableness, and clarity of the measures.	Comments prior to the Pilot Study
Criterion or concrete	Extent to which a measure is related to the outcome. Whether the measure differentiates in a manner that helps to predict a criterion variable. a) Currently for concurrent validity b) In the future for predictive validity.	Correlation analysis
Construct	Whether the instrument taps the concept as theorized. Two types: a. convergent- Test whether constructs that are related are indeed related. b. Discriminant- Degree to which a latent variable differentiates from other unrelated latent variables	Factor analysis using utilizing principal component analysis (PCA) with Varimax rotation method. Thus for: a) Convergent validity (eigenvalues of 1, loading of at least 0.30, items that load on posited constructs (Garson, 2012). b) Discriminant validity (loading > 0.30, no cross loading of items above 0.30)

**Source:** Sekeran (2003); Taherdoost (2016)

### 3.10 Pilot Test Study

The intention of the pilot test study was to test whether the questionnaire posed difficulties that would affect respondents in filling-in their responses in order to ensure reduced challenges in capturing the information required to meet the objectives of the study. This test also assisted the researcher to find out the average time taken to fill-in each questionnaire, the same of which was determined to be an average of 30 minutes. Research scholars contend that pilot studies can save tremendous amount of time and money if properly done. (Saunders *et al.*, 2009).

Therefore, the questionnaire was pre-tested to ensure clarity and content validity with respondents who match the expected respondents to be involved in the actual study to ensure that the tool would measure what it ought to. According to Connelly (2008), at least 10 per cent of the sample size can constitute the pilot test. Therefore, the pilot study collected data from forty-eight (48) MEs in Kajiado East, which is within a neighbouring County to the one where the main study data was later collected. Preliminary analysis using the pilot test data was undertaken to ensure that the data collected enables the investigative questions to be answered. Thirty-eight questionnaires were filled and returned thus resulting in a response rate of eighty percent (80%) for the pilot study that was undertaken in April 2019. The filled questionnaires were then be reviewed and analysed by the researcher and shared with Supervisors, to get further insights and suggestions for improvements. From the pilot study, it was observed that the respondents did not have major challenges in filling in their responses given that all questions were responded to among the 38 questionnaires. The study therefore went ahead to deploy the tool for collection of the main study data.

### **3.11 Data Processing and Analysis**

Data analysis is the process of systematically applying statistical and or logical techniques to describe and evaluate data (Sekeran and Bougie, 2013). The completed questionnaires were inspected for completeness, edited, coded, and the data inputted into SPSS package version 23. All negatively worded items in the questionnaire were reverse coded prior to them being keyed into the system.

Upon data capture and correction of errors such as outliers through winsorizing (reducing their values through recode procedure (Garson, 2012), the data were explored bearing in mind the research objectives and identifying any other relationships that may emerge from the data (Saunders *et al.*, 2009). The results were presented using tables

(frequency distribution), charts, scatter diagrams all derived from the data as captured into SPSS.

### **3.11.1 Sample Adequacy and Sphericity**

Once the data had been cleaned, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were conducted to assess the suitability of the available data for factor analysis. KMO is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors, thus a KMO value between 0.8 and 1.0 indicates that the sample is adequate for factor analysis (Binoy and Subhashree, 2018). However, a value of 0.6 and above would still be considered adequate given the assessment given to it by Kaiser (1974) (mediocre/average) and Netemeyer *et al.*, (2003) in Taherdoost *et al.*, (2014). Based on the prior research above, this study considered a KMO value of 0.65 and above as adequate.

Bartlett's test of Sphericity tests attributed to Bartlett (1950) provides a chi-square output that must not be significant. It tests the null hypothesis that the correlation matrix derived from the data is an identity matrix, which implies that the variables are unrelated and so not fitting for factor analysis. To conclude that Sphericity is not violated, the Bartlett's test of Sphericity should not be significant, thus, small  $p$ -values (less than 0.05 of the significance level) indicates that a factor analysis may be useful with the data. (Garson, 2012). Once the two criteria were met through running of the relevant statistics in SPSS, the data were then to factor analysis for construct validity tests as outlined above.

### **3.11.2 Descriptive Statistics**

Saunders *et al.*, (2009), provides that descriptive statistics enable a researcher to describe and compare variables numerically based on two parameters: central tendency

and dispersion. The three measures of central tendency are mode (value that occurs most frequently), median (middle value or mid-point after the data have been ranked) and mean (a value, often known as the average, that includes all data values in its calculation). Measures of dispersion demonstrates how data values are dispersed around the central tendency which could be assessed using two methods; difference within the middle 50% of values (inter-quartile range) and the extent to which values differ from the mean (standard deviation). The outcome of descriptive statistics was presented in form of tables as outlined in chapter 4.

### **3.11.3 Inferential Statistics**

Whereas descriptive statistics focuses on characteristics of the data collected from the sample, inferential statistics tests whether relationships exist within the variables of the study hence facilitating comparison of the data that has been collected with theoretical expectations. Thus, as Sanders *et al.*, (2009) puts it, inferential statistics also referred to as significance testing helps to rule out the possibility that the result could be due to random variation in the sample and helps in estimating population parameters from the sample data. There are two main categories of inferential statistics; parametric and non-parametric statistical tests, the latter of which requires no assumptions/demands on data to be analyzed and is mainly used for nominal/ordinal data. Nonparametric tests include chi-square tests, Spearman Rank Correlation Co-efficient ( $\rho$ ), Kruskal Wallis H-test, among others. Parametric tests, which are considered more superior than the former is based on the assumptions that the data being utilized is normally distributed, has homogenous variance, numerical (measured in interval /ratio scales) and that the data cases selected for the sample should be independent. Examples of parametric tests include student's t-tests, Analysis of Variance (ANOVA), Pearson's Moment

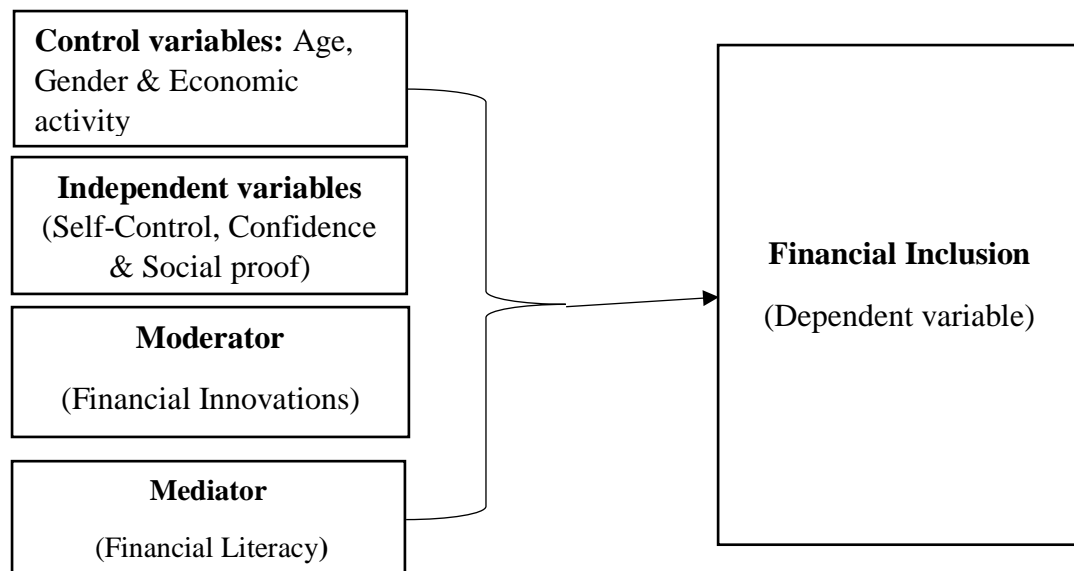
Correlation Coefficient tests among many others. (Saunders *et al.*, 2009; Sullivan & Artino, 2013).

The data collection instrument for this study mainly used Likert scale type of questions, which lends itself to the historical academic debate, as to whether parametric or non-parametric inferential statistics should be used. This debate stems from the arguments on the measurement level of the data itself whether ordinal or interval. Murray (2013) summarized the diverse previous literature on the subject matter into two perspectives; firstly, scholars who are of the opinion that Likert data is of ordinal order hence should use non- parametric tests (such as Gardner and Martin, 2007; Jamieson, 2004). Secondly those who contend that parametric tests such as Pearson correlation and regression analysis can be used comfortably with Likert data (Carifio and Perla, 2008; Norman, 2010; Pell, 2005) with the condition that the scores are summed, and data is of appropriate size and shape. Murray (2013) undertook an empirical study to test whether the statistical test adopted (parametric and non-parametric tests) on Likert type data affects the conclusions drawn from the results obtained. The study conducted correlation analysis using Pearson, Spearman and Kendall tests and observed that the conclusions from using both Pearson and Spearman rank tests were similar, hence theorized that parametric tests could be conducted on Likert scale data without coming to the wrong conclusion. Further that, the outcome from the Kendall (which is a non-parametric test that measures the strength of the relationship just as Pearson does) had inconsistency for one construct only in the study but similar for all other constructs. It is worth observing that in Murray's study, the data from the Likert type questions were first summed up per specific constructs for each respondent, thus not scores on individual items which comprised the constructs.

Given the conclusion of Murray (2013); Sullivan and Artino (2013) among other emerging studies that have undertaken parametric tests on Likert type data, this study undertook various parametric tests on the data to make inferences as appropriate; T-tests, Analysis of Variance (ANOVA), Pearson's Moment Correlation Coefficient tests among others. The analysis was undertaken through SPSS and results presented through tables outlined in chapter 4 below. Inferential statistics further helped in testing the hypotheses of the study, which were executed with various multiple regression equations as outlined in section 3.11.4 and 3.11.5 below.

#### **3.11.4 Statistical models**

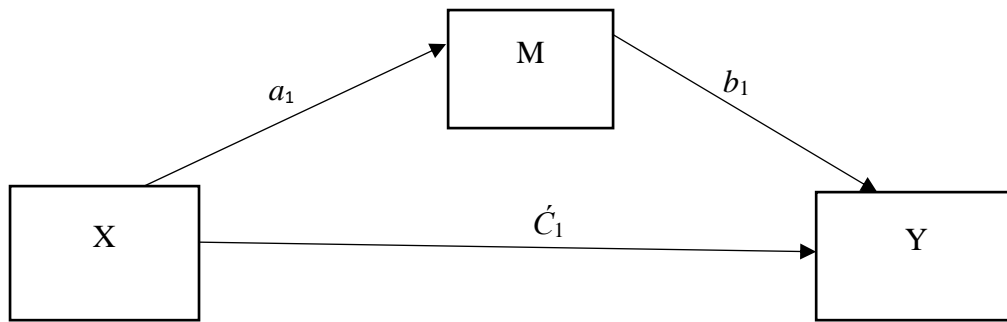
The study utilized three statistical models as outlined below: The first model (Figure 3.1) sought to test the relationship between the control variables and the dependent variable hence used to test direct effects as per the first hypotheses ( $H_{01}$ ).



**Figure 3.1: Analytical Model for testing effects of direct effects of the variables on FI**

**Source:** Research (2019)

The second model outlined in Figure 3.2 below was used to test the mediating effects of FINN on the relationship between each of the independent variables (self-control, confidence, and social proof) and the dependent variable (Financial inclusion) as per hypothesis 2. The direct effects are represented by  $\hat{C}_1$ , and X represents  $X_1$  (self-control),  $X_2$  (Confidence) and  $X_3$  (social proof) and tests were undertaken separately for each independent variable. The model was used to test the hypotheses  $H_{02}$  which stated that Financial Innovations does not mediate the relationship between each of the three behavioral factors (self-control, confidence, and social proof) and Financial Inclusion.

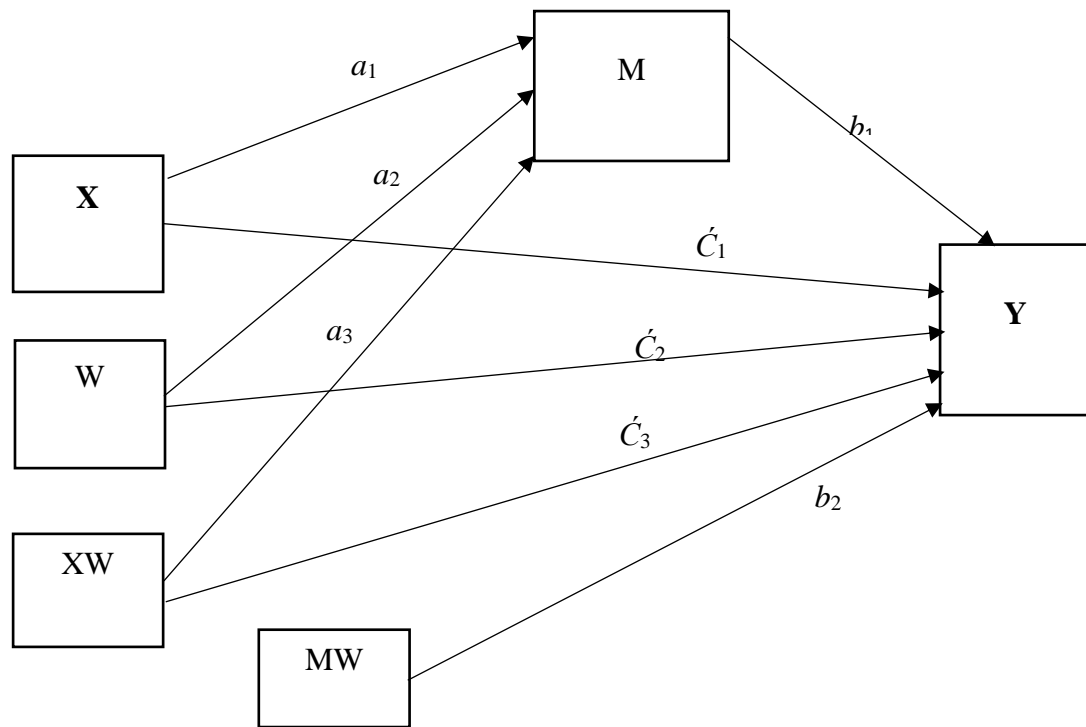


**Figure 3.2: Analytical Model for Hypotheses H<sub>02</sub>**

**Source:** Research (2019)

The third model outlined in Figure 3.3 below was considered the most appropriate model to test the overall objective of the study. Firstly, the model facilitated the testing of the mediating effects of financial literacy on the relationship between the independent variables (SC, C and SP) represented by X on financial innovations (M) as per hypothesis 3. Secondly, it facilitated testing of the mediating effects of FL on the relationship between FINN and FI (Hypothesis 4). Thirdly, the model facilitated the testing of the conditional direct effects of FL on the relationship between the IVs (SC, C and SP) represented by X on FI as per hypothesis 5. Finally, the model was used to test the conditional indirect effects of FL (represented by item W) on the relationship between each of the three IVs (X1, X2 and X3) and financial inclusion (Y) through financial innovations (M) as outlined in Hypotheses H<sub>06</sub>. The model was adapted from Model 59 in Hayes, 2013 and adopted for the study.





**Figure 3. 3: Statistical Model for testing Hypotheses H03, H04, H05 and H06**

**Source:** Hayes (2013) Model 59

### 3.12 Hypotheses Testing

To facilitate testing of the hypotheses of the Study, the multiple regression equations outlined below were utilized. In the equations:

$X_i$  : Represents the three Independent variables: where  $X_1$  (Self-Control),  $X_2$  (Confidence) and  $X_3$  (Social proof) all of which are continuous variables.

$M_i$  : Represent Financial Innovations (Mediator) considered as a continuous variable.

$W_i$  : Represent Financial Literacy (Moderator) hereby considered as a continuous variable.

$Y_i$  : Represent Financial Inclusion (Dependent) hereby considered as a continuous variable.

Thus:

The model in equation 1 below was used for testing the hypothesis 1 (H<sub>01</sub>) and its subcomponents:

$$Y = i_Y + d_1 \text{Age} + d_2 \text{Gender} + d_3 \text{Econ} + d_4 X_1 + d_5 X_2 + d_6 X_3 + d_7 M + d_8 W + \varepsilon_y \dots$$

### **Equation 1**

Where;  $Y$  = dependent variable;  $i_Y$  = constant term or intercept;  $d_1$  to  $d_8$  represents the direct effects ( $\beta$  coefficients) of Age, Gender, Economic activity, Self-Control, Confidence, Social Proof, Financial Innovations and Financial Literacy respectively on Financial Inclusion;  $X_1$  to  $X_3$  (Self-control, Confidence and Social proof respectively) and  $\varepsilon_y$  = error term.

Thereafter, the study utilized Model 4 of Process Macro (Hayes, 2013) as adapted to the study to test the mediating effects of FINN on the relationships between each of the IVs and the DV as per hypothesis H<sub>02</sub>. Two models were utilized as outlined below. Equation 2 was used to predict the relationship between the behavioral factors (Self-control, Confidence and Social Proof) and the Mediator (Financial Innovations) while recognizing the effects of the three control variables (Gender, Age and Sector).

$$M = i_1 + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + aX_i + \varepsilon_M \dots \dots \dots \text{Equation 2}$$

Where;  $M$  = Mediator variable (FINN);  $i_1$  = constant term or intercept;  $\beta$  coefficients of Age, Gender, Economic activity,  $a$  = regression coefficients of  $X_i$  (Self-Control, Confidence or Social Proof) in the model (effects of  $X_i$  on  $M$ ) and  $\varepsilon_M$  = error term.

In addition, equation 3 below was used to predict the values of the dependent variable (Financial Inclusion) while recognizing the mediating effects of FINN on the

relationship between each of independent variables and Financial Inclusion, controlling for the effects of the covariates. The tests were undertaken separately for each of the independent variables (Self-control, Confidence and Social Proof).

$$Y = i_2 + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + c'X_i + b \text{FINN} + e_Y \dots\dots\dots \text{Equation 3}$$

Where;  $Y$  = Financial Inclusion;  $i_2$  = constant term or intercept;  $\beta$  coefficients of Age, Gender, Economic activity in the model;  $c'$  = regression coefficients of  $X_i$  (Self-Control, Confidence or Social Proof) in the model (direct effects of  $X_i$  on  $Y$ );  $b$  = regression coefficients of FINN in the model and  $e_Y$  = error term.

The regression models below were adapted from Model 59 of Hayes (2013) to facilitate testing of the other four hypotheses of the study as outlined in Figure 3.3 above. To test hypothesis  $H_03$  (moderating effects of financial literacy on the relationship between behavioral factors and financial inclusion) the equation below was utilized. The model was run three times to tests for moderation as per the three hypotheses with  $X_i$  taking the values  $X_1$ ,  $X_2$  and  $X_3$  respectively.

$$M = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + a_1X_i + a_2\text{FL} + a_3X_i * \text{FL} + e_m \dots\dots \text{Equation 4}$$

Where;  $M$  = FINN;  $i$  = constant term;  $\beta$  coefficients of Age, Gender, Economic activity respectively in the model;  $a_1$  = regression coefficients of  $X_i$  (Self-Control, Confidence or Social Proof) in the model,  $a_2$  = regression coefficient of financial literacy (FL) in the model;  $a_3$  = regression coefficient of interaction of  $X_i$  and FL;  $e_M$  = error term.

For hypothesis  $H_04$  (Financial Literacy does not significantly moderate the relationship between adoption of Financial Innovations and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya), the study used the model outlined below:

$$Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + b_1 \text{FINN} + b_2 \text{FINN} * \text{FL} + e_Y \quad \dots \text{Equation 5}$$

Where, Y= Financial Inclusion;  $i$  = constant term;  $\beta$  coefficients of Age, Gender, Economic activity respectively in the model;  $b_1$ = regression coefficient of FINN in the model,  $b_2$ = regression coefficient of interaction of FINN and FL;  $e_Y$  = error term.

Similarly, the model for hypothesis 5 (Conditional direct effects) is provided in Equation 7 below. The model was run three times to tests for moderation as per the three hypotheses with  $X_i$  taking the values  $X_1$ ,  $X_2$  and  $X_3$  respectively. The mediating effects of W on relationship between  $X_i$  and Y was given by  $(\acute{c}_1 + \acute{c}_3 \text{FL})$  and the hypothesis rejected where the bootstrap confidence interval of the index of  $(\acute{c}_1 + \acute{c}_3 \text{FL})$  is different from zero.

$$Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + (\acute{c}_1 + \acute{c}_3 \text{FL}) X_i + \acute{c}_2 \text{FL} + e_Y \quad \dots \text{Equation 6}$$

Where, Y= Financial Inclusion;  $i$  = constant term;  $\beta$  coefficients of Age, Gender, Economic activity respectively in the model;  $\acute{c}_1$ = regression coefficients of  $X_i$  (Self-Control, Confidence or Social Proof) in the model,  $\acute{c}_2$ = regression coefficient of FL in the model;  $\acute{c}_3$ = regression coefficient of interaction of  $X_i$  and FL;  $e_Y$  = error term.

Finally, Hypothesis 6 (conditional indirect effects of financial literacy on the relationship between each of the behavioral factors and financial inclusion through FINN) was tested using the model below.

$$Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + (\acute{c}_1 + \acute{c}_3 \text{FL}) X_i + M_i + \acute{c}_2 \text{FL} + e_Y \quad \dots \text{Equation 7}$$

Where,  $Y$ = Financial Inclusion;  $i$  = constant term;  $\beta$  coefficients of Age, Gender, Economic activity respectively in the model;  $\acute{c}_1$ = regression coefficients of  $X_i$  (Self-Control, Confidence or Social Proof) in the model,  $\acute{c}_2$ = regression coefficient of FL in the model;  $\acute{c}_3$ = regression coefficient of the interaction of  $X_i$  and FL. Furthermore  $M_i = (a_1 + a_3FL) (b_1 + b_2FL)$ ;  $a_1$  = regression coefficients of  $X_i$ ;  $a_3$ = regression coefficient of  $X_i$  and FL interaction;  $b_1$ = regression coefficient of FINN;  $b_2$ = regression coefficient of the interaction between FINN and FL;  $\epsilon_Y$  = error term.

In the model  $(a_3b_1)$  was taken as the index of moderated mediations (conditional indirect effects) which is the main objective of this study. The hypotheses were rejected where bootstrap confidence interval of the index was different from zero (Hayes, 2015). The model was run three times to tests for moderation as per hypothesis **H06a**, **H06b** and **H06c** with  $X_i$  taking the values  $X_1$ ,  $X_2$  an  $X_3$  respectively

Therefore, given below are the summary of the models adopted for testing the 6 hypotheses of the study:

$$\mathbf{H01:} \quad Y = i_Y + d_1 \text{ Age} + d_2 \text{ Gender} + d_3 \text{ Econ} + d_4 X_1 + d_5 X_2 + d_6 X_3 + d_7 M + d_8 W + \epsilon_Y$$

$$\mathbf{H02:} \quad M = i_1 + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + a X_i + \epsilon_M$$

$$Y = i_2 + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + c' X_i + b \text{FINN} + \epsilon_Y$$

$$\mathbf{H03:} \quad M = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + a_1 X_i + a_2 \text{FL} + a_3 X_i * \text{FL} + \epsilon_m$$

$$\mathbf{H04:} \quad Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + b_1 \text{FINN} + b_2 \text{FINN} * \text{FL} + \epsilon_Y$$

$$\mathbf{H05:} \quad Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + (\acute{c}_1 + \acute{c}_3 \text{FL}) X_i + \acute{c}_2 \text{FL} + \epsilon_Y$$

$$\mathbf{H06:} \quad Y = i + \beta \text{Gender} + \beta \text{Age} + \beta \text{Sector} + (\acute{c}_1 + \acute{c}_3 \text{FL}) X_i + M_i + \acute{c}_2 \text{FL} + \epsilon_Y$$

### 3.13 Assumptions

The models used in this study were all multiple regression equations, thus the assumptions below were made and the relevant tests to validate them adopted from); It was assumed that the relationships between the variables was linear, without which the meaningfulness of the interpretation of the regression coefficient would have been at risk (Garson, 2012; Hayes, 2013). To test for linearity of the relationship between the variables, ANOVA test of linearity between each of the predictor variables and the dependent variable was conducted using SPSS. For linearity to be considered as present, F statistic was expected to be significant ( $p < 0.05$ ), that is less than 0.005. In addition, the observations on each of the independent variables used in the models were assumed independent of the other independent variables. To confirm this, the Durbin-Watson coefficient within SPSS was tested. The statistic was expected to be between 1.5 and 2.5 for the independence assumption not to be violated. The study also assumed that errors in estimation of outcome variable of the regression equations were normally distributed. This was tested using both Shapiro-Wilk's *W* test available within SPSS and is recommended for samples below 2,000, as is the case in this study and the Kolmogorov-Smirnov test (Garson, 2012). The unstandardized residual, standardized residual and studentized residual statistics were all expected not to be significant for the normality assumptions not to be violated.

The other assumption of multiple regressions made by the study was nonexistence of Multicollinearity. Multicollinearity entails unacceptably high level of inter-correlation among the independent variables, which affects separation of effects of the independent variables on the dependent variable (Hayes, 2013). While undertaking the test, the researcher expected the Variance Inflation Factor (VIF) values of collinearity diagnostic to lie between 1 and 10, for there to be no Multicollinearity. In addition, the

study assumed presence of homoscedasticity that is the variance of error terms being similar across the values of the independent variables. As observed by Hayes (2013), when this condition is not met (that is heteroscedasticity exists) the validity of inference is affected, and the statistical power of hypothesis tests would be affected. Homoscedasticity was tested using Levine test within SPSS, with the focus being on the significance value of the statistic which was expected to be greater than 0.05 (non-significant) to avoid violation of the assumption, otherwise heteroscedasticity would have been implied.

Further, it was assumed that the models to be used to tests various hypotheses for the study were properly specified hence expected to yield high level of multiple regression coefficient ( $R^2$ ). Given that the variables of study; FI, behavioral factors (Self-Control, Confidence, and Social proof) as well as FINN had multiple measures, the study optimized those that had higher Cronbach Alpha values (greater than 0.6) to ensure unidimensionality (that is they measure the same thing) Garson (2012). The study also assumed that the sample of owners/ representatives of MEs that participated in the study provided honest perceptions and real experiences as they respond to a series of questions outlined in the research tool. The researcher clarified and/or provided additional information as requested by the respondents to facilitate forthright and honest feedback, recognizing that the researcher and the respondents had no prior knowledge of each other. Arising from the literature reviewed, the researcher further adopted the quantitative research design with data being collected through the cross-sectional survey method, which was considered ideal in understanding the relationship between the six variables of study and for generalizing the findings to the population (Creswell, 2014).

Borau *et al.*, (2016) have made recommendations for effective analysis of moderated mediation models. These include robust theoretical basis for each mediation and moderation links, ensuring all main variables are included, high reliability of measurements (high Cronbach alpha), high statistical power (high sample size) and centering (standardizing variables). In addition, they recommend testing and reporting of direct effects even when not part of hypotheses, presenting the conditional effects results in graphical form as well as reporting of the coefficient of determination ( $R^2$ ). These requirements were assumed to hold in the study given that it was informed by intensive literature review to inform the theoretical basis of the relationship between the variables of the study, high sample size selected and in addition, the results of the various tests as recommended by the scholars are presented in chapter four accordingly. Finally, it was assumed that the study would be found valuable by both finance scholars and practitioners given that it documented factors that are critical in enhancing utilization of formal financial services for better quality living.

### **3.14 Ethical Considerations**

This study adhered to appropriate research procedures and all sources of information have been acknowledged as far as possible. The required approvals from the University and NACOSTI were sought as outlined in the data collection procedures (section 3.7 above).

Before the questionnaire was administered, respondents' consent was sought to ensure that the responses are on voluntary basis as outlined in transmittal letter (Appendix 1). The respondents were informed of their right not to take part in the survey. Full confidentiality was maintained especially when administering the questionnaires to ensure the identity of the respondents was kept as a secret.



In this research three principles of ethics were used namely beneficence, respect for human dignity as well as justice (Polit & Beck 2003). Following the three principles, sensitivity to the participants' emotions was observed when probing questions that could psychologically harm the participants as well as protect the participants from adverse situations. To enhance participation respondents were informed that the information they provided would not be used in any way to harm the participants or exploited for commercial and selfish personal gain but only for academic purposes. Full disclosure, fair treatment and privacy will also be practiced. In a nutshell, the research design adopted shall ensure that the ME to be studied are not subjected to embarrassment, harm or any other material disadvantage as recommended by *Sunders et al.*, (2009).

### **3.15 Limitations**

The study offers a significant contribution to academic research and practices. However, it had some limitations that open opportunities for further future research. Firstly, the study context of on Micro Enterprises in Nairobi County limits the generalizability of the current findings to other counties in Kenya. Hence there is need to replicate the study in other counties, however many MEs in Kenya are located in Nairobi County (KNBS, 2016) and are considered key economic players, who require to be facilitated by actors in the financial sector for enhanced financial inclusion and realization of Kenya's economic growth targets. Secondly, the study used a cross-sectional design and cannot reflect the lag time or long-term effects of self-control, confidence, social proof, financial innovation, and financial literacy of financial inclusion. Therefore, future studies could consider taking a longitudinal approach, to examine the relationship between these financial inclusion drivers over a long time-series context.

Thirdly, the hypotheses were tested after controlling for variables derived from previous studies (ME owners' gender and age as well as economic sector that the firms were mostly engaged in for internal validity of results. There is need to consider other factors that have been suggested to have effects on financial inclusion to confirm the generalizability of the model. Fourthly, the data provided by Nairobi County Government excluded micro enterprises that have not been licensed. These unlicensed firms could be many hence need to consider undertaking a study that collects data from both licensed and unlicensed Micro enterprises to compare the findings with those of this study. Finally, some of the respondents were hesitant to give information for personal or business reasons. The Researcher and her assistants assured the respondents that the information was purely for academic reasons and would not be used for any other reason of any kind.

## CHAPTER FOUR

### DATA ANALYSIS, INTERPRETATION AND DISCUSSION

#### 4.0 Introduction

This chapter describes the main results obtained by analyzing the data collected through the questionnaire. The research results are presented in tabular form using a variety of descriptive and inferential statistics that sets out the key characteristics of the data and results of tests undertaken on the study's six hypotheses inclusive of the interpretations thereof. The findings formed the basis for discussion on how each independent, moderator and mediator variable are related to the dependent variable.

#### 4.1 Response Rate

Response rate also known as completion rate in survey research refers to the number of respondents who answered the survey divided by the sample size. Baruch and Holtom (2008) suggests that survey response rate is a key indicator of survey quality and results that are more accurate. The study intended to collect data from 486 licensed MEs in Embakasi East Constituency of Nairobi County based on the sample frame of the study outlined in Appendix 6. Data was successfully collected from 413 respondents, thus a response rate of 84.9 percent of the target sample. The high response rate was attributed to personal administration of questionnaires that is one of the methods recommended in Sekeran and Bougie (2013) for enhanced response rate realization. Whereas minimum acceptable response rate for academic research has not been defined, a high response rate is preferred (Anseel, Lievens, Schollaert & Choragwicka, 2010; Baruch & Holtom, 2008; Johnson & Owen, 2003) hence, the response rate achieved in this study, which was greater than 50 percent, was considered adequate for further analysis.

## **4.2 Data Preparation, Cleaning and Screening**

### **4.2.1 Missing Values**

According to Hair *et al.*, (2010) missing data is referred to as the unavailability of suitable value on one or more variables for data analysis. As noted by Allison (2002), missing values can seriously affect study results. Dong and Peng (2013) observes that missing data in quantitative research may have serious implications such as loss of information, decreased statistical power, increased standard errors, and weakened generalizability of findings. On receipt of any completed questionnaire, the researcher checked through to ensure that each question was completed. In view of this, the researcher took precautions in the field to ensure that data was free from any missing value, however it was observed that five questionnaires had majority of the questions left blank and therefore the researcher discarded them completely and they were not entered into the database. A detailed review of the data captured in the study database was undertaken to assess whether there were missing and out of range data. The results of descriptive statistics tests undertaken within SPSS indicated that there were no missing data to call for correction mechanisms.

### **4.2.2 Outliers**

Screening for outliers is critical since their presence can alter the analysis results (Li *et al.*, 2015) and may affect normality of data an attribute which is a key assumption in the regression models adopted in the study. Thus, each of the items in the study variables were screened using boxplots, which is part of the descriptive statistics within SPSS, to determine presence of simple outliers. The simple outliers were transformed to the next lowest or highest non-outlier number. In addition, to determine cases with extreme values with respect to multiple variables, Cook's and Mahalanobis distances tests within SPSS were utilized. Cases with the highest Mahalanobis distances values

(probability less than 1 percent) and those whose Cook's distance values were greater than one was further examined and winsorized to avoid impact on the models (Garson, 2012).

### **4.3 Sample Characteristics**

This section outlines the characteristics of the sample mainly the respondents' gender, age, and the sector that their ME mainly operates. It was crucial to comprehend the attributes of the unit of analysis, the results of which are presented in Table 4.1. Gender was measured in terms of male or female and the results indicated that 56.7 % and 43.3% of the respondents were men and female respectively, thus majority of the respondents were men. Further, the variable on age captured information on the number of years of the respondents. The results indicated that 47.0%, 40.7%, 10.2% and 2.2% of the respondents were within the age ranges of 18-35 years, 36-52 years, 53-70 and 71 years and above, respectively. Thus, the results indicated that majority of the respondents (47%) were within the age bracket of 18-35 years. On the distribution of the respondents to the three sectors categories, it was observed that 3.6%, 64.9% and 31.5% of the respondents were from manufacturing, commercial/trade as well as service and other sectors, respectively. Thus, largely majority of the owners of MEs indicated that they mainly undertook commercial/trade sector activities.

**Table 4.1 Sample characteristics**

Name of variable		Frequency	Percent
Gender	Male	234	56.7
	Female	179	43.3
	<b>Total</b>	<b>413</b>	<b>100</b>
Age	18-35	194	47.0
	36-52	168	40.7
	53-70	42	10.2
	71 years and above	9	2.2
	<b>Total</b>	<b>413</b>	<b>100</b>
Sector	Manufacturing sector	15	3.6
	Commercial/ Trade	268	64.9
	Service & others	130	31.5
	<b>Total</b>	<b>413</b>	<b>100</b>

**Source:** Research Data (2019)

### 4.3.1 Demographic characteristics against study variables

#### 4.3.1.1 Demographic characteristics against Financial Inclusion

The results are presented in Table 4.2. The findings showed that female respondents scored lower on frequency of utilization of financial services (financial inclusion) ( $M=3.015$ ) compared to their male counterparts who had a mean of 2.989. However, to find out if there is a significant difference among the gender as regards financial inclusion, a one-way analysis of variance (ANOVA) was performed. The results showed that there was no statistically significant difference between gender and financial inclusion ( $F = .178, \rho = .673$ ). The implication is that to use financial services is not dependent on someone's gender. The results further indicated that majority of financial services users were from age 18-35 years as compared to other age groups (36-52 years, 53-70 years and 36-52 years and 71years and above). Nonetheless, ANOVA results yielded no statistically significant difference between age and financial inclusion ( $F = .817, \rho = .485$ ). Therefore, age has no statistically significant influence on usage of financial services. In addition, the results indicated that those MEs in the

manufacturing sector had lower levels of utilization of financial services given their mean of 3.052. However, the ANOVA results yielded no statistically significant difference between sector and financial inclusion ( $F = .065, \rho = .937$ ). Therefore, the sector that one operates in does not significantly influence the level of usage of formal financial services.

**Table 4.2: Demographic characteristics against Financial Inclusion**

Descriptive		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	2.989	0.629	0.178	0.673
	Female	179	3.015	0.616		
	Total	413	3.001	0.623		
Age	18-35	194	3.020	0.645	0.817	0.485
	36-52	168	2.963	0.615		
	53-70	42	3.004	0.605		
	71 years and above	9	3.269	0.290		
	Total	413	3.001	0.623		
Sector	Manufacturing	15	3.052	.9330	.065	.937
	Commercial/Trade	268	2.995	.5690		
	Service & others	130	3.006	.6894		

**Source:** Research Data (2019)

#### 4.3.1.2 Demographic characteristics against Self-Control

Female respondents scored high in self-control ( $M=3.006$ ) compared to their male counterparts who had a mean of 2.995 as presented in Table 4.3. However, to find out if there was a significant difference between gender and self-control, a one-way analysis of variance (ANOVA) was performed. The results showed that there was no statistically significant difference between gender and self-control ( $F = .022, \rho = .833$ ). The implication is that gender does not significantly influence one's self-control tendencies.

Similarly, the results showed that majority of financial services users from age 53-70 years had higher self-control tendencies than users with 71 years and above, 18-35 years

and 36-52 years. ANOVA results yielded no statistically significant difference between age and self-control ( $F = .625, \rho = .599$ ). Therefore, age has no statistical influence on one's self-control tendencies. In addition, whereas the descriptive statistics suggests that those respondents in the commercial/trade sectors exhibited higher self-control tendencies, the ANOVA results ( $F = .214, \rho = .807$ ) indicates no statistical difference between self-control and the sector that the ME is mainly operating. Thus, sector does not influence one's self-control behavior.

**Table 4.3: Demographic Characteristics against Self-Control**

Descriptive		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	2.995	0.629	0.022	0.883
	Female	179	3.006	0.617		
	Total	413	3.000	0.623		
Age	18-35	194	2.997	0.767	0.625	.599
	36-52	168	2.967	0.762		
	53-70	42	3.145	0.655		
	71 years and above	9	3.000	0.670		
	Total	413	3.000	0.752		
Sector	Manufacturing	15	2.893	0.817	.214	.807
	Commercial/Trade	268	3.013	0.730		
	Service & others	130	2.986	0.792		
	Total	413	3.000	0.752		

Source: Research Data (2019)

#### 4.3.1.3 Demographic Characteristics against Confidence

The findings as shown in Table 4.4 indicates that female respondents scored high (M=3.14) on confidence to use financial services compared to male with mean of 3.046. To find out if there was a significant difference between gender and confidence, a one-way analysis of variance (ANOVA) was performed. The results showed that there was no statistically significant difference between gender and confidence to use financial



services ( $F = 1.219, \rho = .270$ ). The implication is that confidence on usage of financial services is not dependent gender.

Likewise, the results showed that majority of the respondents who were in the age group of 71 years and above had more confidence in usage of financial services than those in 53-70 years, 36-52 years, and 18-35 years groups. ANOVA results yielded no statistically significant difference between age and confidence on financial inclusion ( $F = .163, \rho = .921$ ). Therefore, age has no significant influence on confidence attribute as regards usage of financial services, and thus confidence on usage of financial services is not dependent on what gender one is.

Similarly, whereas the descriptive statistics results showed that the respondents who were drawn from Services sector had more confidence as regards usage of financial services, the ANOVA results yielded no statistically significant difference between the two variables ( $F = .491, \rho = .612$ ). Therefore, sector has no significant influence on the extent of confidence to use formal financial services.

**Table 4.4: Demographic Characteristics against Confidence**

Descriptives		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	3.055	0.779	1.219	0.270
	Female	179	3.140	0.771		
	Total	413	3.092	0.776		
Age	18-35	194	3.078	0.787	0.163	.921
	36-52	168	3.086	0.803		
	53-70	42	3.152	0.663		
	71 years and above	9	3.200	0.565		
	Total	413	3.092	0.776		
Sector	Manufacturing	15	3.086	0.758	.491	.612
	Commercial/ Trade	268	3.152	0.798		
	Service & others	130	3.200	0.776		
	Total	413	3.092	0.925		

**Source:** Research Data (2019)

#### 4.3.1.4 Demographic Characteristics against Social Proof

The results presented in Table 4.5 below shows that female respondents scored high ( $M= 3.162$ ) in social proof tendencies compared to their male counterparts. However, to find out if there is a significant difference gender and social proof for usage financial services, a one-way analysis of variance (ANOVA) was performed. The results showed that there was no statistically significant difference between gender and social proof ( $F = .599, \rho = .439$ ). The implication is that gender does not significantly influence one's social proof tendencies. Similarly, an analysis was undertaken to find out if respondents' age had a significant influence on their social proof tendencies as regards usage of financial services. Nonetheless, ANOVA results yielded no statistically significant difference between age and social proof ( $F = .504, \rho = .680$ ), hence the conclusion that age does not significantly influence one's social proof tendencies.

In addition, the relationship between the sector that the ME is mostly engaged in and social proof behaviors was undertaken. The descriptive statistics indicates that those from the manufacturing sector had higher social proof scores ( $M= 3.333$ ). The ANOVA results that there was no significant difference ( $F = .828, \rho = .438$ ) between the two variables, hence an ME's sector has no effect on social proof tendencies as regards usage of financial services.

**Table 4.5: Demographic characteristics against Social proof**

Descriptives		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	3.103	0.813	.599	.439
	Female	179	3.162	0.714		
	Total	413	3.129	0.772		
Age	18-35	194	3.123	0.812	.504	.680
	36-52	168	3.103	0.749		
	53-70	42	3.203	0.730		
	71 years and above	9	3.377	0.440		
	Total	413	3.129	0.772		
Sector	Manufacturing	15	3.333	0.930	.828	.438
	Commercial/Trade	268	3.141	0.744		
	Service & others	130	3.079	0.809		
	Total	413	3.129	0.772		

**Source:** Research Data (2019)

#### 4.3.1.5 Demographic characteristics against Financial Innovations

The average scores on perceptions on adoption of financial innovations as presented in Table 4.6 below indicates differences in averages per gender category (male/female). However, to find out if there was a significant difference between gender and financial innovation, a one-way analysis of variance (ANOVA) was performed. The results showed that there was no statistically significant difference between gender and Financial Innovations ( $F = 0.771$ ,  $\rho = .380$ ). The implication is that adoption of financial innovations is not dependent one's gender.

Similarly, the results showed that adoption of financial innovations was higher amongst those in the age group of 71 years and above compared to other groups. ANOVA results yielded no statistically significant difference between age and adoption of financial innovations ( $F = 1.231$ ,  $\rho = .298$ ), hence one's age does not significantly influence adoption of financial innovations. On whether there is difference in adoption of

financial innovations by ME's in different sectors, the ANOVA test results ( $F = 0.206$ ,  $\rho = .814$ ) indicates that the difference is not statistically different.

**Table 4.6: Demographic characteristics against Financial Innovation**

Descriptives		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	2.971	0.729	0.771	0.380
	Female	179	3.032	0.647		
	Total	413	2.998	0.695		
Age	18-35	194	3.016	0.758	1.231	0.298
	36-52	168	3.008	0.628		
	53-70	42	2.822	0.670		
	71 years and above	9	3.210	0.498		
	Total	413	2.998	0.695		
Sector	Manufacturing	15	3.004	0.757	.206	0.814
	Commercial/Trade	268	3.013	0.670		
	Service & others	130	2.965	0.741		
	Total	413	2.998	0.695		

**Source:** Research Data (2019)

#### 4.3.1.6 Demographic characteristics against Financial Literacy

The results presented in Table 4.7 below shows that female respondents scored lower in financial literacy levels ( $M=2.981$ ) compared to male counterparts who had a mean of ( $M= 3.131$ ). To find out if there was a significant difference between gender and financial literacy, a one-way analysis of variance (ANOVA) was performed. The results as presented in Table 4.7 showed that there was no statistically significant difference between gender and financial literacy ( $F = 1.937$ ,  $\rho = .165$ ). The implication is that financial literacy levels is not dependent on age of users of financial services. Similarly, the results showed that respondents in the age group of 71 years and above had higher FL levels as compared to other age groups. ANOVA results yielded no statistically significant difference between age and financial literacy levels ( $F = 1.004$ ,  $\rho = .391$ ). Therefore, the age of users of financial services has no significant influence their level

of financial literacy. Furthermore, analysis was undertaken to determine whether there is significant difference between the ME's sector and level of financial literacy. The descriptive statistics indicates that those in manufacturing sector have higher level of financial literacy ( $M = 3.20$ ) compared to those in the other categories. When the ANOVA tests was conducted the results ( $F = 1.160, \rho = .315$ ) indicated that the means are not statistically different hence one's financial literacy levels is not dependent on the sector that a business is operating in.

**Table 4.7: Demographic characteristics against Financial Literacy**

Descriptives		ANOVA				
		N	Mean	Std. Deviation	F	Sig.
Gender	Male	234	3.1317	1.107	1.937	.165
	Female	179	2.9816	1.058		
	Total	413	3.0666	1.087		
Age	18-35	194	3.0879	1.091	1.004	.391
	36-52	168	2.9796	1.065		
	53-70	42	3.2595	1.152		
	Above 71 years	9	3.3333	1.118		
	Total	413	3.0666	1.087		
Sector	Manufacturing	15	3.2000	1.014	1.160	.315
	Commercial/ Trade	268	3.0068	1.061		
	Service & others	130	3.1746	1.146		
	Total	413	3.0666	1.087		

**Source:** Research Data (2019)

#### 4.4 Descriptive statistics

##### 4.4.1 Financial Inclusion

Descriptive statistics of the response variable under this section is financial inclusion, which was the dependent variable of the study. The results as presented in Table 4.8 indicates the frequency of usage of diverse forms of financial services by the respondents, with values closer to 1 indicating higher rate of usage as compared to 5 which indicates that the respondent had never used the formal financial services. The results indicate that use of accounts to undertake repayment of loans ( $M = 2.55, SD =$

.857) had the highest frequency as regards usage of financial services, which is an indicator of high usage of loans and prompt repayment thereof by MEs. The results further indicates that the respondents frequently undertake cash transactions related services which include receiving money from customers, friends among others and payments such as on purchase of business items, bills among others, through their accounts as reflected by the descriptive statistics ( $M = 2.66$ ,  $SD = .711$ ) and ( $M = 2.67$ ,  $SD = .695$ ) respectively. In addition, the frequency of usage of accounts for investment in insurance, government transfers and pensions among other related financial services ( $M = 3.23$ ,  $SD = .653$ ) and receiving of proceeds thereof ( $M = 3.62$ ,  $SD = .670$ ) were lower compared to cash transactions related services outlined the paragraph above. Overall, the rate of usage of the bank or mobile accounts to undertake diverse financial services was moderate given the mean of 3.001 with a standard deviation of 0.623. This signified that the respondents fairly agreed that formal financial services are integral to running of MEs in Kenya hence the level of frequency of usage of bank and mobile accounts is a reflection of moderate levels of financial inclusion.

Further, the values of the skewness (asymmetry) and kurtosis (peakedness) as displayed in Table 4.8 were within the acceptable values of not larger than 2 for skewness and not larger than 7 for kurtosis. (Kim, 2013; Watkins, 2018). Therefore, the responses on the items used to measure perception on frequency of usage of bank or mobile accounts to undertake various forms of formal financial services by the owners /representatives of owners of MEs in Kenya, suggests that the normality assumption appears not to have been violated.

**Table 4.8: Financial Inclusion descriptive statistics**

n = 413				
	M	SD	SK	KS
Repayment of loans e.g., from banks, mobile banking e.g., KCB M-PESA, Mshwari, Eazzy Loans, MCo-op, SACCOs, among others.	2.55	.857	.225	.120
Receiving money such as from customers, friends, relatives, banks etc	2.66	.711	.191	.120
Making payments such as for electricity and water bills, purchase of business items, rent etc.	2.67	.695	.113	.120
Saving funds for future personal use, business expansion etc.	2.67	.705	.100	.120
Obtaining loans or credit facilities such as from banks, mobile service providers, SACCOs among other financial institutions etc	3.04	.752	-.003	.120
Paying for insurance and other investments e.g., NHIF, M-Tiba, Linda Jamii, Equitel Riziki Education policies	3.23	.653	.143	.120
Receiving insurance and other benefits e.g., for Education policies, NSSF, Pension, Government transfers etc.	3.62	.670	-.114	.120
<b>Financial Inclusion</b>	<b>3.001</b>	<b>.623</b>	<b>.232</b>	<b>.120</b>

**Source:** Research Data (2019)

#### 4.4.2 Self-control

Self-control was one of the three independent variables for the study whose descriptive statistics are presented in Table 4.9. The results indicates that the perceptions of the behaviors of the respondents suggests high levels of self-control, which is key to optimal use of financial services. For example, the results indicates that majority agreed with the statement that they have a tendency not to spend more money if there have more cash at hand ( $M = 3.45$ ,  $SD = .797$ ). Results also indicate that most respondents can avoid entering financial problems by avoiding the tendency to undertake immediate spending of money ( $M = 3.44$ ,  $SD = .8$ ) and do not follow instincts to take financial decisions instead opting to assess all the available option of money spending ( $M = 3.38$ ,  $SD = .808$ ). The questions used to measure the three items as outlined in the questionnaire were reverse coded during data capture to obtain the statistics provided above. The results further indicate respondents' tendencies to postpone decision making

to a future date when anxious ( $M = 3.28$ ,  $SD = .784$ ) and to resist temptation to spend money on things not planned for ( $M = 3.25$ ,  $SD = .825$ ). These positive behavioral inclinations contribute to avoidance of sub-optimal decision making hence key to enhanced financial inclusion. The results in Table 4.9 showed that the overall mean of self-control tendencies was 3.000 with a standard deviation of 0.752. In addition, the values of the skewness and kurtosis as displayed in the Table are within the acceptable values. This showed a normal distribution of the responses to various items used to measure self-control tendencies of owners of MEs in Kenya, all of which are within the ranges suggested by Kim (2013).

**Table 4.9: Self-control Descriptive Statistics**

n=413	M	SD	SK	KS
I have a tendency to spend more money if there is more cash in my hand when I go for shopping.	3.45	.797	-.109	.120
I am prepared to spend money now and let the future take care of itself.	3.44	.800	-.142	.120
I prefer to follow the gut feelings/instincts to take financial decisions rather than assessing all the available options.	3.38	.808	-.292	.120
When I am anxious on financial matters, I tend to postpone my financial decision for a future period	3.28	.784	.196	.120
I'm good at resisting temptation to spend money on things not planned for.	3.25	.825	.384	.120
<b>Self-Control</b>	<b>3.00</b>	<b>.752</b>	<b>-.116</b>	<b>.120</b>

**Source:** Research Data (2019)

#### 4.4.3 Confidence

The study sought to assess respondents' confidence tendencies as regards financial services and service providers, a character trait that was hypothesized as one of the variables which affects financial inclusion. The results as presented in Table 4.10 indicates that most respondents tend to exhibit confidence tendencies. For example, the item on knowledge on which investments to enter into to make high returns on money spent had the highest confidence tendencies ( $M = 3.630$ ,  $SD = .847$ ). Results also



indicate that when facing tough moments in financial matters most individuals have confidence that due to accessible financial service, they will overcome them ( $M = 3.620$ ,  $SD = .833$ ). Moreover, the results provide evidence that most respondents maintain their funds in the accounts of financial services providers such as, banks, SACCOs and mobile money because they have high trust in them ( $M = 3.610$ ,  $SD = .848$ ). In addition, it is evident from the results that most individuals have confidence given that they have the right information to make wise financial decisions ( $M = 3.560$ ,  $SD = .833$ ) and have skills related to financial planning and use of financial services ( $M = 3.550$ ,  $SD = .833$ ). The responses on the last two items were reverse coded during data capture to provide the results outlined above.

The results in Table 4.10 showed that the overall mean of confidence inclinations was 3.200 with a standard deviation of 0.776, which shows an approximation to a normal distribution. Further, values of the skewness and kurtosis as displayed in Table 4.10 were all within the acceptable values; for skewness  $< 2$  and kurtosis  $< 7$  (Watkins, 2018). This showed a normal distribution of the responses with respect to the items used to measure the variable; thus, it suggests that the normality assumption as evidenced in the results was not violated.

**Table 4.10: Confidence descriptive statistics**

n = 413	M	SD	SK	KS
I know what investments to look for to get the highest returns on my money.	3.63	.847	.007	.120
When facing difficult situations in my life, I'm certain that I will overcome.	3.62	.833	.036	.120
I trust banks, SACCO's and Mobile money providers hence maintaining my money in the accounts.	3.61	.848	.000	.120
I do not know where to get the right sources of information to make wise financial decisions.	3.56	.833	-.063	.120
I lack skills related to financial planning and usage of my mobile/bank accounts	3.55	.833	.011	.120
<b>Confidence</b>	<b>3.092</b>	<b>0.776</b>	<b>-0.183</b>	<b>-0.028</b>

**Source:** Research Data (2019)

#### 4.4.4 Social Proof

The study sought to assess how an individual social proof predisposition affects financial inclusion. The results are presented in Table 4.11. The results indicates that most respondents prefer to use financial services based on the patterns of their friends, relatives, and co-workers with regards to the financial matters such as payments, saving, loans, investments etc ( $M=3.68$ ,  $SD = .835$ ). The results also indicate that respondents use emerging financial services channels such as MPESA and mobile banking because their close friends and family members are using the same ( $M = 3.66$ ,  $SD = .808$ ), this being a tendency to demonstrate herd behavior. Moreover, the results provide evidence that individuals use of financial services in Kenya depends on the social- economic factors (education, income, and employment) of the neighbors ( $M = 3.57$ ,  $SD = .781$ ).

In addition, it is evident from the results that most respondents feel more comfortable and secure when their financial decision are supported by their spouses, parents' family, and friends ( $M = 3.55$ ,  $SD = .763$ ). Preference to invest and saving in groups (chamas') such as women, youth, family and friends groups further enhances financial inclusion ( $M = 3.53$ ,  $SD = .755$ ). The last item was reverse coded as appropriate during data

capture to obtain the above results. Therefore, the results as provided in Table 4.11 shows that the overall mean of Social proof tendencies was 3.129, which signified the respondent's perception mostly agreed on the effects of social factors which comprised of the influence of friends, family, and social-economic setups, in influencing financial inclusion. The overall standard deviation of 0.772 on the variable showed an approximation to a normal distribution. Additionally, the values of the skewness and kurtosis as displayed in Table 4.11 are within the acceptable values for skewness  $< 2$  and kurtosis  $< 7$ , which depicts a normal distribution of the responses to items used to measure the social proof tendencies of owners of MEs in Kenya. The results therefore suggests that the normality assumption as evidenced in the results was achieved. (Kim, 2013).

**Table 4.11: Social proof descriptive statistics**

n = 413	M	SD	SK	KS
I prefer to follow the patterns of my friends, relatives, and co-workers with regards to the financial matters such as payments, saving, loans, investments etc.	3.68	0.835	0.202	-0.381
I use mobile financial services such as MPESA and mobile banking etc. because my friends and family uses them.	3.66	0.808	0.163	-0.296
The social- economic factors (education, income, and employment) of my neighbors influence my financial decisions	3.57	0.781	0.054	-0.238
I feel more comfortable and secure when my financial decisions are supported and approved by my spouse, parents, family, or peers.	3.55	0.763	0.135	-0.149
I'm not comfortable investing and saving in groups (chamas') such as women, youth, family and friends groups	3.53	0.755	0.069	-0.142
<b>Social proof</b>	<b>3.129</b>	<b>0.772</b>	<b>-0.274</b>	<b>-0.047</b>

**Source:** Research Data (2019)

#### 4.4.5 Financial Innovations

The response variable of the study under consideration in this section was financial innovation. The results as presented in Table 4.12 indicates that MEs in Kenya would

save more if a financial institution offered prize linked savings (PLS) products ( $M = 3.27$ ,  $SD = .81$ ). The study also showed that MEs would increase their usage of formal financial services if financial service providers remind and persuade them regularly ( $M = 3.25$ ,  $SD = .783$ ). Moreover, the results provide evidence that new financial service channels such as mobile banking and agency banking as well as provision of information by FFS providers have contributed to increase in usage of financial services such as bank accounts by many individuals in Kenya. ( $M = 3.22$ ,  $SD = .828$ ) and ( $M = 3.21$ ,  $SD = .774$ ) respectively.

In addition, it is evident from the results that perceptions on costs of mobile banking and mobile payments are positive given that the reverse coding of the statement demonstrated favorable views ( $M = 3.21$ ,  $SD = .720$ ). Similarly, perceptions on emerging intermediaries such as mobile banking, agency banking are favorable hence key for enhanced financial inclusion ( $M = 3.20$ ,  $SD = .787$ ). The two items were reverse coded during data capture. The study results further demonstrated that digital payment services such as mobile payments fit well with peoples work/business lifestyle ( $M=3.20$ ,  $SD=.798$ ). This has encouraged many enterprises in Kenya to adopt new financial services innovations for enhanced FI. Moreover, the results provide evidence that reminder messages from banks or mobile operators have enabled many users of financial services to promptly repay their loans such as those obtained through Mshwari, KCB-MPESA, MCo-op Cash, Eazzy loans among others. ( $M = 3.22$ ,  $SD = .0.827$ ). This has been attributed by the high rate of adoption of new financial innovation on financial services by many MEs in Kenya. In additional, as showed by the study results new insurance mobile based financial products such as M-Tiba, Linda Jamii, Equitel Riziki cover *among* others are perceived to have helped many people to avoid financial losses due to less financial expenditure on medical needs. ( $M=3.20$ ,

SD=.802). This has led to many enterprises in Kenya in adopting new financial services innovations hence enhanced FI. The study found out that many MEs in Kenya support adoption of financial innovations such mobile banking, MPESA, Airtel Money, Agency Banking among others as an efficient way of managing finances (M=3.19, SD=0.784).

Concisely, the results in Table 4.12 showed that the overall mean of perceptions on adoption of financial innovations was 3.58, thus respondents fairly agreed that the variable is key in increasing frequency of usage of formal financial services. In addition, the overall standard deviation of 0.78 showed an approximation to a normal distribution as further attested by the values of measures of skewness and kurtosis as displayed in Table 4.12, all of which are within the acceptable values; (skewness < 2 and kurtosis < 7) (Kim, 2013.). The results depict a normal distribution of the responses to the items used to measure the perceptions on adoption of financial innovations by MEs in Kenya.

**Table 4.12: Financial Innovations descriptive statistics**

n=413	M	SD	SK	KS
I would save more if a financial institution offered prize linked savings (PLS) product	3.27	0.808	0.201	-0.43
People would increase their usage of formal financial services if service providers remind and persuade them regularly.	3.25	0.783	0.175	-0.39
New financial services channels have enabled me to increase the use of the financial services such as bank accounts.	3.22	0.828	0.271	-0.46
Information on incentives provided by financial institutions have made me to increase my saving levels.	3.21	0.774	0.28	-0.27
Mobile financial services are very risky and should be avoided.	3.21	0.72	0.26	-0.24
I think the costs of usage of financial innovations are very high hence reducing number of users.	3.2	0.787	0.286	-0.28
Digital payment services such as mobile payments fit well with my work/business lifestyle.	3.2	0.798	0.314	-0.29
Reminder messages from banks or mobile operators have enabled me to promptly repay my loans.	3.2	0.827	0.315	-0.41
New insurance mobile-based financial products have helped me avoid financial losses due to less financial expenditure on medical needs.	3.2	0.802	0.311	-0.31
Adopting innovations are an efficient way of managing finances.	3.19	0.784	0.322	-0.23
<b>Financial Innovations</b>	<b>3.17</b>	<b>0.65</b>	<b>-0.04</b>	<b>0.5</b>

**Source:** Research Data (2019)

#### 4.4.6 Financial literacy

This section presents results on the items used to measure levels of financial literacy (FL) of owners of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya, a variable that was hypothesized to influence financial inclusion. FL was measured using both self-assessment (perceptions) and objective assessment through tests on five dimensions of the which were risk diversification, inflation or time value for money, numeracy, compound interest and knowledge of formal financial institutions in Kenya. The results of the objective assessment (FL score) were assessed depending on correct scores on the six questions for each respondent, the outcome of which was used for computation of descriptive statistics alongside those of FL perceptions as presented in Table 4.13.

In addition, the study tested whether there were significant differences of means on measurement of financial literacy using the two measures (perceptions and objective assessment). Through use of ANOVA paired sample T- tests, the results as outlined in Table 4.13 indicates that the difference between the two means was not significant. The findings are similar to those found in prior studies such as Allgooda & Walstad (2013) who observed similarities between perceived and actual financial literacy levels and that either of the measurement methods was satisfactory. Therefore, this study concluded that any of the financial literacy measurements could be used for further analysis and choose to use the objective assessment method, abbreviated as FLsc, in the study models as appropriate.

**Table 4.13: Comparison on Measurement methods for Financial Literacy**

	FL perception	FLsc
Mean	3.04	3.0666
N	413	413
Std. Deviation	0.951	1.08767
Paired Differences		
<i>t</i>	0.411	
<i>df</i>	412	
Sig. (2-tailed)	0.682	

**Source:** Research Data (2019)

#### 4.5 Reliability Analysis

Reliability of a measure indicates the extent to which it is without bias (error free) and hence ensuring stability and consistency of measurement. (Koonce & Kelly, 2014; Sekeran, 2003; Saunders *et al.*, 2009). In order to determine the internal consistency of the data collection tool an assessment was undertaken using Cronbach's alpha value attributed to Cronbach (1951). The focus was on the variables that were measured using items that comprised of Likert type questions (Rovai *et al.*, 2013), the results thereof are presented in Table 4.14.

According to Rovai *et al.*, (2013); Sekeran and Bougie (2010) among other scholars, the conventionally accepted level of reliability measure is set at 0.70. From the results generated, the Cronbach alpha for each variable based on the average of inter-item correlation was above .70 with the highest Cronbach alpha value observed in confidence (.929) whereas the lowest value was .731 with respect to financial inclusion. Therefore, any Cronbach alpha value of more than .70 is regarded as a reliable measure for the construct under consideration. Evidently, the present study results as outlined in Table 4.14 below demonstrates that all variables had a Cronbach alpha of more than .70 thus stability and consistency of measurement was upheld. Thus, the results met the required threshold for further analysis as documented in the subsequent sections of this thesis document.

**Table 4.14: Reliability Statistics**

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Financial Inclusion	0.731	0.733	7
Self-control	0.887	0.887	5
Confidence	0.929	0.929	5
Social proof	0.915	0.915	5
Financial innovations	0.920	0.923	10

**Source:** Research Data (2019)

#### 4.6 Factor Analysis

Factor analysis is undertaken for various purposes such as testing of construct validity (discriminant and convergent validity) in which case a factor analysis can be conducted utilizing principal component analysis (PCA) with variable maximization (Varimax) (Sekeran, 2003; Taherdoost, 2016). The results of the tests are assessed in terms of loading and correlation such that for discriminant validity an item is expected to load



at least 0.40 with no cross loading to other components above 0.40). For convergent validity correlation based on eigenvalues of 1 and loading of at least 0.40 to the various components, are commonly used as cut off criteria. Osborne, Costello and Kellow (2008) observes that whereas there are other methods of conducting factor analysis, the prevalence uses of PCA and Varimax is attributed to complexity and lack of common names of other options. Hair *et al.*, (2014) observes that factor analysis, which is a statistical approach commonly utilized to analyze interrelationships among a large number of variables through determination of underlying dimensions (factors), helps in creating summarized scales.

The study undertook principal component analysis to identify patterns in data, and to express the data in such a way as to highlight their similarities and differences. Besides having, data set items reduced to manageable level while retaining as much of the original information it helped in identifying groups or clusters of financial inclusion, the three behavioural factors and financial adoption variables. Because of the criterion of Kaiser (1960), the study retained all factors with Eigen values greater than 1. The criterion was based on the idea that the Eigen values represent the amount of variation explained by a factor and that the Eigen value of 1 represents a substantial amount of variation.

Kaiser- Meyer- Olkin Measure (KMO) measure of sampling adequacy and Bartlett's test of Sphericity was used to determine suitability of the data for factor analysis. For data to be suitable for factor analysis, the recommended value for KMO is .60 and the Bartlett's Test of Sphericity should be significant ( $p < .05$ ), the latter of which is an indicator that sufficient correlations exist among the variables to be processed. (Coşkun & Demirel, 2010; Hair *et al.*, 2014). Sphericity tests is based on the null hypothesis that

the original correlation matrix is an identity matrix (no relationship between variables), hence when the significance is below 0.05 it implies that there is a relationship between the items, which is fundamental for factor analysis. The sections below discuss factor analysis undertaken for the diverse study variables.

#### **4.6.1 Factor Analysis for Financial Inclusion**

The factor analysis results for financial inclusion are presented in Table 4.15. The principal component analysis with varimax rotation was performed to identify the underlying factors for financial inclusion. The results depicted high factor loading scores by all items that were all above the minimum recommended value of 0.50 (Hair *et al.*, 2014). As outlined in Table 4.15, the items loadings ranged from 0.831 to 0.979 hence all the items were considered important in the explaining the financial inclusion construct. The Exploratory Factor Analysis (EFA) extracted 3 factors whose Eigen values were above the accepted value of 1 (Hair *et al.* 2014; Yong & Pearce, 2013) and cumulative extracted variance of 84.839%. Thus, all the items were considered appropriate to explain the variable. Moreover, from the Table 4.15 below, Bartlett's Test of Sphericity produced a significant Chi-Square ( $\chi^2$ ) of 2063.8 ( $p < .05$ ) and Kaiser – Meyer - Olkin measure of sampling adequacy was .694 above the acceptable value of .50 (Field, 2005), showing that it was appropriate to subject the data on financial inclusion to factor analysis (Leech *et al.*, 2013).

The three factors extracted represents sub-components of the financial inclusion variable informed by the frequency of usage of bank and mobile accounts to undertake diverse forms of formal financial services. Component 1 comprises of three items (receiving money, making payments, and saving funds for future use), component 2 two is made of two items related to credit financial services (receiving and repayment of loans) and component three is made of investment related services (insurance and

pensions as well as government transfers. The three factors represent the sub-components of formal financial services that have been subjected of study by scholars such as (Allen *et al.*, 2016; Allgooda & Walstad, 2013; Demirguc-Kunt *et al.*, 2018; Lown *et al.*, 2014, among many others). Having observed that all items met the criteria, were supported by finance theory and statistical analysis in terms of loadings, Eigen values and significant contribution to the explained total variance of 84.3% they were all retained for further analysis. Therefore, all the seven items were considered key in explaining the underlying variable on utilization of financial services, hence taken into consideration during data transformation of the financial inclusion variable.

**Table 4.15: Factor Analysis for Financial Inclusion**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.694
Bartlett's Test of Sphericity (Chi-Square)			2063.81
	<i>df</i>		21
	Sig		0.000
	AVE		0.83
Items for Financial Inclusion	Eigen Values	% Variance	Cumulative %
Component 1	3.015	40.067	40.067
Component 2	1.669	23.836	66.903
Component 3	1.259	17.936	84.839
Items and their Factor Loadings	Comp 1	Comp2	Comp3
Receiving money from customers, friends, relatives, banks etc	.979		
Making payments such as for electricity and water bills, purchase of business items, rent etc.	.963		
Saving funds for future personal use, business expansion	.959		
Obtaining loans or credit facilities such as from banks, mobile service providers, SACCOs among other financial institutions		.898	
Repayment of loans e.g. from banks, mobile banking e.g. KCB M-PESA, Mshwari, Eazzy Loans, MCo-op, SACCOs		.913	
Paying for insurance and other investments e.g., NHIF, M-Tiba, Linda Jamii, Equitel Riziki Education policies			.846
Receiving insurance and other benefits e.g., for Education policies, NSSF, Pension, Government transfers etc			.831

**Source:** Research Data (2019)

#### 4.6.2 Factor Analysis for Self-control

The factor analysis results for self-control are presented in Table 4.16. The principal component analysis with Varimax rotation was performed to identify the underlying factors of self-control. The results depicted high factor loading scores between 0.726 and 0.929 all of which were above the recommended 0.5 (Hair *et al.*, 2014). The results indicates that all the five items explained self-control and were important in measuring the variable. Furthermore, EFA extracted 1 factor with an Eigen value of 3.47 which is above the accepted value of 1 (Yong & Pearce, 2013) and cumulative extracted variance of 69.396% thus the items were all appropriate to explain the variable. In addition, Table 4.16 below indicates that the Bartlett's Test of Sphericity produced a significant Chi-Square ( $\chi^2$ ) of 1662.839 ( $p < .05$ ) and Kaiser – Meyer - Olkin measure of sampling adequacy was 0.783 which is above the acceptable value of .50 (Field, 2009), showing that it was appropriate to subject the data for factor analysis on the self-control variable.

**Table 4.136: Factor Analysis for Self-control**

	Component 1
I am prepared to spend money now and let the future take care of itself.	0.929
I have a tendency to spend more money if there is more cash in my hand when I go for shopping.	0.912
I prefer to follow the gut feelings/instincts to take financial decisions rather than assessing all the available options.	0.792
When I am anxious on financial matters, I tend to postpone my financial decision for a future period	0.788
I'm good at resisting temptation to spend money on things not planned for.	0.726
<b>Total Variance Explained: Extraction Sums of Squared Loadings</b>	
Initial Eigenvalues	3.47
% of Variance	69.396
Cumulative %	69.396
<b>KMO and Bartlett's Test</b>	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.783
Bartlett's Test of Sphericity	
Approx. Chi-Square	1662.839
Df	10
Sig.	0.00
AVE	0.694

**Source:** Research Data (2019)

#### 4.6.3 Factor Analysis for Confidence

The principal component analysis with varimax rotation was performed to identify the underlying factors as regards confidence in usage of financial services. The factor analysis results for the variable are presented in Table 4.17. The results depicted high factor loading scores which showed that all the items explained the variable given that each contributed (loaded) above the minimum recommended value of 0.50 (Hair *et al.*, 2014). Cumulative extracted variance of 78.018% showed that the items were appropriate to explain the variable. Moreover, from the Table 4.17 below, Bartlett's Test of Sphericity produced a significant Chi-Square ( $\chi^2$ ) of 2316.587 ( $p < .05$ ) and Kaiser – Meyer - Olkin measure of sampling adequacy was 0.78 which is above the acceptable value of .50 (Field, 2009). The results demonstrated that it was appropriate to subject the data for factor analysis on this variable. (Leech *et al.*, 2013).

**Table 4.17: Factor Analysis for Confidence**

	Component 1
I trust banks, SACCO's and Mobile money providers hence maintaining my money in the accounts.	.906
When facing difficult situations in my life, I'm certain that I will overcome.	.899
I lack skills related to financial planning and usage of my mobile/bank accounts	.876
I know what investments to look for to get the highest returns on my money.	.873
I do not know where to get the right sources of information to make wise financial decisions.	.861
<b>Total Variance Explained: Extraction Sums of Squared Loadings</b>	
Total	3.901
% of Variance	78.018
Cumulative %	78.018
<b>KMO and Bartlett's Test</b>	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.78
Bartlett's Test of Sphericity	
Approx. Chi-Square	2316.587
<i>Df</i>	10
Sig.	0.000
AVE	.641

**Source:** Research Data (2019)

#### 4.6.4 Factor Analysis for Social proof

The principal component analysis with varimax rotation was performed to identify the underlying factors of Social proof variable, the results of which are presented in Table 4.18 below. The results depicted high factor loading scores of between 0.842 and 0.873, which showed that all the items explained social proof variable given that they were all above the minimum recommended value of 0.50 (Hair *et al.*, 2014). The EFA extracted one factor with an Eigen value of 3.735 which is above the accepted value of 1 (Yong & Pearce, 2013) and cumulative extracted variance of 74.7 % thus the items were appropriate to explain the variable. In addition, the results as provided in Table 4.18 below indicates that the Bartlett's Test of Sphericity produced a significant Chi-Square ( $\chi^2$ ) of 2043.796 ( $p < .05$ ). The KMO measure of sampling adequacy was 0.732 which is

above the acceptable value of .50 (Field, 2009), showing that it was appropriate to subject the data to factor analysis on the Social proof variable.

**Table 4.18: Factor Analysis for Social Proof**

	Component 1
I feel more comfortable and secure when my financial decisions are supported and approved by my spouse, parents, family or peers.	0.873
I prefer to follow the patterns of my friends, relatives and co-workers with regards to the financial matters such as payments, saving, loans, investments etc.	0.863
I'm not comfortable investing and saving in groups (chamas') such as women, youth, family and friends groups	0.879
I use mobile financial services such as MPESA and mobile banking etc because my friends and family use them.	0.864
The social- economic factors (education, income and employment) of my neighbors influence my financial decisions	0.842
<b>Total Variance Explained: Extraction Sums of Squared Loadings</b>	
Initial Eigenvalues	3.735
% of Variance	74.702
Cumulative %	74.702
<b>KMO and Bartlett's Test</b>	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.732
Bartlett's Test of Sphericity	
Approx. Chi-Square	2043.796
<i>Df</i>	10
Sig.	0.00
AVE	0.75

**Source: Research Data, 2019**

#### 4.6.5 Factor Analysis for Financial Innovations

The principal component analysis with varimax rotation was performed to identify the underlying factors of financial innovation. The results depicted high factor loading scores above the threshold of 0.5 (Hair *et al.*, 2014) by all the items that had been identified for measurement of the financial innovation variable, all above the minimum recommended value of 0.50. The EFA extracted two factors with a cumulative extracted variance of 87.04 % thus indicating that the items were appropriate to explain the

variable. The first factor had eight items whereas the second one had two items as depicted in Table 4.19 below.

**Table 4.19: Initial Factor Analysis for Financial Innovation**

	1	2
Information on incentives provided by financial institutions on opening accounts, making deposits, new products etc have made me to increase my saving levels.	0.821	
Reminder messages from banks or mobile operators have enabled me to promptly repay my loans	0.907	
Mobile financial services are very risky and should be avoided.	0.940	
People would increase their usage of formal financial services if service providers remind and persuade them regularly.	0.878	
Adopting innovations are an efficient way of managing finances.	0.932	
New insurance mobile-based financial products have helped me avoid financial losses due to less financial expenditure on medical needs.	0.962	
I think the costs of usage of financial innovations are very high hence reducing number of users.	0.934	
Digital payment services such as mobile payments fit well with my work/business lifestyle.	0.887	
I would save more if a financial institution offered a prize linked savings (PLS) product		0.932
New financial services channels have enabled me to increase the use of the financial services such as bank accounts.		0.934
<b>Rotation Sums of Squared Loadings</b>		
Total	6.623	1.744
% of Variance	66.629	17.435
Cumulative %	66.629	87.064
<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.729	
Bartlett's Test of Sphericity		
Approx. Chi-Square	7178.931	
<i>Df</i>	45	
Sig.	0.00	
AVE	0.40	

**Source:** Research Data (2019)

In order to determine the key items that explain the financial innovation variable which was theorized as one variable based on prior studies (such as Siddik *et al.*, 2014), the study utilized the priori criterion (expected number of factors) to extract the required factor on the variable out of the 10 items (Hair *et al.*, 2014). The study further took into consideration the recommendation by Yong and Pearce (2013), that factors that have



less than three variables are undesirable. Therefore, the study once more undertook principal component analysis with varimax rotation while fixing the number of components to be extracted as one (1) hence obtaining the results depicted in Table 4.20 below.

The results indicate high factor loading scores (between 0.863 and 0.997) all of which are above the threshold of 0.5 (Hair *et al.*, 2014) hence confirming that all the eight items emerged under one factor for measuring the financial innovation variable. Similarly, the Bartlett's Test of Sphericity produced a significant Chi-Square ( $\chi^2$ ) of 7178.931 ( $p < .05$ ) and Kaiser – Meyer - Olkin measure of sampling adequacy was 0.729, which is above the acceptable value of .50 (Field, 2009; Yong & Pearce, 2013), showed that it was appropriate to subject the data to factor analysis on the financial innovation variable. Thus, the eight items listed in Table 4.20 were used for further analysis in the study including transformation of the variable as outlined in the next section.

**Table 4.20: Final Factor Analysis for Financial Innovation**

	Component 1
Information on incentives provided by financial institutions on opening accounts, making deposits, new products etc. have made me to increase my saving levels.	.997
New insurance mobile-based financial products have helped me avoid financial losses due to less financial expenditure on medical needs.	.972
Mobile financial services are very risky and should be avoided.	.948
I think the costs of usage of financial innovations are very high hence reducing number of users.	.945
Adopting innovations are an efficient way of managing finances.	.926
Reminder messages from banks or mobile operators have enabled me to promptly repay my loans	.915
People would increase their usage of formal financial services if service providers remind and persuade them regularly.	.888
Digital payment services fit well with my work/business lifestyle.	.863
Total	6.963
% of Variance	69.629
Cumulative %	69.629
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.729
Bartlett's Test of Sphericity Approx. Chi-Square	7178.931
<i>Df</i>	45
Sig.	.000
AVE	.57

#### 4.7 Data Transformation for main variables

Table 4.21 below shows the results of data transformation undertaken on the study variables. From the findings, Social proof had the highest mean (3.129) followed by Confidence (3.092). Financial inclusion and Self-control both had a mean of (3.001), while Financial Innovations had the lowest mean of (2.998). The implication is that among the explanatory variables, social proof exhibited superior effect on enhancing financial inclusion of micro-enterprises in Kenya. The standard deviations for all the variables were less than 1 indicating less variations in the responses. Finally, all the independent variables, moderator and the dependent variables were normally distributed as demonstrated in Table 4.21 below.

**Table 4.21: Data Transformation**

n=413	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
Social proof	1	5	3.129	0.772	-0.274	-0.047
Confidence	1	5	3.092	0.776	-0.183	-0.028
Financial Inclusion	1	5	3.001	0.623	0.232	1.538
Self-control	1	5	3.001	0.752	-0.116	-0.118
Financial Innovation	1	5	2.998	0.695	-0.149	0.426

**Source:** Research Data (2019)

#### 4.8 Correlation Analysis

In order to measure the relationships between the self-control, confidence, social proof, financial innovations and financial literacy on financial inclusion, the Pearson correlation coefficients were calculated, given that all the data were numerical. The Pearson's correlation coefficient, which assesses the degree to which quantitative constructs are linearly related in a sample (Saunders et al, 2009), takes a value between +1 and -1 inclusive. The larger the absolute value of the correlation coefficient, the stronger the relationship. Pearson correlation test was used, with the null hypothesis being that there is a zero-correlation coefficient (no relation) among the variables. (Sekeran, 2003). The results as outlined in Table 4.22 below indicates that there is a positive and significant correlation between the independent variables and financial inclusion. Particularly, the correlation results showed that Self-control had a positive and significant moderate relationship with financial inclusion ( $r = .592, \rho < .01$ ). Confidence positively correlated with financial inclusion ( $r = .561, \rho < .01$ ). Moreover, results indicate that Social proof positively and significantly relates to financial inclusion ( $r = .545, \rho < .01$ ). In addition, financial innovations is positively and significantly correlated with financial inclusion ( $r = .385, \rho < .01$ ). Financial Literacy too had a significant and positive correlation with financial inclusion ( $r = .337, \rho < .01$ ). Furthermore, Gender ( $r = .0021, \rho > .01$ ) and age ( $r = .007, \rho > .01$ ) showed a positive but insignificant correlation with financial inclusion whereas sector had a negative but

insignificant relation with the dependent variable ( $r = -.001; \rho > .01$ ). Based on the above results there is an indication of linear relationship between all predictor variables on the predicted variable (financial inclusion) of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya, hence there need to perform advanced analysis through multiple regression models to show the cause-effect relationships.

**Table 4.14: Correlation Analysis**

	FI	SC	C	SP	FINN	FLsc	gender	age	sector
FI	1								
SC	.592**	1							
C	.561**	.450**	1						
SP	.545**	.471**	.404**	1					
FINN	.385**	.388**	.372**	.389**	1				
FLsc	.337**	.232**	.224**	.185**	.195**	1			
gender	.021	.007	.054	.038	.043	-.068	1		
age	.007	.029	.030	.036	-.033	.026	.441**	1	
sector	-.001	-.002	-.045	-.057	-.029	.051	.226**	.245**	1

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

**Source:** Research Data (2019)

Given below are the labels of the variables used in the Table 4.22 above.

FI = Financial inclusion

SC = Self-control

C = Confidence

SP = Social proof

FINN = Financial innovations

FLsc = Financial literacy (based on correct scores for the objective assessment measure)

#### 4.9 Assumptions of Regression Models

Garson (2012), Osborne and Waters (2002) among many other scholars underscores the need to ensure that data meets the assumptions of the statistical procedures to be undertaken by the study. This is because tests of assumptions aid the examiner to authenticate the nature of the data and identify the applicable model for the study that

ensures unbiased, consistent, and efficient estimates. Greenland *et al.*, (2016) observed that there has been a lot of misinterpretation of use of statistical tests, confidence intervals, and statistical power, thus they recommend due care when making interpretations in social research. Therefore, diverse statistical assumptions were tested as outlined in the section below to establish if the data met the normality, linearity, heteroscedasticity, multicollinearity, and autocorrelation assumptions (Garson, 2012; Hayes, 2013; Osborne and Waters, 2002; Williams *et al.*,2013). Without undertaking the tests, the meaningfulness of the interpretation of the regression coefficient in the diverse models would have been at risk. It was because of these results, that the tests of associations and prediction were subsequently performed.

#### **4.9.1 Normality**

Normality tests were undertaken to tests whether the research data was normally distributed. If the assumption is violated, there is a possibility that the residuals in the model will give misleading T-tests, F-tests and Chi-square tests results. For the purposes of this study, normality tests were performed by utilizing the commonly used methods namely the Kolmogorov-Smirnov and Shapiro-Wilk tests (Garson 2012; Ghasemi & Zahediasi, 2012). Where the outcome of the normality tests is found to be significant, it suggests that the data is not normally distributed. Thus, for data to be considered normal, the K-S and S-W tests should not be significant (Tabachnick & Fidel, 2013). Evidently, the results presented in Table 4.23 below, confirmed that normality of the data was not a problem because tests of K-S and S-W of all the variables were not significant. Hence, the data distribution in the study was considered fit for multivariate analysis.

**Table 4.23: Normality Test**

	Kolmogorov-Smirnov			Shapiro-Wilk		Sig.
	Statistic	Df	Sig.	Statistic	df	
Unstandardized Residual	0.023	413	.200*	0.998	413	0.97
Standardized Residual	0.023	413	.200*	0.998	413	0.97
Studentized Residual	0.024	413	.200*	0.998	413	0.963

\* This is a lower bound of the true significance.

a Lilliefors Significance Correction

**Source:** Research Data (2019)

#### 4.9.2 Linearity

Generally, the assumption of linearity defines the response variable as a function of the predictor variables, thus, multiple regression can estimate the relationship between the dependent and independent variables when they are linearly related (Osborne & Waters, 2002). Williams *et al.*, (2013), clarified that the response variable (financial inclusion in the case of this study) is assumed to be a linear function of the regression coefficients ( $\beta_1, \beta_2, \beta_3 \dots \beta_p$ ), but not necessarily a linear function of the predictor variables  $X_1, X_2, X_3 \dots X_p$ . Test for linearity may be conducted using analysis of Variance (ANOVA) and other diverse tests in SPSS (Field, 2009; Garson 2012). When ANOVA is employed in testing the assumption of linearity, the rule of thumb is that if the  $\rho$  – value is less than 0.05, then the relationship between independent and dependent variables is said to be linear, so that those that deviate from linearity have a  $\rho$  – value greater than 0.05 (Hair *et al.*, 2010). For the purpose of the current study, Table 4.24 below showed that financial inclusion is a function of the self-control, confidence, social proof, financial innovation and financial literacy. Evidently, all the relationships as shown in Table 4.24 indicated that they are linear, thus, can be considered reliable for regression analysis in the study. The results for each of the relationship are explained in this section as follows.

The results of tests of linearity in the table below depicts that there is a linear relationship between financial inclusion and self-control ( $F = 259.751, p = .000$ ). There is also a linear relationship between confidence and financial inclusion ( $F = 212.254, \rho = .000$ ). Furthermore, results indicates that there is a linear relationship between social proof and financial inclusion ( $F = 199.727, \rho = .000$ ). Similarly, financial innovations and financial inclusion are linearly related ( $F = 91.084, \rho = .000$ ). Further, there is a linear relationship financial literacy and financial inclusion ( $F = 53.405, \rho = .000$ ). It is further observed that the eta values for the relationship between financial inclusion and each of the predictor variables as outlined in Table 4.24 are almost equal to the correlation coefficient (Pearson's  $r$ ), hence an indicator of linear relationship (Garson, 2012). In general, the results indicated that there is a significant linear relationship between all the predictor variables and the predicted variable (financial inclusion). This implied non-violation of the linearity assumption. This further connotes that linearity of the predictor variables with the response variable enabled the researcher to perform further regression analysis to infer on the casual-effect between the variables in the study.

**Table 4.24: Linearity Test**

	ANOVA for linearity		Measures of Association	
	F	Sig.	R	Eta
financial inclusion * Self-control	259.751	0.000	0.592	0.688
financial inclusion * Confidence	212.254	0.000	0.561	0.653
financial inclusion * Social proof	199.727	0.000	0.545	0.653
financial inclusion * financial innovation	91.084	0.000	0.385	0.642
financial inclusion * financial literacy	53.405	0.000	0.337	0.387

**Source:** Research Data (2019)

### 4.9.3 Heteroscedasticity

Osborne and Waters (2002) state, heteroscedasticity can be identified by plotting standardized (or studentized) residuals against the predicted values of the predicted variable. Homoscedasticity entails equality of variance of errors across all levels of the predictor variables (Williams et al, 2013). In this study, heteroscedasticity was measured by Levene's test, which examines whether or not the variance between independent and dependent variables are equal. If the Levene's Test for Equality of Variances is statistically significant at  $\alpha = .05$  (that is less than 0.05), this indicates that the group variances are unequal or heteroscedastic and not homoscedastic which is a key assumption of linear regression models. The findings in Table 4.25 revealed that basing on Levene's statistic; homoscedasticity is not a problem given that all the variables had p-values  $> .05$ .

**Table 4.25: Heteroscedasticity Test**

	Levene Statistic	df1	df2	Sig.
Financial inclusion	0.016	1	411	.899
Self-control	2.594	1	411	.108
Confidence	0.195	1	411	.659
Social proof	4.276	1	411	.039
Financial Innovation	3.741	1	411	.054
Financial literacy	0.656	1	411	.419

**Source:** Research Data (2019)

### 4.9.4 Multicollinearity

Multiple linear regressions assumes that there is no multicollinearity in the data. Multicollinearity occurs when the independent variables are too highly correlated with each other. Multicollinearity may be checked through multiple ways, for example, the correlation matrix when computing a matrix of Pearson's bivariate correlations



among all independent variables, the magnitude of the correlation coefficients should be less than .80 in order for multicollinearity not to be a problem.

More importantly, tolerance values and Variance Inflation Factor (VIF) are examined in order to determine presence of multicollinearity. As observed by Garson, (2012) tolerance (which is given by 1- R squared) of less than 0.2 indicates the presence of multicollinearity. Similarly, VIF values (which are the reciprocal of tolerance values) for each of the variables indicates the degree that the variances in the regression estimates are increased due to multicollinearity. VIF values higher than 4 indicates that multicollinearity could be present (Garson, 2012; Hair et al, 2014). The findings in Table 4.26 revealed that the VIF values for all the independent variables were below 4.0 and the tolerance values were all below 0.2. This means that for all the predictor variables, multicollinearity was not detected.

**Table 4.26: Multicollinearity Test**

	<b>Tolerance</b>	<b>VIF</b>
Self-Control	.666	1.501
Confidence	.715	1.398
Social Proof	.700	1.429
Financial Innovation	.762	1.313
Financial Literacy	.920	1.087

Dependent Variable: Financial Inclusion

**Source:** Research Data (2019)

#### **4.9.5 Autocorrelation**

Field (2009) observed that autocorrelation exists when the residuals of two observations in a regression model are correlated. The Durbin Watson (DW) statistic is used test for autocorrelation in the residuals from a statistical regression analysis. (Garson, 2012). The Durbin-Watson statistic is expected to have value between 0 and 4, the common expectation is that a value of 2.0 means that there is no autocorrelation

detected in the sample. Values from zero to less than two indicates positive autocorrelation and values from two to four indicates negative autocorrelation (Field, 2009). Garson (2012) further clarifies that a value of between Durbin-Watson statistics should be between 1.5 and 2.5 for it to be confirmed that the observations are independent.

From the findings in Table 4.27 below, it is that the observations are independent (not auto correlated) since the Durbin- Watson values for the control, independent, mediating, and moderating variables are all between 1.5 and 2.5. Therefore, it is observed that the study data does not violate the independence test (no autocorrelation) assumption.

**Table 4.27: Autocorrelation Test**

	Durbin-Watson
Control variables	1.951
Independent variables	2.013
Mediating variable	2.076
Moderating variable	2.012

**Source:** Research Data (2019)

#### 4.10 Testing of Hypotheses

Regression analyses were performed to test the model fit and to establish the predictive power of the study models. Field (2009) observes that there are a number of methods of regression such as forced entry, hierarchical method and stepwise methods available in statistical packages including SPSS. This study used the Enter (forced entry) method to tests the direct effects of predictor variables on the predicted variable (financial inclusion). The Enter method is recommended for theory testing and minimizes the effects of the experimenter decisions on entering of predictor variables since he/she

makes no decision about the order in which variables are entered. (Field (2009). The study further adopted diverse multiple regression models developed by Hayes (2013) to test the other five study hypotheses. The sections below present the results for the main effects and the interaction effects of the study variables.

#### **4.10.1 Test of Direct Effects**

Multiple linear regression analysis was performed to calculate the effects of the control and predictor variables on financial inclusion. The combined prediction of all the variables accounted for approximately 56 % of the total variation in financial inclusion ( $R^2 = .560$ , Adjusted  $R^2 = .551$ ). The ANOVA model showed that the joint prediction of all the independent variables as depicted in Table 4.28 below was statistically significant ( $F = 64.277$ ,  $\rho = .000$ ). Thus, the model was fit to predict financial inclusion using self-control, confidence, social proof, financial innovation, and financial literacy. Based on the collinearity statistics, the VIF values were all less than 4 (Garson, 2012) and the tolerance values were all above 0.2 (Kutner *et al.*, 2005) indicating that multicollinearity was not a problem in the study.

**H<sub>01a</sub>** predicted that there is no significant direct effect of financial services users' self-control on financial inclusion. However, the results presented in Table 4.28 below showed a positive and significant association between financial services users' self-control and financial inclusion ( $\beta = .265$ ,  $\rho = .000$ ). Therefore, the hypothesis was not supported, thus rejected.

**H<sub>01b</sub>** proposed that there is no significant direct effect of financial services users' confidence on financial inclusion. However, the results as presented in table 4.28 indicates that there is a positive and significant relationship between financial services users' confidence and financial inclusion ( $\beta = .241$ ,  $\rho = .000$ ), thus, the hypothesis was

rejected. This means that if the level of financial services users' confidence is enhanced, there will be an increase on the financial inclusion of micro-enterprises in Nairobi, Kenya.

**H<sub>01c</sub>** claimed that there is no significant effect of financial services users' social proof on financial inclusion. As observed in Table 4.28, results demonstrate a positive and significant link between financial services users' social proof and financial inclusion ( $\beta = .212, \rho=.000$ ). Consequently, the hypothesis was not upheld.

**H<sub>01a</sub>** postulated that there is no significant direct effect of financial innovation on financial inclusion. The regression results showed a positive and significant association between financial innovation and financial inclusion ( $\beta = .194, \rho=.000$ ), hence the hypothesis was not supported. This signified that increased level of adoption of financial innovations will lead to increase in usage of financial services (financial inclusion) of micro-enterprises in Nairobi, Kenya.

**H<sub>01e</sub>** suggested that there is no significant direct effect of financial services users' literacy on financial inclusion. However, the results showed a positive and significant relationship between financial services users' literacy and financial inclusion ( $\beta = .137, \rho=.000$ ). Thus, the hypothesis was rejected. This means that if the financial literacy levels of users of financial services is enhanced there will be an increase usage of financial services, thus, enhancing financial inclusion of micro-enterprises in Nairobi Kenya. it is also observed that results as provided in Table 4.28 below indicates that none of the control variables (gender, age and sector) demonstrated significant direct effects on financial inclusion.

**Table 4.28: Multiple Regression Results for Testing Direct Effects**

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.399	.153		2.611	.009		
Gender	.004	.047	.003	.091	.927	.775	1.290
Age	-.020	.031	-	-.648	.517	.778	1.286
			.024				
Sector	.035	.041	.030	.859	.391	.909	1.100
Self-control	.220	.034	.265	6.508	.000	.655	1.526
Confidence	.193	.032	.241	6.077	.000	.694	1.440
Social proof	.171	.032	.212	5.299	.000	.682	1.466
Financial innovation	.172	.036	.194	4.812	.000	.667	1.500
Financial literacy	.079	.020	.137	3.939	.000	.900	1.111
<b>Model Summary Statistics</b>							
R	0.748						
R Square	0.560						
Adjusted R Square	0.551						
Std. Error of the Estimate	0.41746						
R Square Change	0.560						
Durbin-Watson	2.024						
<b>Model Fitness Statistics</b>							
F	64.277						
Sig.	0.0000						

**Source:** Research Data (2019)

#### 4.10.1.1 Test of Mediating Effects of Financial Innovations

The second objective of the study was to establish the mediating effects of Financial Innovations on the relationship between the independent variables (self-control, confidence, social proof) and financial inclusion. The three hypotheses under this category, results of the tests conducted, and interpretation are provided in the sections below. The mediation analysis was performed using Model 4 of Hayes (2018) and interpretations made using the arguments of Zhao *et al.*, (2010) and Hayes (2013) that presence of mediation effects is determined by focusing on the significance of the indirect effect arising from bootstrap test which is considered more superior to earlier ones such as Sobel Test. The results for each of the independent variables is discussed

below all of which demonstrated significant partial mediation effects of adoption of financial innovations on the relationship between the behavioral factors and financial inclusion:

#### **4.10.1.2 Financial Innovations on Self-control and Financial Inclusion**

The study sought to test the hypothesis below:

*H<sub>02a</sub>: Financial Innovations does not have significant mediating effects on the relationship between Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

The results of the hypothesis testing using Model 4 of process Macro is outlined in Table 4.29 (summary) and the actual SPSS output is provided in Table 5.1 in Appendix 7. The results demonstrates that the indirect effect of self-control on financial inclusion, through financial innovations was significant ( $\beta = .0941, \rho = 0.00$ ). The significant indirect effects were further attested by the bootstrap tests confidence interval (BootLLCI = .0436; BootULCI = .1496) which does not include zero. Therefore, based on the study results, hypothesis H<sub>02a</sub> was rejected. The study concluded that adoption of financial innovations has significant mediating effects on the relationship between self-control tendencies and financial inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**Table 4.29: Self-control, Financial Innovations and Financial Inclusion**

<b>Standardized Coefficients</b>			
	<b>Outcome variable: FINN Coeff</b>	<b>Outcome variable: FI Coeff</b>	<b>Indirect effect: Coeff (a*b)</b>
(Constant)	-.0583	-.0208	
gender	.0474	-.0036	
age	-.0531	.0089	
sector	-.0499	.0038	
Self-control	.3188**	.4461**	
Financial Innovation		.2953**	
<b>Indirect effect: Coeff (a*b)</b>			0.0941**
<b>Model Summary: Outcome Variable FI</b>			
R	.6040		
R Square	.3648		
MSE	.6482		
<b>ANOVA; model fitness</b>			
F	46.7443		
Sig.	.0000		
Direct effect of self-control on Financial Inclusion (FI) = .4461**			
Indirect effect of self-control on FI (a*b) = 0.0941**			
** Coeff significant at the 0.05 level (2-tailed).			
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000			

**Source:** Research Data (2019)

#### 4.10.1.3 Financial Innovations on Confidence and Financial Inclusion

The study sought to test the hypothesis H0<sub>2b</sub>: *Financial Innovations does not have significant mediating effects on the relationship between Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya*. The hypothesis was tested using Model 4 of Process Macro (Hayes, 2018) and the results are provided in Table 4.30 below and 5.2, which is part of Appendix 7. The results outlined in Table 4.30 below indicates that Confidence has a significant indirect effect on financial inclusion, through financial innovations ( $\beta=.1019, \rho=0.00$ ) as further demonstrated by the confidence interval: BootLLCI= .0524; BootULCI= .1595). Therefore, hypothesis H<sub>02b</sub> was rejected and the study concluded that adoption of financial innovations has significant mediating effects on the relationship between

Confidence behaviors and financial inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**Table 4.30: Confidence, Financial Innovations and Financial Inclusion**

	Standardized Coefficients		
	Outcome variable: FINN Coeff	Outcome variable: FI Coeff	Indirect effect: Coeff (a*b)
(Constant)	-.0372	.0073	
gender	.0160	-.0393	
age	-.0542	.0080	
sector	-.0301	.0229	
Confidence	.3894**	.4471**	
Financial Innovation		.2617**	
<b>Indirect effect:</b> Coeff (a*b)			0.1019**
<b>Model Summary: Outcome Variable FI</b>			
R	.5959		
R Square	.3551		
MSE	.6581		
<b>ANOVA; model fitness</b>			
F	44.8245		
Sig.	.0000		
Direct effect of Confidence on FI = 0.4471**			
Indirect effect of Confidence on FI (a*b) = 0.1019**			
** Coeff significant at the 0.05 level (2-tailed).			
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000			

**Source:** Research Data (2019)

#### 4.10.1.4 Financial Innovations on Social proof and Financial Inclusion

The final tests of mediating effects were undertaken to test hypothesis H<sub>02c</sub> that Financial Innovations does not have significant mediating effects on the relationship between social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. As was the case with H<sub>02a</sub> and H<sub>02b</sub> outlined in the sections above, the tests were undertaken using Model 4 of Process Macro (Hayes, 2018). The results are presented through Tables 4.31 below (summary) and Table 5.3 (Appendix 7) which contains the actual SPSS Output of the hypothesis



testing. The results outlined in Table 4.31 below indicates that Social proof has a significant indirect effect on financial inclusion, through financial innovations ( $\beta=.1036$ ,  $\rho=0.00$ ) as further demonstrated by the confidence interval: BootLLCI= .0512; BootULCI= .1616). Therefore, hypothesis H<sub>02c</sub> was rejected and the study concluded that adoption of financial innovations has significant mediating effects on the relationship between Social proof behaviors and financial inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**Table 4.31: Social proof, Financial Innovations and Financial Inclusion**

	Standardized Coefficients		
	Outcome variable: FINN Coeff	Outcome variable: FI Coeff	Indirect effect: Coeff (a*b)
(Constant)	-.0340	.0120	
gender	.0393	-.0139	
age	-.0633	.0000	
sector	-.0344	.0188	
Social proof	.3511**	.3868**	
Financial Innovation		.2952**	
<b>Indirect effect:</b> Coeff (a*b)			0.1036**
<b>Model Summary: Outcome Variable FI</b>			
R	.5681		
R Square	.3227		
MSE	.6911		
<b>ANOVA; model fitness</b>			
F	38.7895		
Sig.	.0000		
Direct effect of Social proof on FI = .3868**			
Indirect effect of Social proof on FI (a*b) = .1036**			
** Coeff significant at the 0.05 level (2-tailed).			
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000			

**Source:** Research Data (2019)

#### 4.10.2 Tests of Moderating effects of FL on Independent Variables and FINN relationships

The study sought to test the effects of the moderator variable (financial literacy) on the relationship between the three independent variables and the moderator variable (financial innovation) based on hypothesis H<sub>03</sub>. The tests were undertaken using the

multiple regression Model number 59 developed by Hayes (2013). Analysis was undertaken separately for each of the independent variables and the results are as outlined below.

#### **4.10.2.1 Financial Literacy, Self-control, and Financial Innovations**

The result presented in Table 4.32 below and Table 5.4 at Appendix 7 shows that 1.37% was explained by the moderation effect of financial literacy on the relationship between self-control and financial innovation ( $R\text{-sq}=0.1266$ ). The results further indicates that financial literacy had significant moderating effects on relationship between self-control and financial innovation ( $\beta= 0.1248$ ,  $\rho=0.0121$ ). The moderation effects were also confirmed by bootstrapping analysis given that the upper and lower confidence interval limits did not contain zero (BootLLCI = 0.0274, BootULCI = 0.2222). Thus, the hypothesis that financial literacy has no significant effects on the relationship between self-control and adoption of financial innovations by MEs in Kenya was rejected.

**Table 4.32: Financial Literacy, Self-Control and Financial Innovation**

Model: 59 Y: ZFINN, X= ZSC, W: ZFLsc Covariates: ZE1, ZE2 &amp; ZE3

	Coeff	Se	T	P	LLCI	ULCI
Constant	-0.0546	0.0461	1.1837	0.2372	-0.1452	0.361
ZSC	0.2793	0.0481	5.8040	0.000	0.1847	0.3739
ZFLsc	0.0126	0.0468	0.2686	0.7884	-0.0795	0.1046
Int_1	0.1248	0.0495	2.5192	0.0121	0.0274	0.2222
ZE1	0.0467	0.0513	0.9092	0.3638	-0.0542	0.1476
ZE2	-0.0406	0.518	0.7835	0.4338	-0.1423	0.0612
ZE3	-0.0521	0.0473	1.0996	0.2722	-0.1451	0.0410
Test(s) of highest order unconditional interaction(s):						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>	
X*W	0.0137	6.3464	1	406	0.0121	
<b>Model Summary:</b>						
R	.3358					
R Square	.1266					
MSE	.8502					
ANOVA; model fitness						
F	9.8077					
Sig.	.0000					
Level of confidence for all confidence intervals in output: 95.0000						
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000						

**Source:** Research Data (2019)

Given below are the labels of the variables used in the Table 4.33 above.

FINN = Financial Innovations

SC = Self-control

FLsc = Financial literacy (based on correct scores for the objective assessment measure)

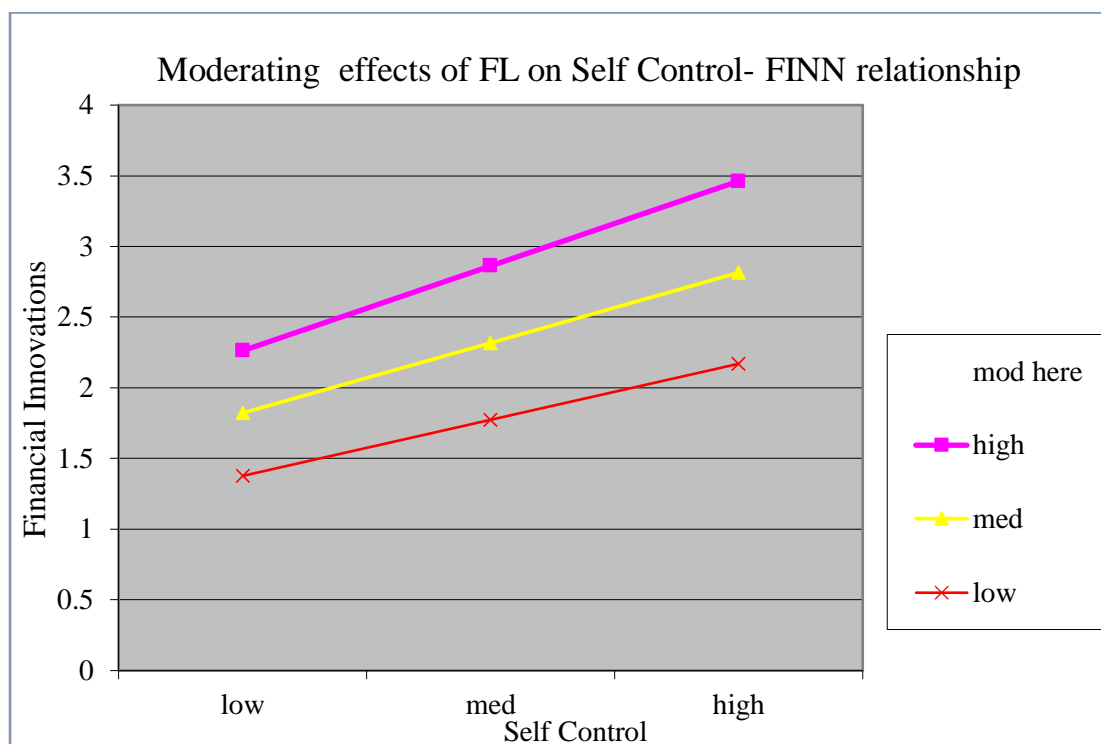
E1 = Gender

E2 = Age

E3 = Sector

The Moderating effects of Financial Literacy on the relationship between self-control is further demonstrated in Figure 4.1 below that was generated using ModGraph Macro

developed by Jose (2013) and the study data. The Graph indicates that whereas Financial Literacy moderates the relationship between the two variables at all levels, the moderation effects is stronger at higher levels of financial literacy as demonstrated by the gradient of the high moderation line which is steeper as compared to the low moderation line.



**Figure 4.1: Moderating effects of Financial Literacy on Self-Control & FINN relationship**

**Source:** Research Data (2019)

#### 4.10.2.2 Financial Literacy, Confidence and Financial Innovation

Hypothesis  $H_{03b}$  conjectured that financial literacy does not significantly moderate the relationship between Confidence and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. The result presented in Table 4.33 below and Table 5.5 (Appendix 7) demonstrates that financial literacy's moderation on the relationship between confidence and financial innovation

( $\beta = 0.0895$ ,  $\rho = 0.0606$ ) was not significant. The insignificant moderation effects were further demonstrated by bootstrapping analysis results given that the upper and lower limit confidence intervals contained zero (BootLLCI= -0.0040, BootULCI=0.1830). Thus, the study failed to reject the hypothesis that financial literacy has no significant effects on the relationship between confidence and adoption of financial innovations by MEs in Kenya.

**Table 4.33 Financial Literacy, Confidence and Financial Innovations**

Model: 59 Y: ZFINN, X= ZC, W: ZFLsc Covariates: ZE1, ZE2 & ZE3						
Model	coeff	se	T	p	LLCI	ULCI
Constant	0.0393	0.0447	-0.8795	0.3797	-0.1272	0.0486
ZC	0.3588	0.0470	7.6276	0.0000	0.2663	0.4513
ZFLsc	0.0008	0.0453	-0.0173	0.9862	-0.0898	0.0882
Int_1	0.0895	0.0476	1.8815	0.0606	-0.0040	0.1830
(X*W)	0.0197	0.0501	0.3941	0.6937	-0.0787	0.1182
ZE1	0.0488	0.0502	-0.9722	0.3315	-0.1474	0.0499
ZE2	0.0343	0.0462	-0.7419	0.4586	-0.1252	0.0566
ZE3						
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	p	
X*W	0.0072	3.5400	1.0000	406.0000	0.0606	
Model Summary:						
R	.4144					
R Square	.1717					
MSE	.8062					
ANOVA;						
model fitness						
F	114.0313					
Sig.	.0000					
Level of confidence for all confidence intervals in output: 95.0000						
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000						

**Source: Research Data (2019)**

Given below are the labels of the variables used in the Table 4.33 above.

FINN = Financial Innovations

C = Confidence

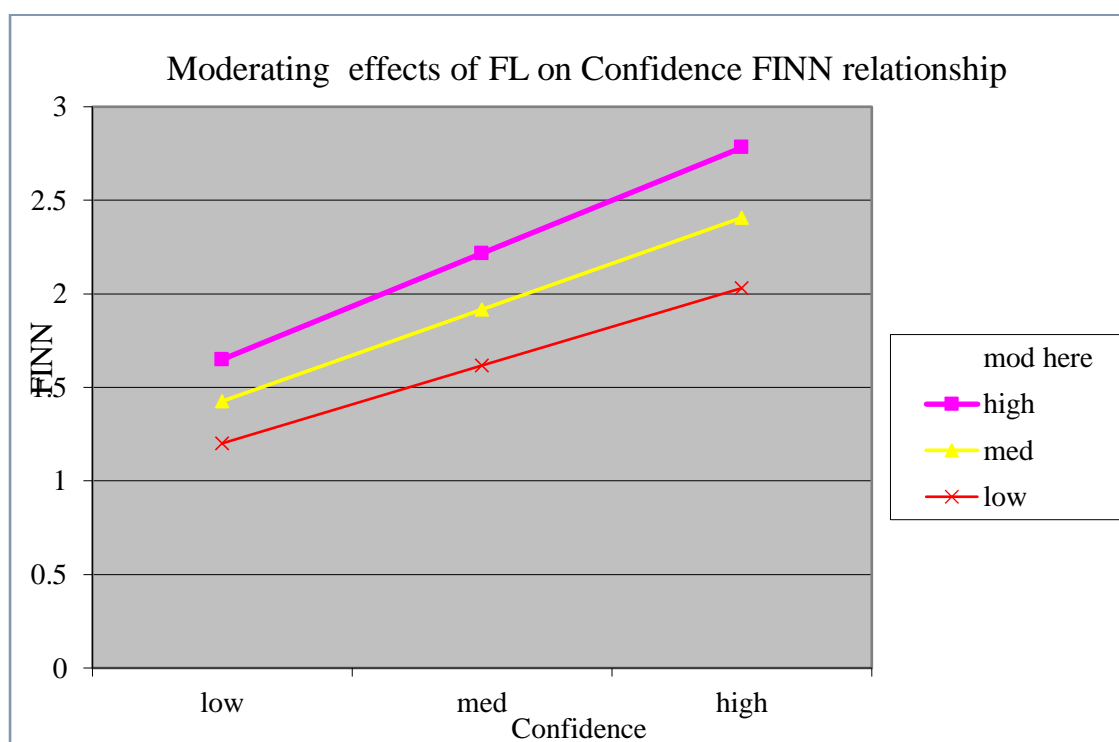
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

Though not significant some level of mediation, which was similar across all levels of financial literacy, was observed as demonstrated in Figure 4.2 below and Table 5.5 (Appendix 7).



**Figure 4. 2: Moderating effects of Financial Literacy on Confidence & FINN relationship**

Source: Research Data (2019)

**4.10.2.3 Financial Literacy, Social proof and Financial Innovation**

The study further sought to determine if financial literacy had significant effects on the relationship between social proof and adoption of financial innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. The results of

the analysis are outlined in Table 4.34 below and 5.6 (Appendix 7). The result shows that .1448% of the variation in financial innovation was explained by the moderation effect of financial literacy on the relationship between social proof and financial innovation (R-sq change =.022).

In addition, the results indicates that financial literacy has significant effects on the relationship between social proof and financial innovation ( $\beta = .1448, \rho = 0.0011$ ). The same was attested by the confidence interval limit (BootLLCI= 0.0580, BootULCI=0.2315) which did not contain zero. Therefore, the study rejected hypothesis H<sub>03c</sub> that had suggested that financial literacy does not have significant effect on the relationship between Social proof and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.

**Table 4.34: Financial Literacy, Social Proof and Financial Innovation**

Model: 59 Y: ZFINN, X= ZSP W: ZFLsc Covariates: ZE1, ZE2 & ZE3

	coeff	se	T	p	LLCI	ULCI
constant	-0.0307	0.0450	-0.6818	0.4957	-0.1191	0.0577
ZSP	0.3183	0.0447	7.1252	0.0000	0.2305	0.4062
ZFLsc	0.0347	0.0455	0.7630	0.4459	-0.0547	0.1241
Int_1 (X*W)	0.1448	0.0441	3.2810	0.0011	0.0580	0.2315
ZE1	0.0453	0.0502	0.9030	0.3671	-0.0533	0.1440
ZE2	-0.0644	0.0504	-1.2789	0.2017	-0.1634	0.0346
ZE3	-0.0443	0.0464	-0.9533	0.3410	-0.1356	0.0470

**Test(s) of highest order unconditional interaction(s):**

	R2-chng	F	df1	df2	p
X*W	0.0222	10.7647	1.0000	406.0000	0.0011

**Model**

**Summary:**

R	0.4056
R Square	0.1645
MSE	0.8133
ANOVA; model fitness	
F	13.3248
Sig.	.0000

Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

**Source:** Research Data (2019)

Given below are the labels of the variables used in the Table 4.34 above.

FINN = Financial Innovations

SP = Social proof

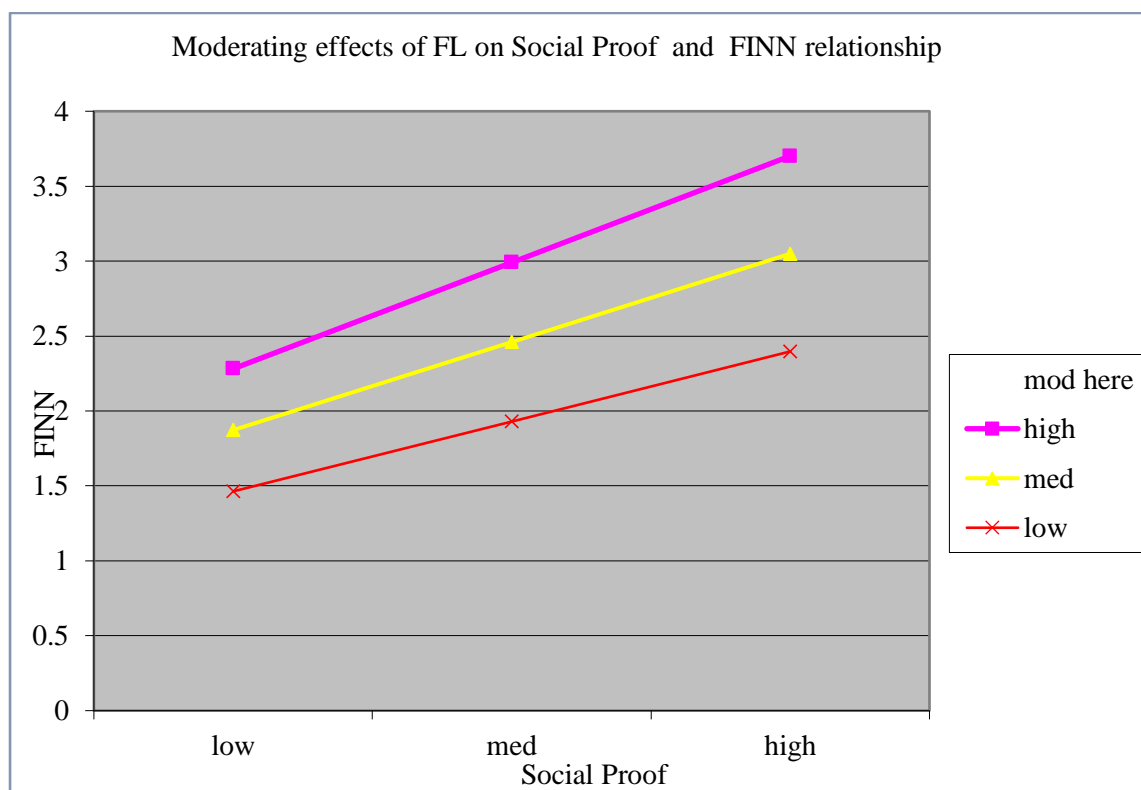
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

Figure 4.3 below further demonstrates the moderated effects of financial literacy on the relationship between Social proof and Financial Innovations.



**Figure 4. 3: Moderating effects of Financial Literacy on Social Proof & FINN relationship**

Source: **Research Data (2019)**



#### **4.11 Tests of Moderating effects of FL on the relationship between FINN and FI**

The results on the tests of hypothesis H<sub>04</sub>: (Financial Literacy does not significantly mediate the relationship between Financial Innovation and Financial inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya) are provided in Table 4.35 below. The results of the interaction (M\*W) between financial innovation (M) and financial literacy (W) indicates insignificant effects ( $\beta = .0253$ ,  $\rho = 0.5757$ ). The insignificant moderating effects are further reflected by the confidence interval limit (BootLLCI= -0.0634; BootULCI=0.1140) which contains zero. The study obtained similar insignificant moderating effects of financial literacy when the tests were undertaken using Model 59 (Hayes, 2013) with the independent variables being Confidence and Social proof. Based on the results the study therefore failed to reject the hypothesis that financial literacy does not significantly moderate the relationship between financial innovations and financial inclusion of MEs in Kenya.

**Table 4.35: Financial Literacy, FINN and Financial Inclusion**

Model: 59 Y: ZFI, X= ZSC W: ZFLsc Covariates: ZE1, ZE2 & ZE3						
	Coeff	Se	T	P	LLCI	ULCI
Constant	-0.0243	0.0397	-0.6114	0.5413	-0.1022	0.0537
ZSC	0.4038	0.0430	9.3797	0.0000	0.3191	0.4884
ZFINN	0.2671	0.0442	6.0395	0.0000	0.1801	0.3540
ZFLsc	0.0584	0.0404	1.4464	0.1488	-0.0210	0.1378
Int_1 (X*W)	0.1499	0.0444	3.3775	0.0008	0.0626	0.2371
Int_2 (M*W)	0.0253	0.0451	0.5602	0.5757	-0.0634	0.1140
ZE1	0.0020	0.0442	0.0462	0.9632	-0.0848	0.0889
ZE2	0.0221	0.0446	0.4958	0.6203	-0.0655	0.1097
ZE3	-0.0031	0.0408	-0.0755	0.9398	-0.0832	0.0771
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	P	
X*W	0.0172	11.4078	1.0000	404.0000	0.0008	
M*W	0.0005	0.3138	1.0000	404.0000	0.5757	
Model Summary:						
R	0.6250					
R Square	0.3906					
MSE	0.6265					
ANOVA; model fitness						
F	32.3694					
Sig.	.0000					
Level of confidence for all confidence intervals in output: 95.0000						
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000						
<b>Source:</b> Research Data (2019)						

Given below are the labels of the variables used in the Table 4.35 above.

FI = Financial Inclusion

SC = Self-control

FINN = Financial Innovations

FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

#### **4.12 Tests of Conditional Direct Effects of BF on Financial Inclusion**

The study tested for the moderating effects of financial literacy on the relationships between the behavioral factors and financial inclusion. This entail running separate tests for each of the independent variables (Self-control, Confidence and Social proof) and the dependent variable (Financial Inclusion), using Model 59 of Process Macro (Hayes, 2018), as outlined in the sections below:

##### **4.12.1 Financial Literacy, Self-control, and Financial Inclusion**

Analysis was undertaken based on hypothesis H<sub>05a</sub> (Financial Literacy does not significantly moderate the relationship between Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya). The results as provided in Table 4.36 shows that the moderating effects of financial literacy contributed to 14.99% of the effects on financial inclusion (R-sq change=.0008). In addition, the results indicates that the moderation by financial literacy had significant effects ( $\beta = 0.1499$ ,  $p = 0.008$ ) on the relationship between self-control and financial inclusion as further demonstrated by the confidence interval (BootLLCI= 0.0626, BootULCI=0.2371) which does not include zero. Furthermore, the conditional direct effect of self-control on financial inclusion at all the three levels of interactions with financial innovation (16<sup>th</sup>, 50<sup>th</sup>, and 84<sup>th</sup> percentiles) as outlined at the bottom of Table 4.6, were all significant as reflected in the respective confidence interval limits. Thus, the study rejected the hypothesis that financial literacy does not have significant moderating effects on the relationship between self-control and financial inclusion.

**Table 4.36: Financial Literacy, Self-Control and Financial Innovation**

Model: 59 Y: ZFI, X= ZSC, W: ZFLsc Covariates: ZE1, ZE2 & ZE3

Model	Coeff	Se	T	P	LLCI	ULCI
Constant	-0.0243	0.0397	-0.6114	0.5413	-0.1022	0.0537
ZSC	0.4038	0.0430	9.3797	0.0000	0.3191	0.4884
ZFINN	0.2671	0.0442	6.0395	0.0000	0.1801	0.3540
ZFLsc	0.0584	0.0404	1.4464	0.1488	-0.0210	0.1378
Int_1 (X*W)	0.1499	0.0444	3.3775	0.0008	0.0626	0.2371
Int_2 (M*W)	0.0253	0.0451	0.5602	0.5757	-0.0634	0.1140
ZE1	0.0020	0.0442	0.0462	0.9632	-0.0848	0.0889
ZE2	0.0221	0.0446	0.4958	0.6203	-0.0655	0.1097
ZE3	-0.0031	0.0408	-0.0755	0.9398	-0.0832	0.0771

**Test(s) of highest order unconditional interaction(s):**

	R2- chng	F	df1	df2	P
X*W	0.0172	11.4078	1.0000	404.0000	0.0008
M*W	0.0005	0.3138	1.0000	404.0000	0.5757

**Model Summary:**

R	0.6250
R Square	0.3906
MSE	0.6265

**ANOVA; model fitness**

F	32.3694
Sig.	.0000

\*\*\*\*\*Conditional Direct effects of X on Y: \*\*\*\*\*

ZFLsc	Effect	SE	T	P	LLCI	ULCI
-0.8985	0.2691	0.0659	4.0856	0.0001	0.1396	0.3986
-0.1123	0.3869	0.0446	8.6744	0.0000	0.2992	0.4746
1.1205	0.5717	0.0567	10.0914	0.0000	0.4604	0.6831

Level of confidence for all confidence intervals in output: 95.0000  
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000  
W values in conditional tables are the 16th, 50th, and 84th percentiles.

**Source:** Research Data (2019)

Given below are the labels of the variables used in the Table 4.40 above.

FI = Financial Inclusion

SC = Self-control

FINN = Financial Innovations

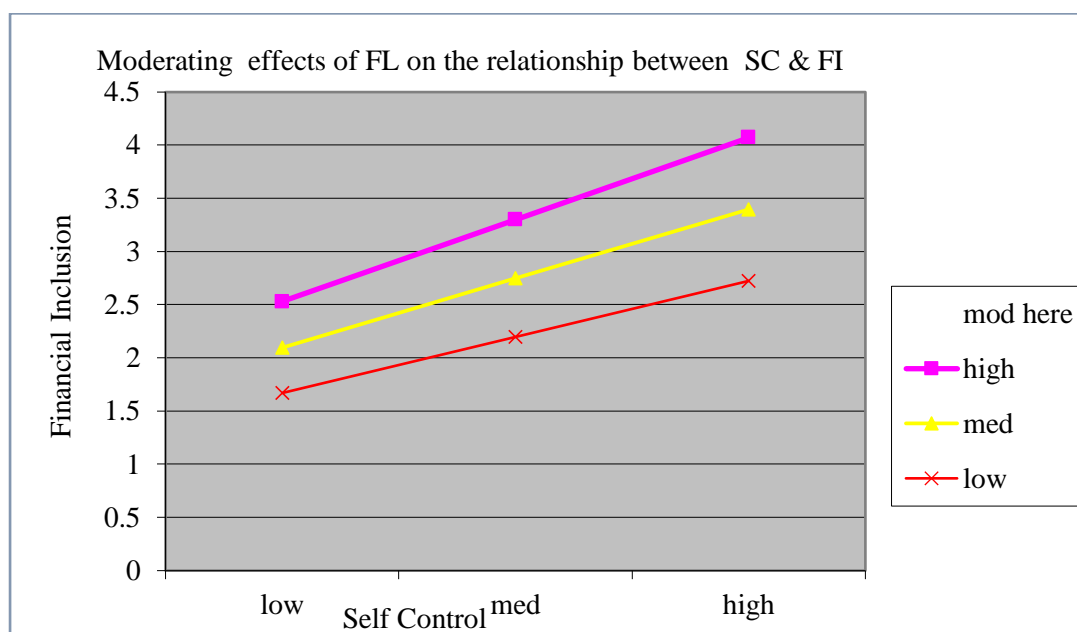
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

The conditional direct effects of financial literacy on the relationship between self-control and financial inclusion is provided in Figure 4.4 below. The study observed that whereas the moderated relationship exists at all levels of interactions, the effects are higher at high levels of moderator (Financial Literacy) as evidenced by the steeper gradient of the upper line graph as compared to the lower levels.



**Figure 4.4: Conditional effects of Financial Literacy on SC & FI Relationship**  
**Source:** Research Data (2019)

#### 4.12.2 Financial Literacy, Confidence and Financial Inclusion

The results of the tests on hypothesize H<sub>05b</sub> are as outlined in Table 4.37 below. The results presented shows that 1.55 % of the variation was explained by the moderating effect of financial literacy on the relationship between confidence and financial innovation (R-sq=.3770). From results, the study observed that financial literacy significantly ( $\beta= 0.1401$ ,  $p=0.0016$ ) moderated the relationship between SC and FI.

The significant mediating effects is further attested by the confidence interval for the interaction between the independent variable and the moderator (BootLLCI= 0.0533, BootULCI=0.2270) which does not include zero. Furthermore, the conditional direct effects of confidence on FI as outlined at the bottom of the table 4.37 demonstrates the significant effects at all the three levels of interactions with FI (16<sup>th</sup>, 50<sup>th</sup>, and 84<sup>th</sup> percentiles) given that the three of them did not include zero. Thus, the hypothesis was rejected.

**Table 4.37: Financial Literacy, Confidence and Financial Inclusion**

Model: 59 Y: ZFI, X= ZC, W: ZFLsc Covariates: ZE1, ZE2 & ZE3						
	coeff	se	t	p	LLCI	ULCI
Constant	-0.0033	0.0399	-0.0819	0.9348	-0.0817	0.0752
ZC	0.3995	0.0449	8.9070	0.0000	0.3113	0.4877
ZFINN	0.2374	0.0459	5.1755	0.0000	0.1472	0.3276
ZFLsc	0.0401	0.0405	0.9908	0.3224	-0.0395	0.1197
Int_1 (X*W)	0.1401	0.0442	3.1713	0.0016	0.0533	0.2270
Int_2 (M*W)	0.0365	0.0456	0.7990	0.4248	-0.0532	0.1261
ZE1	-0.0270	0.0447	-0.6036	0.5464	-0.1149	0.0609
ZE2	0.0164	0.0449	0.3645	0.7157	-0.0719	0.1047
ZE3	0.0117	0.0413	0.2844	0.7763	-0.0695	0.0930
<b>Test(s) of highest order unconditional interaction(s):</b>						
	R2-chng	F	df1	df2	p	
X*W	0.0155	10.0573	1.0000	404.0000	0.0016	
M*W	0.0010	0.6384	1.0000	404.0000	0.4248	
<b>Model Summary:</b>						
R	0.6140					
R Square	0.3770					
MSE	0.6405					
<b>ANOVA; model fitness</b>						
F	30.5552					
Sig.	.0000					
***** <b>Conditional Direct effects of X on Y</b> *****						
ZFLsc	Effect	se	t	p	LLCI	ULCI
-0.8985	0.2736	0.0674	4.0579	0.0001	0.1411	0.4062
-0.1123	0.3838	0.0464	8.2645	0.0000	0.2925	0.4750
1.1205	0.5565	0.0572	9.737(1	0.0000	0.4441	0.6688
<b>Conditional indirect effects of X on Y:</b>						
<b>Indirect</b>						
Effect	ZSC	-> ZFIN	-> ZFI			
ZFLsc	Effect	BootSE	BootLLCI	BootULCI		
-0.8985	0.0570	0.0270	0.0127	0.1178		
-0.1123	0.0814	0.0234	0.0404	0.1301		
1.1205	0.1277	0.0450	0.0474	0.2207		
Level of confidence for all confidence intervals in output: 95.0000						
Number of bootstrap samples for percentile bootstrap confidence intervals: 5000						
W values in conditional tables are the 16th, 50th, and 84th percentiles.						
<b>Source:</b> Research Data (2019)						

The labels of the variables used in the Table 4.37 above are provided below.

FI = Financial Inclusion, C= Confidence, FINN = Financial Innovations

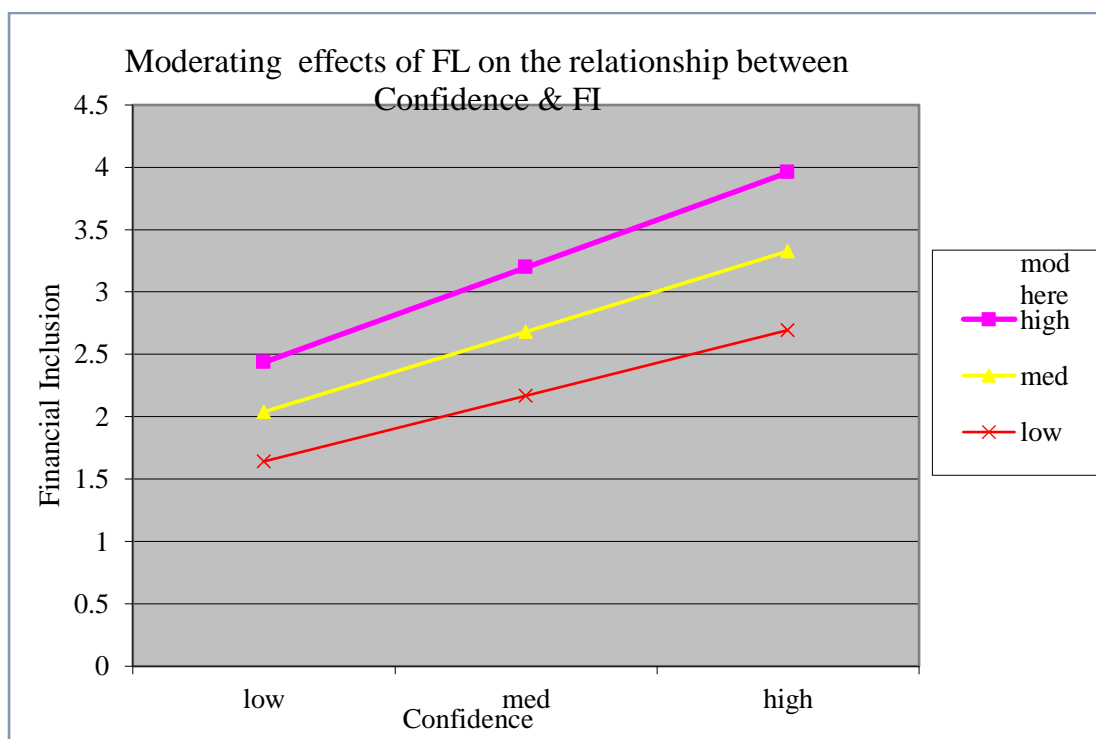
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

Graphical presentation of the conditional indirect effects of FL on the relationship between Confidence and Financial Inclusion is provided in Figure 4.5 below. The results demonstrated that whereas moderation occurs at all levels of the relationship between the two variables, higher moderation effects were observed at high levels of financial literacy based on the gradient of the line FL line graphs.



**Figure 4.5: Conditional effects of FL on Confidence & FI Relationship**

Source: Research Data (2019)

#### 4.12.3 Financial Literacy, Social proof, and Financial Inclusion

The results of testing for the moderating effects of financial literacy on the relationship between Social proof and financial inclusion are as outlined in Table 4.38 below. The



result shows that 7.93% of the relationship between the independent variable (social proof) and financial inclusion was explained by the moderation effect of financial literacy between social proof and financial innovation ( $R\text{-sq}=0.006$ ). Based on the results, the moderating effects ( $X*W$ ) of financial literacy on social proof and financial inclusion was insignificant ( $\beta= 0.0793$ ,  $p=0.0555$ ) as further outlined in the 95% confidence interval (BootLLCI=  $-0.0019$ , BootULCI= $0.1605$ ) which included zero. However, the results at the bottom of Table 4.41 indicates that the conditional direct effect of social proof on financial inclusion demonstrated significant effects at all the three levels of interactions with financial innovation (16<sup>th</sup>, 50<sup>th</sup>, and 84<sup>th</sup> percentiles) given that the three of them did not include zero. Thus, due to mixed results, the study failed to reject the hypothesis H<sub>05c</sub> (Financial literacy does not significantly affect the relationship between Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya).

**Table 4.38: Financial Literacy, Social Proof and Financial Inclusion**

Model: 59 Y: ZFI, X= ZSP, W: ZFLsc, Covariates: ZE1, ZE2 & ZE3						
	coeff	se	T	p	LLCI	ULCI
constant	0.0027	0.0412	0.0655	0.9478	-0.0782	0.0836
ZSP	0.3714	0.0436	8.5227	0.0000	0.2858	0.4571
ZFIN	0.2615	0.0469	5.5702	0.0000	0.1692	0.3537
ZFLsc	0.0841	0.0417	2.0177	0.0443	0.0022	0.1660
Int_1 (X*W)	0.0793	0.0413	1.9204	0.0555	-0.0019	0.1605
Int_2 (M*W)	0.0562	0.0459	1.2246	0.2214	-0.0340	0.1465
ZE1	-0.0006	0.0460	-0.0133	0.9894	-0.0910	0.0898
ZE2	-0.0009	0.0464	-0.0202	0.9839	-0.0921	0.0902
ZE3	0.0067	0.0426	0.1574	0.8750	-0.0770	0.0904
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	p	
X*W	0.0060	3.6880	1.0000	404.0000	0.0555	
M*W	0.0025	1.4996	1.0000	404.0000	0.2214	
Model Summary:						
R	0.5822					
R Square	0.3389					
MSE	0.6796					
ANOVA; model fitness						
F	25.8904					
Sig.	.0000					
***** Conditional direct effects of X on Y: *****						
ZFLsc	Effect	SE	T	P	LLCI	ULCI
-0.8985	0.3002	0.0613	4.8965	0.0000	0.1797	0.4207
-0.1123	0.3625	0.0445	8.1449	0.0000	0.2750	0.4500
1.1205	0.4603	0.0586	7.8485	0.0000	0.3450	0.5756

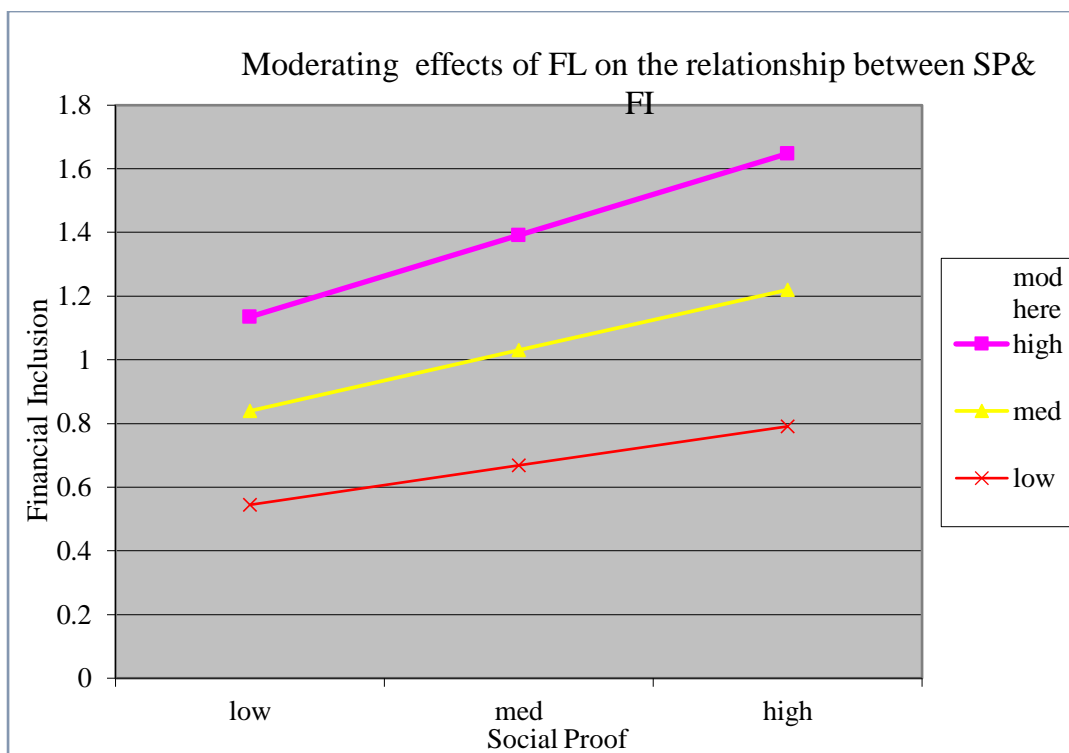
Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

**Source:** Research Data (2019)

Graphical presentation of the moderating effects of Financial Literacy on the relationship between Social proof and financial inclusion is provided in Figure 4.6. The results show higher moderation at high levels of FL as compared to lower levels as demonstrated by the steepness of the line graph at high moderator levels.



**Figure 4.6: Conditional effects of Financial Literacy on SP & FI Relationship**

**Source:** Research Data (2019)

#### 4.13 Tests of Conditional Indirect Effects

The main objective of the study was to examine the conditional indirect effects of financial literacy on the relationship between behavioral factors and financial inclusion through adoption of financial innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. Using Model 59 of Process Macro (Hayes, 2018), analysis was undertaken to test the conditional indirect effects based on the three hypotheses. The SPSS actual data output is provided in Tables 5.4 to 5.6 (all in Appendix 7), whereas the summary results and graphical presentation of the conditional indirect effects are presented in the sections below:

##### 4.13.1 Financial Literacy, Self-control, Financial Innovation & Financial Inclusion

An analysis was undertaken to test the hypothesis H<sub>06a</sub> which states that *(There is no statistically significant conditional effect of Financial Literacy on the relationship*

*between Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations).*

The results provided at the bottom of Table 4.39 indicates the 95% confidence interval of the conditional indirect (moderated mediation) effects. Based on the guidance of Hayes (2013) and Borau *et al.*, (2015), among others, on the interpretation of moderated mediation effect, the study results indicates that the conditional indirect effects presented in Table 4.39 were significant given that majority (the last two) of the confidence intervals excluded zero. The confidence levels (CI) at the lower level were (16<sup>th</sup> percentile; BootLLCI= -.0019, BootULCI=0.0972), middle (50<sup>th</sup> percentile; BootLLCI= .0303, BootULCI=0.1170) and upper levels (84<sup>th</sup> percentile; BootLLCI= .0441, BootULCI=0.2325), thus indicating significant moderated mediation effects at the middle and upper levels of financial literacy. The results further provide information earlier presented in section 4.10.3 and 4.10.4 whereby there was significant moderating effects on the first interaction ( $X*W$ ) whose results were (coeff. = 0.1499,  $p = 0.0008$ ) with a CI = [0.0626; 0.2371] that excludes zero. From the conditional indirect effects results provided at the bottom of Table 4.39 below, hypothesis H<sub>06a</sub> was rejected and it was concluded that financial literacy has significant moderating effects on the mediated relationship between Self-control and financial inclusion through financial innovation.

**Table 4.39: Financial Literacy, Financial Innovation, Self-Control, and Financial Inclusion**

Model: 59 Y: ZFI, X= ZSC, W: ZFLsc Covariates: ZE1, ZE2 & ZE3

<b>OUTCOME VARIABLE: ZFINN</b>						
<b>Model</b>	<b>Coeff</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	-0.0546	0.0461	-1.1837	0.2372	-0.1452	0.0361
ZSC	0.2793	0.0481	5.8040	0.0000	0.1847	0.3739
ZFLsc	0.0126	0.0468	0.2686	0.7884	-0.0795	0.1046
Int_1 (X*W)	0.1248	0.0495	2.5192	0.0121	0.0274	0.2222
ZE1	0.0467	0.0513	0.9092	0.3638	-0.0542	0.1476
ZE2	-0.0406	0.0518	-0.7835	0.4338	-0.1423	0.0612
ZE3	-0.0521	0.0473	-1.0996	0.2722	-0.1451	0.0410
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>	
X*W	0.0137	6.3464	1.0000	406.0000	0.0121	
<b>OUTCOME VARIABLE: ZFI</b>						
	<b>Coeff</b>	<b>Se</b>	<b>T</b>	<b>P</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	-0.0243	0.0397	-0.6114	0.5413	-0.1022	0.0537
ZSC	0.4038	0.0430	9.3797	0.0000	0.3191	0.4884
ZFINN	0.2671	0.0442	6.0395	0.0000	0.1801	0.3540
ZFLsc	0.0584	0.0404	1.4464	0.1488	-0.0210	0.1378
Int_1 (X*W)	0.1499	0.0444	3.3775	0.0008	0.0626	0.2371
Int_2 (M*W)	0.0253	0.0451	0.5602	0.5757	-0.0634	0.1140
ZE1	0.0020	0.0442	0.0462	0.9632	-0.0848	0.0889
ZE2	0.0221	0.0446	0.4958	0.6203	-0.0655	0.1097
ZE3	-0.0031	0.0408	-0.0755	0.9398	-0.0832	0.0771
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>P</b>	
X*W	0.0172	11.4078	1.0000	404.0000	0.0008	
M*W	0.0005	0.3138	1.0000	404.0000	0.5757	
<b>Model Summary:</b>						
R	0.6250					
R Square	0.3906					
MSE	0.6265					
<b>ANOVA; model fitness</b>						
F	32.3694					
Sig.	.0000					
*****Conditional indirect effects of X on Y:*****						
<b>Indirect</b>						
<b>Effect:</b>			<b>ZSC</b>	<b>-&gt; ZFIN</b>	<b>-&gt; ZFI</b>	
<b>ZFLsc</b>	<b>Effect</b>	<b>BootSE</b>	<b>BootLLCI</b>		<b>BootULCI</b>	
	-0.8985	0.0409	0.0254	-0.0019	0.0972	
	-0.1123	0.0701	0.0223	0.0303	0.1170	
	1.1205	0.1238	0.0488	0.0441	0.2325	

Level of confidence for all confidence intervals in output: 95.0000  
 Number of bootstrap samples for percentile bootstrap confidence intervals: 5000  
 W values in conditional tables are the 16th, 50th, and 84th percentiles.

**Source:** Research Data (2019)

The labels of the variables used in the Table 4.39 above are provided below.

FI = Financial Inclusion

SC = Self-Control

FINN = Financial Innovations

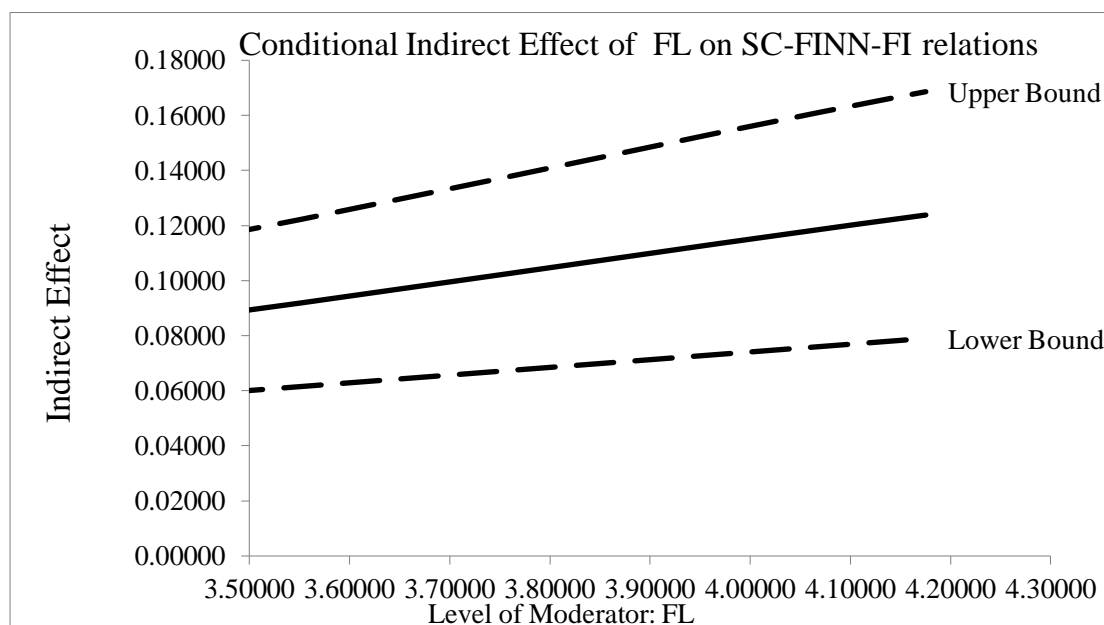
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

The conditional indirect effects are further presented in Figure 4.6 below whereby the study observed that the moderating effects were at high levels of financial literacy based on the gradient of the upper boundary and lower bound confidence intervals line of the graphs.



**Figure 4.6: Conditional Indirect effects of FL on SC & FI Relationship via FINN**  
**Source:** Research Data (2019)

#### 4.13.2 Financial Literacy, Confidence, Financial Innovation & Financial Inclusion

Hypothesis H<sub>06b</sub> conjectured that financial literacy has no statistically significant conditional effect on the relationship between confidence and financial inclusion of

Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations. An analysis was undertaken to test the hypothesis using Model 59 (Hayes, 2018) and the results are presented in Table 4.40 below.

The results of the 95% confidence interval of the conditional indirect (moderated mediation) effects demonstrate significant effects at the three levels of analysis given that the three confidence intervals excluded zero. The confidence levels (CI) at the lower level were (16<sup>th</sup> percentile; BootLLCI= 0.0127; BootULCI=0.1178), middle (50<sup>th</sup> percentile; BootLLCI= 0.0404, BootULCI=0.1308) and upper levels (84<sup>th</sup> percentile; BootLLCI= 0.0474, BootULCI=0.2207), thus indicating significant moderating effects of financial literacy. Therefore, based on the conditional indirect effects results provided at the bottom of Table 4.40 below, hypothesis H<sub>06b</sub> was rejected and it was concluded that financial literacy has significant moderating effects on the mediated relationship between confidence and financial inclusion through financial innovation.

**Table 4.40: Financial Literacy, Financial Innovation, Confidence and Financial Inclusion**

Model: 59 Y: ZFI, X= ZC, W: ZFLsc Covariates: ZE1, ZE2 &amp; ZE3

<b>OUTCOME VARIABLE: ZFINN</b>						
<b>Model Summary</b>						
<b>Model</b>	<b>coeff</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	-0.0393	0.0447	-0.8795	0.3797	-0.1272	0.0486
ZC	0.3588	0.0470	7.6276	0.0000	0.2663	0.4513
ZFLsc	-0.0008	0.0453	-0.0173	0.9862	-0.0898	0.0882
Int_1 (X*W)	0.0895	0.0476	1.8815	0.0606	-0.0040	0.1830
ZE1	0.0197	0.0501	0.3941	0.6937	-0.0787	0.1182
ZE2	-0.0488	0.0502	-0.9722	0.3315	-0.1474	0.0499
ZE3	-0.0343	0.0462	-0.7419	0.4586	-0.1252	0.0566
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>	
X*W	0.0072	3.5400	1.0000	406.0000	0.0606	
<b>OUTCOME VARIABLE: ZFI</b>						
<b>Model</b>	<b>coeff</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	-0.0033	0.0399	-0.0819	0.9348	-0.0817	0.0752
ZC	0.3995	0.0449	8.9070	0.0000	0.3113	0.4877
ZFINN	0.2374	0.0459	5.1755	0.0000	0.1472	0.3276
ZFLsc	0.0401	0.0405	0.9908	0.3224	-0.0395	0.1197
Int_1 (X*W)	0.1401	0.0442	3.1713	0.0016	0.0533	0.2270
Int_2 (M*W)	0.0365	0.0456	0.7990	0.4248	-0.0532	0.1261
ZE1	-0.0270	0.0447	-0.6036	0.5464	-0.1149	0.0609
ZE2	0.0164	0.0449	0.3645	0.7157	-0.0719	0.1047
ZE3	0.0117	0.0413	0.2844	0.7763	-0.0695	0.0930
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>	
X*W	0.0155	10.0573	1.0000	404.0000	0.0016	
M*W	0.0010	0.6384	1.0000	404.0000	0.4248	
<b>Model Summary:</b>						
R	0.6140					
R Square	0.3770					
MSE	0.6405					
<b>ANOVA; model fitness</b>						
F	30.5552					
Sig.	.0000					
***** <b>Conditional indirect effects of X on Y</b> *****						
<b>Indirect Effect</b>	<b>ZC</b>	<b>-&gt; ZFIN</b>	<b>-&gt; ZFI</b>			
	<b>ZFLsc</b>	<b>Effect</b>	<b>BootSE</b>	<b>BootLLCI</b>	<b>BootULCI</b>	
	-0.8985	0.0409	0.0256	0.0127	0.1178	
	-0.1123	0.0814	0.0232	0.0404	0.1308	
	1.1205	0.1277	0.0456	0.0474	0.2207	

Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

**Source:** Research Data (2019)

The labels of the variables used in the Table 4.40 above are outlined below.

FI = Financial Inclusion



C = Confidence

FINN = Financial Innovations

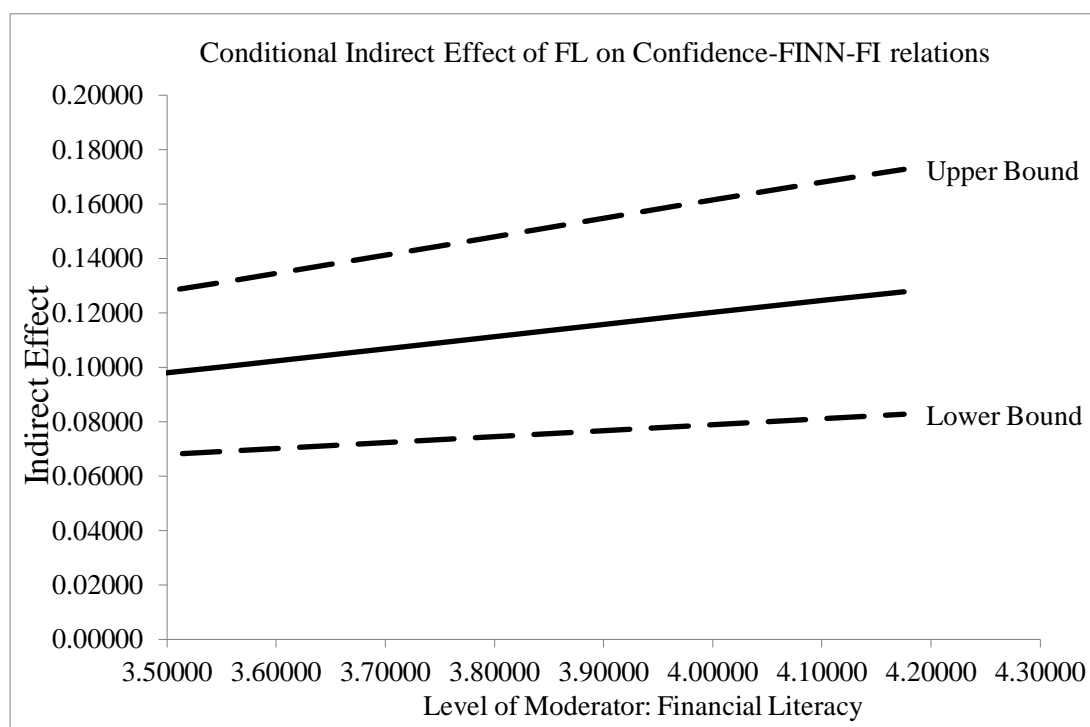
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

Similarly, Figure 4.7 below presents the conditional indirect effects of Financial Literacy of the relationship between Confidence and Financial Inclusion via Financial Innovations. The study observed that the moderating effects were higher, based on the slope of the line graphs at high levels of financial literacy both at upper and lower boundaries of the 95% confidence intervals.



**Figure 4.7: Conditional Indirect effects of FL on Confidence & FI Relationship via FINN**

Source: Research Data (2019)

#### **4.13.3 Financial Literacy, Social Proof, FINN & Financial Inclusion**

Finally, the study had hypothesized that financial literacy does not significantly moderate the relationship between social proof and financial inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of financial innovations ( $H_{06c}$ ). The results presented in Table 4.41 presents the outcome of the analysis undertaken on the hypothesis.

The results presented at the bottom of the Table provides the 95% confidence interval of the conditional indirect (moderated mediation) effects of financial literacy on the indirect relationship between social proof and financial inclusion through financial innovation. The results indicates that the conditional indirect effects were significant given that the confidence intervals at all three levels of analysis excluded zero. The confidence levels (CI) at the lower level (16<sup>th</sup> percentile; BootLLCI= 0.0040; BootULCI=0.0958), middle level (50<sup>th</sup> percentile; BootLLCI= 0.0351, BootULCI=0.1269) and upper level (84<sup>th</sup> percentile; BootLLCI= 0.0604, BootULCI=0.2665), all of which confirmed significant conditional effects of financial literacy. Thus, hypothesis  $H_{06c}$  was rejected and it was concluded that financial literacy has significant moderating effects on the mediated relationship between social proof and financial inclusion through financial innovation.

**Table 4.41: Financial Literacy, FINN, Social proof & Financial Inclusion**

Model: 59 Y: ZFI, X= ZSP, W: ZFLsc Covariates: ZE1, ZE2 & ZE3

<b>OUTCOME VARIABLE: ZFINN</b>						
	<b>coeff</b>	<b>se</b>	<b>T</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
constant	-0.0307	0.0450	-0.6818	0.4957	-0.1191	0.0577
ZSP	0.3183	0.0447	7.1252	0.0000	0.2305	0.4062
ZFLsc	0.0347	0.0455	0.7630	0.4459	-0.0547	0.1241
Int_1 (X*W)	0.1448	0.0441	3.2810	0.0011	0.0580	0.2315
ZE1	0.0453	0.0502	0.9030	0.3671	-0.0533	0.1440
ZE2	-0.0644	0.0504	-1.2789	0.2017	-0.1634	0.0346
ZE3	-0.0443	0.0464	-0.9533	0.3410	-0.1356	0.0470
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>	
X*W	0.0222	10.7647	1.0000	406.0000	0.0011	
<b>OUTCOME VARIABLE: ZFI</b>						
	<b>coeff</b>	<b>se</b>	<b>T</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
constant	0.0027	0.0412	0.0655	0.9478	-0.0782	0.0836
ZSP	0.3714	0.0436	8.5227	0.0000	0.2858	0.4571
ZFIN	0.2615	0.0469	5.5702	0.0000	0.1692	0.3537
ZFLsc	0.0841	0.0417	2.0177	0.0443	0.0022	0.1660
Int_1 (X*W)	0.0793	0.0413	1.9204	0.0555	-0.0019	0.1605
Int_2 (M*W)	0.0562	0.0459	1.2246	0.2214	-0.0340	0.1465
ZE1	-0.0006	0.0460	-0.0133	0.9894	-0.0910	0.0898
ZE2	-0.0009	0.0464	-0.0202	0.9839	-0.0921	0.0902
ZE3	0.0067	0.0426	0.1574	0.8750	-0.0770	0.0904
<b>Test(s) of highest order unconditional interaction(s):</b>						
	<b>R2-chng</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>	
X*W	0.0060	3.6880	1.0000	404.0000	0.0555	
M*W	0.0025	1.4996	1.0000	404.0000	0.2214	
<b>Model Summary:</b>						
R	0.5822					
R Square	0.3389					
MSE	0.6796					
<b>ANOVA; model fitness</b>						
F	25.8904					
Sig.	.0000					
***** Conditional indirect effects of X on Y*****						
<b>Indirect</b>						
<b>Effect:</b>	<b>ZSP</b>	<b>-&gt; ZFIN</b>	<b>-&gt; ZFI</b>			
<b>ZFLsc</b>	<b>Effect</b>	<b>BoostSE</b>	<b>BootLLCI</b>		<b>BootULCI</b>	
	-0.8985	0.0397	0.0236	0.0040	0.0958	
	-0.1123	0.0771	0.0234	0.0351	0.1269	
	1.1205	0.1559	0.0535	0.0604	0.2665	

Level of confidence for all confidence intervals in output: 95.0000  
 Number of bootstrap samples for percentile bootstrap confidence intervals: 5000  
 W values in conditional tables are the 16th, 50th, and 84th percentiles.

**Source:** Research Data (2019).

In Table 4.41 above the labels of the variables used is outlined below.

FI = Financial Inclusion

SP = Social Proof

FINN = Financial Innovations

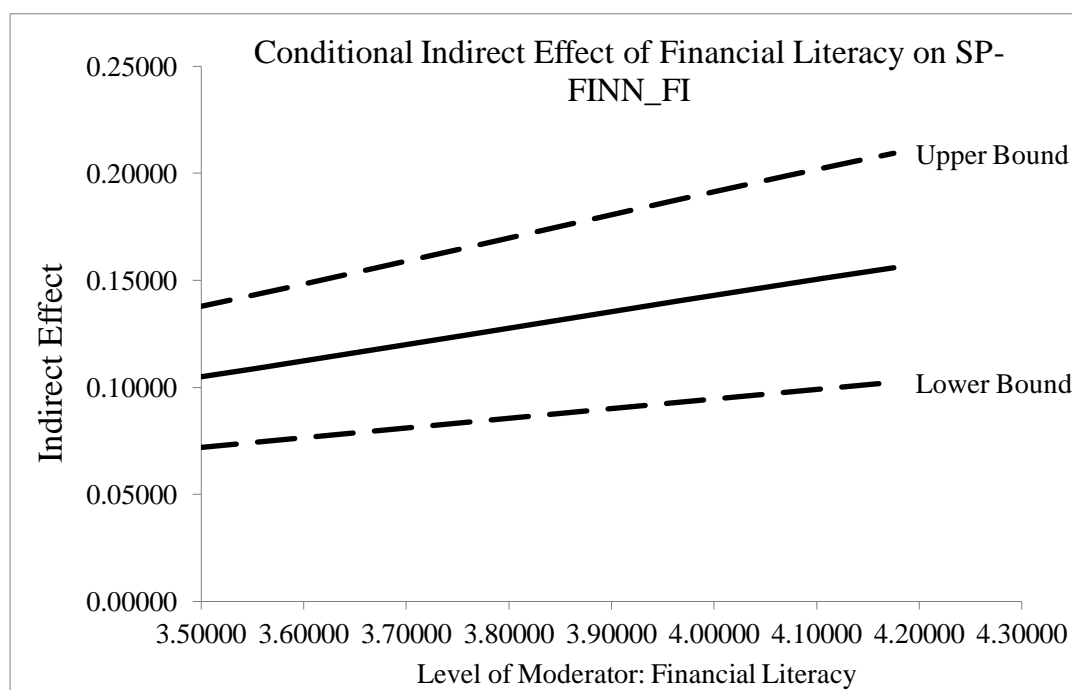
FLsc = Financial literacy (based on correct scores for the objective assessment measure)

E1 = Gender

E2 = Age

E3 = Sector

Finally, the conditional indirect effects of Financial Literacy on the relationship between Social proof and Financial Inclusion through Financial Innovations is presented graphically through Figure 4.8 below. From the results the study observed that whereas moderation is observed at all levels of financial literacy, the effect is higher at high levels given the gradient of the line graphs both at upper and lower boundaries of the confidence intervals of the bootstrapping tests.



**Figure 4.8: Conditional Indirect effects of FL on Social proof & FI Relationship through FINN**

Source: Research Data (2019)

#### 4.14 Summary Results

The results of the tests conducted on the eighteen hypotheses of the study are presented in Table 4.42 below. From the results, it is observed that fifteen of the eighteen null hypotheses were rejected, whereas the study failed to reject three of them.

**Table 4.42: Summary of Hypotheses Testing Results**

No.	Hypothesis Description	Decision
H <sub>0</sub> 1a	Self-control -> Financial Inclusion	Rejected
H <sub>0</sub> 1b	Confidence -> Financial Inclusion	Rejected
H <sub>0</sub> 1c	Social proof -> Financial Inclusion	Rejected
H <sub>0</sub> 1d	Financial Innovations -> Financial Inclusion	Rejected
H <sub>0</sub> 1e	Financial Literacy -> Financial Inclusion	Rejected
H <sub>0</sub> 2a	Mediating effects of Financial Innovations; Self-control -> Financial Inclusion	Rejected
H <sub>0</sub> 2b	Mediating effects of Financial Innovations; Confidence -> Financial Inclusion	Rejected
H <sub>0</sub> 2c	Mediating effects of Financial Innovations; Social proof -> Financial Inclusion	Rejected
H <sub>0</sub> 3a	Moderating effects of Financial Literacy; Self-control -> Financial Innovations	Rejected
H <sub>0</sub> 3b	Moderating effects of Financial Literacy; Confidence -> Financial Innovations	Failed to reject (supported)
H <sub>0</sub> 3c	Moderating effects of Financial Literacy; Social proof -> Financial Innovations	Rejected
H <sub>0</sub> 4	Moderating effects of Financial Literacy ; Financial Innovations -> Financial inclusion	Failed to reject (supported)
H <sub>0</sub> 5a	Moderating effects of Financial Literacy ; Self-control -> Financial inclusion	Rejected
H <sub>0</sub> 5b	Moderating effects of Financial Literacy ; Confidence -> Financial Inclusion	Rejected
H <sub>0</sub> 5c	Moderating effects of Financial Literacy ; Social Proof -> Financial Inclusion	Failed to reject (supported)
H <sub>0</sub> 6a	Moderating effects of Financial Literacy ; Self-control -> Financial innovation -> Financial inclusion	Rejected
H <sub>0</sub> 6b	Moderating effects of Financial Literacy ; Confidence -> Financial innovation -> Financial Inclusion	Rejected
H <sub>0</sub> 6c	Moderating effects of Financial Literacy ; Social Proof -> Financial innovation -> Financial Inclusion	Rejected

**Source: Research Data, 2019**

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter focused on presenting the summary of the findings, discussion of the empirical study results obtained in chapter four, drawing conclusions from the findings, theoretical and managerial implications, limitations of the study and suggestions for further research.

#### 5.1 Summary of the Findings

The following is summary of the findings of this study. The study had sought to tests eighteen hypotheses and from the results, fifteen of them were rejected whereas three were not. The hypotheses testing results are largely consistent with previous studies, as highlighted below for each hypothesis.

First, the summary of the demographic characteristics is presented followed by the descriptive and inferential findings that are presented as per the objectives of the study. The demographic findings indicated that there was no bias in terms of gender since male and female were given a chance to share their knowledge and experience in the targeted micro-enterprises. Further, majority of the respondents were between 18 to 35 years of age and were engaged in the commercial /trade sectors of the economy. However, there was no significant effect of gender, age, and sector on financial inclusion. The theoretical foundations and empirical results based on the objectives and hypotheses formulated are discussed in detail in the sections below.

### 5.1.1 Relationship between the IVs, FINN, FL and Financial Inclusion

The key highlights of this section are on the findings of the relationship between the independent variables (self-control, confidence, and social proof), Financial Innovation (FINN) and Financial Literacy (FL) on Financial Inclusion.

*H01a: There is no statistically significant direct effect of Self-control on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.* The hypothesis test results were that self-control behavior significantly ( $\beta = .265, p=.000$ ), affect financial inclusion of micro-enterprises in Nairobi Kenya. The findings indicates that self-control tendencies of owners of ME will likely determine if he/she will optimally use financial services. The findings are similar to those of Lown *et al.*, (2014) who suggested that higher self-efficacy and middle incomes are associated with a higher likelihood of savings, an element of financial inclusion. Strömbäck *et al.*, (2017) made similar conclusion based on their observation ton significant positive effects between good self-control and better general financial behavior, less nervousness about financial matters, and confidence in their current and future financial situation, all of which contributes to enhanced financial inclusion.

The findings suggests that ME owners who possess high levels of self-control improves their financial inclusion are further supported by Gathergood (2012) findings that lack of self-control is positively associated with non-payment of consumer credit and self-reported excessive financial burdens of debt. Thus, self-control has a higher impact on financial inclusion. Similarly, Aşikoğlu and Büyükaslan (2016) findings that people with good self-control are more likely to have better general financial behavior that might result to increase in financial inclusion were supported the findings of this study. Findings on effects of impulsivity (lack of self-control) demonstrated similar as those

of this study given its significant effects on level of credit and number of credit card in a study conducted by Peltier *et al.*, (2016).

*H01b: There is no statistically significant direct effect of Confidence on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya*

The hypothesis test results were that Confidence ( $\beta = .241, \rho=.000$ ) has significant effect on financial inclusion of micro enterprises in Nairobi, Kenya. Thus, entrepreneurs who possess confidence tendencies on financial matters and financial institutions are expected to optimally use financial services, hence enhanced financial inclusion. Fernandes *et al.*, (2014) obtained similar results on significant effect of confidence as regards willingness to take risks on usage of financial services. Similarly, the study undertaken by Lown *et al.*, (2014) theorized that higher self-efficacy (confidence) is associated with a higher likelihood of savings, debt management, planning and investment. From the study, respondents with low self-efficacy (confidence) were likely to have less savings and investments compared to those with high confidence scores. A study conducted later by Rahmawati and Asandimitra (2018), had similar results given significant relationship between self-efficacy and saving behavior, which is an element of financial inclusion.

*H01c: There is no statistically significant direct effect of Social proof on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.* From the hypothesis test results, it was observed that Social proof had significant effect ( $\beta = .212, \rho=.000$ ) on financial inclusion. The results indicates that social pressure, influence of one's socio-economic environment and approval from peers, family, parents, spouse, and friends have a significant impact in financial



inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya. Mauldin *et al.*, (2016) obtained similar findings on the impact of social on savings by low to moderate-income households. The study results were also in line with those of Binoy and Subhashree (2018) who observed that social proof and self-efficacy (confidence) had a strong relationship with continued usage of formal financial services among the low-income households. Aşıkoğlu and Büyükaslan (2016) further observed that social environment contributes to herding and representative biasness, both of which have effect in investment decision making. The findings were attested in this study that confirmed significant effect of social proof tendencies on usage of diverse financial services (beyond investment services that was studied by Aşıkoğlu and Büyükaslan (2016). Social proof behaviors may lead to sub-optimal usage of financial services such as credit, choice of investments options among others given the significant effects thereof. At the same time positive social proof behaviors may lead to optimal financial decisions for FI as observed by Peltier et al (2016), whose findings suggested that positive parental involvement on credit usage was significantly associated with lower debt usage.

*H01d: There is no statistically significant direct effect of Financial Innovations on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.* The hypothesis test results, indicates that Financial innovation had significant effect ( $\beta = .194$ ,  $\rho=.000$ ) on financial inclusion. The results are similar to those in Afande and Mbugua (2015) who observed that agency banking (which is a form of financial innovation) significantly enhances financial inclusion. Siddik *et al.*, (2014) found similar results and observed that perceived financial cost, perceived risk, and subjective norm were the most influencing factors that affects people's behavioral intention to adopt (or continue to use) mobile banking which is one of the financial

innovations. Demirguc-Kunt *et al.*, (2018) documented global results on role of financial innovations (digital financial services) on enhancing financial inclusion, which are in line with the findings of this study. Similarly, results in the study conducted by Ouma, Odongo and Were, (2017), are similar to those of this study given their theorization that FINN (Mobile Financial Services) have significant effects on likelihood and amount of money saved both directly on the phone or indirectly through integrated banks accounts services.

*H01e: There is no statistically significant direct effect of Financial Literacy on Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.* On testing the hypothesis, the results were that Financial Literacy had significant positive effect ( $\beta = .137, p=.000$ ) on financial inclusion. The results suggests that higher levels of FL are associated with enhanced financial inclusion of MEs Nairobi Kenya. The findings in Grohmann (2018) which are in tandem with those of this study proposes that higher financial literacy leads to improved financial decision making for optimal use of financial services. In addition, Sevim, Temizel and Sayılır (2012), theorized that financial consumers belonging to different FL levels behave differently as regards their borrowing decisions, such that those with high FL levels are expected to make optimal decisions in use of financial services. However, Cole et al. (2011) results were that low FL was not a severe impediment to demand for financial services, instead the price of financial services was key determinant in opening, and continued usage of bank accounts. The results on significant role of FL on FI are in line with those in Lusardi and Mitchell (2014) who argued that FL is associated with greater retirement planning and wealth accumulation, hence those with high FL are expected to optimally use financial services for better economic wellbeing. Bahovec, Barbić and Palić (2015) results are in agreement with those of the present study given their

theorization that customers with low levels of financial literacy depicts inferior debt behaviors as opposed to medium and high levels of FL.

The results above demonstrates that the self-control, confidence, social proof, financial innovation, and financial literacy significantly influenced financial inclusion of micro-enterprises in Nairobi, Kenya. The results revealed that self-control tendencies had a higher power of prediction on usage financial services, followed by confidence, financial innovation, and financial literacy.

### **5.1.2 Mediating effect of FINN on the relationship between IVs and DV**

Tests on the three hypotheses provided below, demonstrated positive and significant mediating effects of financial innovations on the relationships between the independent variables and financial inclusion (DV).

*H02a Financial Innovations does not have significant mediating effects on the relationship between Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

*H02b: Financial Innovations does not have significant mediating effects on the relationship between Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

*H02c: Financial Innovations does not have significant mediating effects on the relationship between Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

The results showed that financial innovations partially mediates the relationship between Self-control and Financial Inclusion ( $\beta=.0941, \rho =0.00$ ), Confidence and FI ( $\beta=.1019, \rho =0.00$ ) as well as Social proof and FI ( $\beta=.1036, \rho=0.00$ ). The findings are

supported by those of earlier studies undertaken Siddik et al. (2014) who argued that adoption of emerging financial innovation increase the efficiency of the individual account holder by saving time as well as eliminating space shortcomings to access bank services. The results are also in line with those of Wentzel, Diatha and Yadavalli, (2013), who suggested that behavioral factors significantly affect adoption of technology-enabled financial services (mobile banking) which have the potential to expand financial inclusion, especially for low-income households. Similarly, Yeo and Fisher (2017) delved on the adoption of innovation and their relationship with consumers' financial capability and observed significant effects of perceived behavioral control, subjective norms, and perceived usefulness on adoption of mobile financial services, with increased usage being attributed to higher level of financial capability. In addition, Yang *et al.*, (2012), had similar findings and suggested that behavioral beliefs in combination with social influences and personal traits are all important determinants for mobile payment services adoption and usage.

### **5.1.3 Moderating effects of FL on IVs and FINN relationship**

Hypotheses *H03: Financial Literacy does not significantly moderate the relationship between:*

*H03a: Self-control and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

*H03b: Confidence and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

*H03c: Social proof and adoption of Financial Innovations by Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

The results demonstrated significant moderating effects of Self-control ( $\beta= 0.1248$ ,  $\rho=0.0121$ ; BootLLCI= 0.0274, BootULCI=0.2222) and Social proof ( $\beta= .1448$ ,  $\rho = 0.0011$ ; BootLLCI= 0.0580, BootULCI=0.2315) on Financial Innovations. In addition, the moderating effects of Financial Literacy were found to be insignificant in the relationship between Confidence ( $\beta= 0.0895$ ,  $\rho =0.0606$  BootLLCI= -0.0040, BootULCI=0.1830) and Financial Innovations. The results are similar to those in Norvilitis and MacLean (2010) who observed that financial literacy driven by parents had significant effects in college students self-control tendencies (delaying gratification and impulsivity) which contributes to positive financial decisions especially on credit card usage, hence supporting the study findings that FL moderates the relationship between BF and FI. The results in Biljanovska and Palligkinis (2018) demonstrate significant relationship between self-control and net worth such that those individuals with SC failures have lower net worth. The study recommended that financial literacy is one of the cures of self-control issues, a path that was pursued in this study where significant moderating effects of FL on the three behavioral factors and FI, was observed.

#### **5.1.4 Moderating effects of FL on FINN and Financial Inclusion relationship**

*H04: Financial Literacy does not significantly moderate the relationship between adoption of Financial Innovations and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya.*

The findings were that financial literacy had insignificant effects ( $\beta= .0253$ ,  $\rho = 0.5757$  and BootULCI= -0.0634; BootULCI=0.1140) on the relationship between financial innovation and financial inclusion. These findings were similar to those of Servon and Kaestner (2008), who in their study of relationship between FL and online banking

among low-income customers, observed that there was a potential link between information and communications technologies used in financial sector and FL though not statistically significant. However, Gaurav *et al.*, (2011) theorized that financial literacy had significant effects on the relationship between demand for new financial products (type of insurance called Rainfall insurance) and the actual adoption.

### **5.1.5 Conditional Direct effects of FL on BF and Financial Inclusion relationship**

*H05: Financial Literacy does not significantly moderate the relationship between.*

*H05a: Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya*

*H05b: Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya*

*H05c: Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya*

The findings were that Financial Literacy had significant effects (BootLLCI= 0.0626, BootULCI=0.2371) on the relationship between Self-control and Financial Inclusion as well as the relationship between Confidence and Financial Inclusion (BootLLCI= 0.0533, BootULCI=0.2270). The results further indicate that FL had insignificant (BootLLCI= -0.0019, BootULCI=0.1605) effects on the relationship between Social proof and Financial Inclusion. The findings are in line with those in Strömbäck *et al.*, (2017) who investigated the effect of individual differences in self-control in financial decision-making. Financial literacy was found to have significant positive effects on good financial behavior and financial wellbeing. Fernandes *et al.*, (2014) buttressed the findings on insignificant effects of FL by arguing that it has less effect in low-income samples whose behavior are more controlled by circumstances independent of

intention. Grohmann *et al.* (2017) supported the above findings as they found that there is positive and significant relationship between financial literacy and all the measures of financial inclusion adopted. The study theorized that effect of increase in level of financial literacy on access to financial services would be strongest in developing countries and that the effect on usage on financial services would be larger in more economically developed countries, which also have a deeper financial system. Similarly, Binoy and Subhashree (2018) also concluded that self-efficacy had a strong relationship with continued usage of formal financial services among the Low-Income Households. They also found that members of a household with strong financial knowledge exhibit great confidence in using financial services such as mobile banking and others.

The results of the study undertaken by Haidar and Halim (2018), are in line with those of this study given their findings that social networks have a significant influence on usage of credit card services (which is a form of FS) and that financial (debt) literacy levels moderates the relationship between the two variables. Similarly, Van *et al.*, (2012), found out that there is strong positive association between financial literacy and net worth, realized through increased participation in the stock market (usage of FS) thus realization of equity gains as well as retirement planning (savings plan). The findings are in line with those of the present study that financial literacy has significant effect on behavior change for optimal use of financial services (financial inclusion). Furthermore, the findings in Robb, Babiarz and Woodyard (2012) supports those of the present study that FL (both objective and subjective) have positive effects on usage of financial services including financial advice on matters such as investing and saving, mortgage decisions, insurance, and tax planning among others.

### 5.1.6 Conditional Indirect Effects of FL on BF and FI relationship through FINN

The three hypotheses below relate to the main study's objectives:

*H06a: There is no statistically significant conditional indirect effects of Financial Literacy on the relationship between Self-control and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.*

The results of the tests on the hypothesis are reflected by the three CI, (16<sup>th</sup> percentile; BootLLCI= 0.0037; BootULCI=0.0920), middle level (50<sup>th</sup> percentile; BootLLCI= 0.0347, BootULCI=0.1296) and upper level (84<sup>th</sup> percentile; BootULCI= 0.0625, BootULCI=0.22640), all of which demonstrated significant conditional indirect effects of financial literacy on the relationship between self-control and FI of MEs in Nairobi Kenya. Thus, through the 3 hypotheses (*H06a* to *H06c*), the study attempted to extent research by building on earlier studies which focused on direct relationships between the four variables as outlined in sections 5.1.1. Further extension was made on the mediated effects of FINN on the relationships between three independent variables and Financial Inclusion and the moderating effects of Financial Literacy as discussed in sections 5.1.2 to 5.1.5 above.

*H06b: There is no statistically significant conditional indirect effects of Financial Literacy on the relationship between Confidence and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.*

Similarly, for hypotheses H<sub>06b</sub>, the results were as reflected by the three CI, (16<sup>th</sup> percentile; BootLLCI= 0.0121; BootULCI=0.1171), middle (50<sup>th</sup> percentile; BootLLCI= 0.0398, BootULCI=0.1299) and upper levels (84<sup>th</sup> percentile; BootLLCI=



0.0483, BootULCI=0.2256) thus, attesting significant conditional indirect effects of financial literacy on the relationship between self-control and FI of MEs in Nairobi Kenya.

*H06c: There is no statistically significant conditional indirect effects of Financial Literacy on the relationship between Social proof and Financial Inclusion of Micro Enterprises in Embakasi East Constituency of Nairobi County, Kenya through adoption of Financial Innovations.*

The results for the tests undertaken on hypothesis indicated significant moderating effects of financial literacy on the relationship between SP and FI through FINN are reflected by the CIs all of which the excluded zero. The CI's were (16<sup>th</sup> percentile; BootLLCI = 0.0040; BootULCI =0.0958), middle level (50<sup>th</sup> percentile; BootLLCI = 0.0351, BootULCI =0.1269) and upper level (84<sup>th</sup> percentile; BootLLCI = 0.0604, BootULCI =0.2665). The results on the three hypotheses above on conditional indirect effects of FL built on findings on the previous hypotheses and cemented the significant role of FL in enhancing optimal use of financial services for enhanced financial wellbeing. (Klapper *et al.*, 2015). The findings represent the main contributions of the study and has implications for both theory building in the Finance field and policymaking in developing economies such as Kenya where MEs play a key role in economic development. Thus, the rallying call to ensure that MEs are financially included and that closure of the dearth of studies on the moderated mediated effects of diverse behavioral factors on Financial Inclusion is pursued.

## **5.2 Conclusions**

From the findings, the study concluded that behavioural factors (self-control, confidence, and social proof), financial innovation and financial literacy have

significant positive effects on MEs usage of financial services (Financial Inclusion). The results on the effects of the three behavioral factors supports the views of BFT that psychological and social factors play a key role in financial decision-making. Propositions of modern Financial Intermediation Theory on the key role of formal financial institutions in the economy was attested by the results of the study, more so the results on utilization of emerging financial products and delivery channels that enhances financial inclusion of ME in Kenya.

The findings on perceptions on adoption of financial innovations are in agreement with diffusion of innovations theory, more so the relative advantage that accrues to users of FS and compatibility to their lives. The two have driven adoptions of the innovations in the financial services sector. The study concluded that financial innovation has not only opened up new opportunities for the MEs, but also increased new market and availability of innovative financial services products all of which contribute to optimal financial decision making. Financial innovations such as adoption of new financial services such as mobile banking, MPESA, Airtel Money, Agency Banking among others was deemed important, thereby contributing to enhanced FI of ME in Nairobi Kenya which enhances their expansion and overall economic growth.

The conditional indirect effects of FL on the relationship between IVs (self-control, confidence as well as social proof) and financial inclusion via financial innovation were evident, further reinforcing the proposals of behavioral finance and capability theories. Thus, FL plays a key role in increasing financial inclusion as it empowers and educates users of financial services to evaluate financial services and make appropriate financial decisions for optimal usage of FS , thus in line with suggestions of capability theory. The study established that enhanced FI could be realized if users of FS have positive

behaviours, adopt emerging financial products and intermediaries while embracing the value of being financially savvy.

### **5.3 Recommendations**

#### **5.3.1 Managerial and Policy Implication**

Based on the findings the following are recommended; providers of formal financial services such as banks, mobile financial services institutions, insurance companies as well as saving and cooperative societies among others should focus on influencing the behaviors of their customers ( mainly owners of MEs) to develop those character traits that enhance optimal use of financial services. Thus, customer communication and training sessions should focus on building self-control tendencies in order for financial users to avoid mistakes such as excess credit, delays in repayment of loans, which leads to negative repercussions, business and personal financial planning among others. Formal financial services (FFS) providers should further recognize the importance of gaining the confidence of MEs on their institutions and the products such as investment options, financial advice, saving plans, among others. The critical role of socio-economic environment, social pressure and approval from peers, family and friends in financial decision-making cannot be underscored hence formal financial service providers should focus on developing that are aligned to diverse needs of MEs and their socio-economic environments. Providing financial services through community-based groups (chamas) such as loans among others would encourage uptake of products and optimal use thereof.

FFS and business associations such as Kenya bankers association, association of Kenya insurers, Kenya Union of Savings and Credit Cooperatives Society (KUSCCO) among others, should make use of the findings of this study to appreciate the key role of financial innovations in carrying the effects of positive behavioral factors to higher

levels of financial inclusion. Whereas these institutions have been and cooperating with other service providers such as mobile finance providers (Safaricom, Airtel, Telkom Kenya among others), it is recommended that these new products and dissemination of information thereof be aligned in a manner that builds on MEs behavioral traits in order to create more value. BFT attest that human being are influenced by psychological and social factors. Therefore, innovative products that spur confidence, appeals to owners of MEs and their circle of friends/family, encourage planning and responsible credit use, among others will create sustainable benefits to Formal Financial Services institutions in the long run, instead of championing emerging financial innovations for the sake of making quick wins.

It is recommended that financial sector regulators, service providers and practitioners choose to give financial literacy the attention that it deserves. The findings of this study suggests that financial literacy is a key stimulant for enhanced FI both directly and indirectly. Continuous and just in time enhancement of MEs financial knowledge base, helps to shape behavioral tendencies and adoption of appropriate financial innovations, for optimal usage of financial services. The findings of the study indicates that the average financial literacy levels are about 50 %, given that most MEs owners could correctly answer three out of the six questions, that covered basic finance knowledge areas of risk diversification, inflation/ time value for money, numeracy, compound interest and knowledge of formal financial institutions. Clearly, there is a lot that needs to be done by government and financial sector players in terms of policy formulations, administration, and implementation to promote financial literacy for enhanced financial inclusion, which has been duly recognized as a key enabler of for realization of national and social development goals.

The study also recommends that non-governmental others should continue to intensify their partnership with the government and financial regulators in promoting financial literacy, financial innovation and financial inclusion of Micro Enterprises in Nairobi County and Kenya at large. This can be done through trade-fairs, direct investments, and collaborations with the government bodies at both National and County Government levels. These programs are expected to promote positive behavioral tendencies on financial matters, provide information on formal financial services and improvement of owners of ME financial literacy levels in order to effectively use financial innovation for enhanced financial inclusion. This will facilitate micro enterprises to effectively play their role for realization of economic growth targets as envisaged in Kenya's long-term plans.

### **5.3.2 Theoretical implication**

The research findings of this study have several implications for academics and others involved in theory building. Firstly, this study extends previous studies by providing empirical data that helps to establish the direct effects of various factors (self-control, confidence, social proof, financial innovations, and financial literacy) on financial inclusion as suggested by relevant theories. Secondly the mediating role of financial innovations on the relationship between behavioral factors and usage of financial services, was demonstrated hence basis for further research by finance scholars. Thirdly by assessing financial literacy using both subjective and objective dimensions, this study attempted to contribute to convergence of theory that the difference of the outcome between the two measures are insignificant, hence any of the dimensions can be used in future studies.

Most importantly, the pivotal role of financial literacy as an enabler of financial inclusion was empirically tested and established, more so it is buffering effects on the

earlier established relationship between the three BF and financial inclusion, in an environment that continues to witness enormous financial innovations. Thus, the study has attempted to contribute to the growth of behavioral finance theory through focusing on financial activities outside financial markets. Furthermore, the study attempted to contribute to growth in financial theory by formulating and testing of a more comprehensive framework that incorporated seldom-studied drivers of financial inclusion from an emerging economy. The contributions are expected to have cemented the foundation for further studies, premised on the promising behavioral finance theory and the financial inclusion phenomena which practitioners and academia generally believe, that it holds the key to improved wellbeing and economic prosperity at national and global arena. In conclusion the empirical results (direct, moderated, and conditional indirect effects) confirm the suggestions of theories that underpinned the study; Behavioral Finance Theories (behavioral life cycle hypotheses and preference theory), Innovation Diffusion Theories as well as Capability Theories.

### **5.3.3 Suggestions for Further Research**

This study focused on establishing the effect of three categories of behavioral factors (self-control, confidence, and social proof), financial innovations and financial literacy on financial inclusion of Micro Enterprises in Nairobi, Kenya. The findings that have been presented in this study are based on the responses from micro enterprises in Nairobi Kenya. Thus, there is need to carry out a similar study in different settings (other than the micro enterprises, Nairobi county and Kenya) in order to assess whether there are any regional or country-specific characteristics with regard to the topic of investigation, for enhanced theory building. Since the study was cross-sectional, studies in the future to consider taking a longitudinal approach to understand the variables influence FI over time.

Furthermore, this study examined the effects of self-control, confidence, and social proof on financial inclusion; it is recommended that further studies be undertaken on other behavioral factors, in order to develop a more comprehensive framework for understanding the role of behavioral factors on enhancing financial inclusion. Finally, finance theory has other dimensions of financial inclusion, which were not incorporated on this study such as quality of services offered by financial institutions. Therefore, future studies should move beyond access and usage of financial services and focus on the quality dimension of financial inclusion, in order to enhance the growth of finance theory on the concept.

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## Appendices

### Appendix 1: Questionnaire Transmittal Letter

18<sup>th</sup> April 2019

Dear Sir/Madam,

**RE: EFFECTS OF BEHAVIORAL FACTORS, FINANCIAL INNOVATIONS AND FINANCIAL LITERACY ON FINANCIAL INCLUSION OF MICRO-ENTERPRISES IN NAIROBI, KENYA.**

I am Gladys C. Byegon, a Ph.D. candidate in the School of Business and Economics of Moi University. Currently, I am currently in the fieldwork stage of collecting data on my research that focuses on the *effects of behavioral factors, financial innovations and financial literacy on financial inclusion of micro-enterprises in Nairobi, Kenya*. I have selected your micro enterprise and you the owner/representative of the owner of the business as my study respondent.

You are hereby requested to kindly spare a few minutes to answer the questions in the attached questionnaire. Your responses will be kept confidential and used specifically for the purpose of this academic study. No respondent 's identity will be published or released to anyone. Your participation is voluntary, and the questionnaire will be anonymous.

Your participation in facilitating this study will therefore be highly appreciated.

Thank you for participating in this Study.

Yours faithfully,

Gladys C. Byegon

Mobile No. 0727561059; gmail: gladchero10@gmail.com

C/O Moi University

PO Box 3900,

Eldoret, Kenya

## Appendix 2: Questionnaire

You are requested to answer the questions below that are aimed at facilitating an **Academic Research** on the **Effects of Behavioral Factors, Financial Innovations and Financial Literacy on Financial Inclusion of Micro-Enterprises in Embakasi East Constituency, Nairobi County, Kenya**

### A. FINANCIAL INCLUSION

This section assesses the respondent's frequency of usage of formal financial services.

**Question:** *How frequent do you undertake the activities below on your bank account or mobile phone account such as M-PESA, Equitel, Airtel Money, Orange Money/T-kash etc. ?*

**Instruction:** Tick [√] where appropriate.

Usage of account	Most Frequently (Weekly)	Frequently (Monthly)	Occasionally (Annually)	Rarely	Never
<b>FI 1.</b> Receiving money such as from customers, friends, relatives, banks etc					
<b>FI 2.</b> Making payments such as for electricity and water bills, purchase of business items, rent etc.					
<b>FI3.</b> Saving funds for future personal use, business expansion etc.					
<b>FI4.</b> Paying for insurance and other investments e.g., NHIF, M-Tiba, Linda Jamii, Equitel Riziki Education policies					
<b>FI5:</b> Receiving insurance and other benefits e.g. for Education policies, NSSF, Pension, Government transfers etc					
<b>FI6.</b> Obtaining loans or credit facilities such as from banks, mobile service providers, SACCOs among other financial institutions etc					
<b>FI7.</b> Repayment of loans e.g. from banks, mobile banking e.g. KCB M-PESA, Mshwari , Eazzy Loans, MCo-op, SACCOs among others.					

## **B. BEHAVIORAL FACTORS**

The questions in this section focuses on obtaining respondents perceptions on three behavioral factors (self-control, confidence and social proof) on utilization of financial services.

*On a scale of 1-5 where: 1=Strongly Disagree (SD), 2=Disagree (D) 3=Neutral (N), 4= Agree (A), 5= Strongly Agree (SA), please answer the questions below by ticking as appropriate.*

	<b>Behavioral tendencies</b>	<b>1 (SD)</b>	<b>2(D)</b>	<b>3 (N)</b>	<b>4 (A)</b>	<b>5(SA)</b>
<b>BFa1</b>	I am prepared to spend money now and let the future take care of itself.					
<b>BFa2</b>	I have a tendency to spend more money if there is more cash in my hand when I go for shopping.					
<b>BFa3</b>	I prefer to follow the gut feelings/instincts to take financial decisions rather than assessing all the available options.					
<b>BFa4</b>	When I am anxious on financial matters, I tend to postpone my financial decision for a future period					
<b>BFa5</b>	I'm good at resisting temptation to spend money on things not planned for.					
<b>BFb1</b>	I lack skills related to financial planning and usage of my mobile/bank accounts					
<b>BFb2</b>	I trust banks, SACCO's and Mobile money providers hence maintaining my money in the accounts.					
<b>BFb3</b>	I know what investments to look for to get the highest returns on my money.					
<b>BFb4</b>	I do not know where to get the right sources of information to make wise financial decisions.					
<b>BFb5</b>	When facing difficult situations in my life, I'm certain that I will overcome.					
<b>BFc 1</b>	I feel more comfortable and secure when my financial decisions are supported and approved by my spouse, parents, family, or peers.					
<b>BFc 2</b>	I prefer to follow the patterns of my friends, relatives and co-workers with regards to the financial matters					



	<b>Behavioral tendencies</b>	<b>1 (SD)</b>	<b>2(D)</b>	<b>3 (N)</b>	<b>4 (A)</b>	<b>5(SA)</b>
	such as payments, saving, loans, investments etc.					
<b>BFc 3</b>	I'm not comfortable investing and saving in groups (chamas') such as women, youth, family and friends groups					
<b>BFc 4</b>	I use mobile financial services such as MPESA and mobile banking etc because my friends and family use them.					
<b>BFc 5</b>	The social- economic factors (education, income and employment) of my neighbors influence my financial decisions					

### **C. FINANCIAL INNOVATIONS (FINN)**

The questions in this section evaluates the effects of adoption of financial innovations on financial inclusion.

*On a scale of 1-5 where: 1=Strongly Disagree (SD), 2=Disagree (D) 3=Neutral (N), 4= Agree (A) & 5= Strongly Agree (SA), please answer the questions below by ticking as appropriate.*

	<b>Propositions on Financial Innovations</b>	<b>1(SD)</b>	<b>2(D)</b>	<b>3 (N)</b>	<b>4 (A)</b>	<b>5(SA)</b>
<b>FINN 1</b>	Information on incentives provided by financial institutions (banks, SACCOS, Mobile financial service providers etc) on opening accounts, making deposits, new products etc have made me to increase my saving levels.					
<b>FINN 2</b>	Reminder messages from banks or mobile operators have enabled me to promptly repay my loans (e.g. Mshwari, KCB-MPESA, MCo-op Cash, Eazzy loans etc)					
<b>FINN 3</b>	Mobile financial services such a mobile banking and mobile payments are very risky and should be avoided.					
<b>FINN 4</b>	People would increase their usage of formal financial services if service providers such as banks, mobile operators, SACCOS, Insurance companies etc remind and persuade them regularly.					
<b>FINN 5</b>	Adopting innovations such mobile banking, MPESA, Airtel Money, Agency Banking etc. are an efficient way of managing finances.					

	<b>Propositions on Financial Innovations</b>	<b>1(SD)</b>	<b>2(D)</b>	<b>3 (N)</b>	<b>4 (A)</b>	<b>5(SA)</b>
<b>FINN 6</b>	I would save more if a financial institution offered a price prize linked savings (PLS) product such as entering into a competition/lottery to win a prize for each saving or payment activity)					
<b>FINN 7</b>	New insurance mobile based financial products such as M-Tiba, Linda Jamii, Equitel Riziki cover <i>etc.</i> have helped me avoid financial losses due to less financial expenditure on medical needs.					
<b>FINN 8</b>	New financial services channels such as mobile banking and agency banking have enabled me to increase the use of the financial services such as bank accounts.					
<b>FINN 9</b>	I think the costs of usage of financial innovations such as mobile banking, agency banking, M-PESA, Equitel, Airtel <i>etc.</i> are very high hence reducing number of users.					
<b>FINN 10</b>	Digital payment services such as mobile payments fit well with my work/business lifestyle.					

#### **D. FINANCIAL LITERACY (FL)**

Questions in this section measures financial literacy (knowledge and skills on money matters)

*Instructions: Please tick against the response that you believe best answers the questions below.*

**FL1:** Please assess your overall level of financial knowledge and skills using a scale of 1 to 5 as given below:

- a) Very high [ ] b) High [ ] c) Moderate [ ] d) Low [ ] e) Extremely low [ ]

**FL2:** Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?

- a. One business or investment [ ] b. Multiple businesses or investments [ ] c. Do not know [ ] d. Refuse to answer [ ]

**FL3:** Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?

- a. The same [ ] b. more [ ] c. Do not know [ ] d. Refuse to answer [ ]

**FL4:** Suppose you need to borrow Ksh 100,000. Which is the lower amount to pay back in one year: Ksh 105,000 or Ksh 100,000 plus three percent?

- a. Ksh 105,000 [ ] b. Ksh 100,000 plus three percent [ ] c. Do not know [ ]  
d. Refuse to answer [ ]

**FL5:** Suppose you put money in the bank for two years and the bank agrees to add 15 percent per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?

- a. The same [ ] b. More [ ] c. Do not know [ ] d. Refuse to answer [ ]

**FL6:** Suppose you had Ksh 100,000 in a savings account and the bank adds 10 percent per year to the account. How much money would you have in the account after five years if you did not remove any money from the account?

- a. More than Ksh 150,000 [ ] b. Exactly Ksh 150,000 [ ] c. Less than Ksh 150,000 [ ]  
d. Do not know [ ] e. Refuse to answer [ ]

**FL7.** Which of the following is not a regulated (or formal) financial institution in Kenya?

- a. Banks [ ] b. Insurance companies [ ] c. Money lenders/Shylocks [ ] d. Micro Finance Companies [ ]  
e. Savings and Credit Cooperative Society (SACCO) [ ]

### **E. DEMOGRAPHIC INFORMATION**

**Instruction:** Tick [] where appropriate.

**E1.** Gender Male [ ] Female [ ]

**E2.** What is your age bracket in years? a) 18-35 [ ] b) 36-52 [ ] c) 53-70 [ ]  
d) 71 years & above [ ]

**E3.** Which category/sector of the economy are you mostly engaged in?  
a) Manufacturing sector [ ] b) Commercial/Trade [ ] c) Service & Others [ ]

**Thank you very much for attending to the questionnaire!**

### Appendix 3: Moi University Progress Letter



**MOI UNIVERSITY**  
**POST GRADUATE OFFICE**  
**DEAN SCHOOL OF BUSINESS AND ECONOMICS**

Tel: (053) 43620  
 Fax No: (053) 43360  
 Telex No. 35047 MOIVARSITY

Box 3900  
 Eldoret  
 KENYA

REF: SBE/PGR/REC/11

DATE: 1<sup>st</sup> March, 2019

**TO WHOM IT MAY CONCERN:**

Dear Sir/Madam,

**RE: PROGRESS REPORT FOR GLADYS C. BYEGON – REG. SBE/DPHIL/BM/28/13**

This is to certify that the above named is a bonafide student of Moi University, in the School of Business and Economics. She is enrolled for Doctor of Philosophy Degree in Business Management, specializing in Finance. She has successfully defended her Proposal and now in the field collecting data.

Any assistance accorded to her shall highly be appreciated.

Yours faithfully,



**DR. JOEL K. TENAI**  
**Ag. DEAN, SCHOOL OF BUSINESS AND ECONOMICS**

## Appendix 4: NACOSTI Research Approval Letter



### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
2241349,3310571,2219420  
Fax: +254-20-318245,318249  
Email: dg@nacosti.go.ke  
Website : www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/54788/29442**

Date: **25<sup>th</sup> April 2019**

Gladys Cherotich Byegon  
Moi University  
P.O Box 3900-30100  
**ELDORET.**

#### **RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Effects of behavioral factors, financial innovations and financial literacy on financial inclusion of Micro-Enterprises in Nairobi, Kenya.”* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **25<sup>th</sup> April, 2020.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM  
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County

The County Director of Education

---



## Appendix 5: Nairobi County Government Research Approval Letter

### NAIROBI CITY COUNTY

Telephone: +254 20 2221349  
Web: www.nairobi.go.ke



City Hall  
P .o. box 30075-00100  
Nairobi  
Kenya

#### DEVOLUTION AND PUBLIC SERVICE MANAGEMENT

NCC/HRD/HRM/10/569/HMN/2019

16<sup>TH</sup> MAY, 2019

GLADYS CHEROTICH BYEGON  
MOI UNIVERSITY  
P.O.BOX 3900-30200  
ELDORET

#### RE: RESEARCH AUTHORIZATION

Reference is hereby made to your application letter dated 15<sup>th</sup> May, 2019 on the above subject;

The Nairobi City County has approved your request subject to the following;

1. The period of research will commence from 15<sup>th</sup> May, 2019 to 25<sup>th</sup> April, 2020
2. You have been authorized to undertake the study in Trade, Tourism and Co-operatives Sector.
3. That during your research there will be no costs devolving on the County.
4. The research will be used for academic purposes only
5. That you undertake to indemnify the County against any claim that may arise from your research.
6. You are not authorized to release any information without vetting and authority from this office.
7. You are expected to submit to the undersigned a copy of the final research document for the county's retention (within one month after research).
8. The research will be on "Effects of behavioral factors, financial Innovations and financial literacy on financial inclusion of micro enterprises Nairobi Kenya".
9. You are expected to pay research fee of five thousand shillings Ksh. (5,000/=).

Please report to the Chief Administrative Officer – Trade, Tourism and Co-operatives for necessary assistance.

ALICE KAHUTHU  
FOR: DIRECTOR, HUMAN RESOURCE DEVELOPMENT

CC: Dean School of Business & Economics,  
MOI UNIVERSITY



**Appendix 6: List of****licensed ME****Embakasi East****Constituency**

S. No	Business Name	S. No	Business Name
1	AVON HOPE SCHOOL	36	QUEENSA BEAUTY PALACE
2	GIRRAFE EXPORTERS LTD	37	BESTMIX PRODUCTS
3	KARWAT ENTERPRISES LIMITED	38	CLASSIC BOOKSHOP
4	CKAI SANA PUB	39	BEBZ BOUTIQUE
5	FLOWZ CLUB	40	BETTYS ENTERPRISES
6	M-LOUNGE	41	CENTRE POINT
7	MARA WINES ENT	42	DEBZ COLLECTION ENTERPRISE
8	MIAMI CELEBRITY TARVAN	43	ENDEVER BOUTIQUE LTD
9	NGAMIONE CLUB	44	GAWAN ENTERPRISES
10	COOL BREEZE BAR & BUTCHERY	45	GENERATION BOUTIQUE
11	BOOZ LAUNGE BAR AND RESTAURANT	46	JANET BOUTIQUE
12	KICKOFF BAR AND RESTAURANT	47	MARIDADI COLLECTIONS
13	NAMELESS PUB	48	MIMMAH COLLECTIONS
14	PATRONS BAR AND RESTAURANT	49	MON CHERI BRIDAL COMPANY
15	PIPERS BAR AND GRILL EMBAKASI	50	NAMIC ENTERPRISES
16	RHUMBA BAR AND RESTAURANT	51	SAWIRI DESIGNS
17	SAILORS BAR AND RESTAURANT	52	UNIQUE BOUTIQUE
18	SWEET WATERS BAR AND REST	53	ZURI KIDS FASHION
19	TIMBOROA BAR AND RESTAURANT	54	APRIL 12TH FASHION
20	SANTA BUSY BEE PUB	55	THE HIGHTABLE CAFE & BUTCHERY
21	LA BELLS PUB	56	AFRICA DIRECT LTD
22	PALLETS LOUNGE	57	NETWORK AIRLINE SERVICES LTD
23	CONNECTIONS TEMPTATIONS LOUNGE	58	CEREAL SHOP
24	EXECUTIVE BARBERS	59	MAMBO CEREALS AND SHOP
25	PALZ BARBER SHOP	60	CYNVONN ENTERPRISES
26	THE URBAN SHAVE	61	TOTAL TOUCH EXPRESS LTD
27	FAITH BEAUTY PARLOUR	62	GENERAL FREIGHTERS LIMITED
28	TOP TOUCH BEAUTY PARLOUR	63	KATE FREIGHT & TRAVEL LTD
29	JAYKATS BEAUTY PARLOUR	64	PHOENIX AIR & FREIGHT LOGISTICS LIMITED
30	V SUPER ELEGANT KIDS AND BEAUTY PARLOUR	65	RAPAT FREIGHT KENYA LTD
31	RONEALINA BEAUTY PRODUCTS	66	AEROSEA WORLD LOGISTICS LTD
32	BEAUTY MAGNET	67	MITCHELL COTTS FREIGHT[K]LTD
33	BEAUTY SHOP	68	RAPID KATE SERVICES LTD
34	FRISCO COSMETICS	69	FLOSSY FASHIONS
35	KWA-WASHIRU BEAUTY SHOP	70	HARRYS DRYCLEANERS & LAUNDERS
		71	ALBRIGHT JUNIOR SCHOOL
		72	SIGNS MANUFACTURER KENYA LIMITED
		73	ELIGE COMMUNICATIONS LIMITED
		74	HUDLINK OPTIMUM ENTERPRISES LTD
		75	LAXMINARAYAN CONCRETE ENTERPRISES
		76	POWER GROUP TECHNOLOGIES LIMITED
		77	J.K.I.A AIRPORT TAXI SERVICES LIMITED
		78	MWONGELI MUTISYA
		79	LYDWAY BEAUTY AND COSMETICS
		80	LILA THE COSMETICS AND BEAUTY SHOP
		81	MASAI K LTD
		82	PRAISE GOD MARG JO
		83	TOFADA TAILORING SHOP
		84	HARRY'S DRYCLEANERS AND LAUNDERERS
		85	BLUESKY ELECTRICALS AND ELECTRONICS
		86	BY FAITH INVESTMENTS
		87	PATTS COMMUNICATIONS
		88	ELEX ENGINEERING SERVICES LTD
		89	ORY INVESTMENT LIMITED
		90	ROY ESTATE LIMITED
		91	RAAYAN EXPORTERS LTD
		92	SEYIAN PRODUCTS LIMITED
		93	OKAMOTO FREIGHT SERVICES LTD
		94	STAIRWAY INTERNATIONAL FREIGHT AND FOWARDERS LTD
		95	GREENLANDS AGRO PRODUCERS LTD
		96	MAKINDU GROWERS AND PACKERS LTD
		97	PATIALA DISTILLERS (K) LTD
		98	ELLI'S GAS
		99	SURE GAS
		100	STILE GAS
		101	EDEN HARDWARE & ELECTRICALS
		102	MUTHAIGA MINI MARKET LTD- JKIA
		103	BRIGHT FUTURE GENERAL SHOP
		104	JAICA SHOP
		105	TALENTED SUPPLIES
		106	TASWIRA
		107	CONCEPT GROUP LIMITED
		108	ROSE GROCERY
		109	HELTZ DRIVING SCHOOL
		110	BARAKA GENERAL SHOP
		111	CHEPE CHEPE FOOD STORE
		112	GIVENS SHOP
		113	M.P GENERAL SHOP
		114	MADAIG SHOP
		115	MAMA ALICE SHOP
		116	MARISHA SHOP
		117	NDARAGWA STORES
		118	PERPCOM SHOP
		119	SMART SHOP
		120	WANJA GENERAL SHOP
		121	EUNIQUE SHOP
		122	OSERIAN DEVELOPMENT COMPANY LIMITED
		123	ELECTRO SYSTEMS LTD
		124	CATHY'S HAIR AND BEAUTY SALON



S. No	Business Name	S. No	Business Name	S. No	Business Name
125	ARYA HARDWARE AND GENERAL SUPPLIES	168	PITAZIS PROPERTIES	220	MONTANA HAIR SALON
126	JEFAN HARDWARE	169	BELLISSIMO PUB	221	PINKIE SALON
127	BANANI ENTERPRISES LTD	170	YORPOWER MANUFACTURING LIMITED	222	REHABOTH SALON & KINYOZI
128	EXCELLENT HOUSEHOLDS	171	CRYSTAL POWER ENGINEERING SERVICES	223	SALON DESTINY
129	MAYA FREIGHT LTD	172	INTERCONTINENTAL HOTEL & RESORT	224	SUNRISE ENTERPRISE
130	DROPLEX INDUSTRIAL SYSTEMS LTD	173	DRONE BAR AND RESTAURANT	225	TALENT HAIR SALON
131	INFAMA INSURANCE AGENCY LTD	174	HENA ELECTRICAL SKYTOP AGENCIES	226	TOP TOUCH HAIR SALON
132	YOUNGSTARS PREPARATORY SCHOOL	175	TRADE CIRCLES LTD	227	ZANI BEAUTY SALON
133	CRYSTAL CHAMPS INVESTMENT CO. LTD	176	ADIS	228	ELEGANT STYLES & BARBER SHOP
134	CLIPPERS BARBER SHOP	177	FRANCISCA B M MUNYAO	229	DILLY DARLING BEAUTY PARLOUR
135	DNJ KINYOZI	178	KURIA HARDWARE	230	HAIRZEE BEAUTY SALON
136	LAVISH BARBERS SHOP	179	AVIATIAN SHOP	231	SALON DESTINY
137	OSIJA BARBERSHOP	180	BOUP ENTERPRISES	232	VINEYARD SALON
138	PIPELINE PHASE II EMBAKASI	181	GENESIS DISTRIBUTORS AND RETAILERS	233	EXECUTIVE BEAUTY PARLOUR
139	MIHEER INVESTMENTS LTD	182	MALUC K LIMITED	234	MACKIS BEAUTY PARLOUR
140	MURANGA NJUMBI COMPANY LTD	183	MAMA DAMA SHOP	235	PAZURI HAIR SALON
141	EVAJO LAUNDRY & DRY CLEANING	184	MAN K SHOP	236	BRAN SALON & BEAUTY SHOP
142	BRIDGE VIEW CENTRE	185	MARGARET GITUKU SHOP	237	MANNAH SCHOOL
143	WISE LINK	186	MOHAMMED SHOP	238	ST.CHARLES ELITE ACADEMY
144	P-TECH SERVICES	187	MOOZURI MILK SHOP	239	CATCHY MOVIES
145	PIONEER COLLECTION LTD	188	MOTHER & DARLING	240	LILA'S CAKES AND COOKERY
146	HIGHWAY SELECTION	189	NEWJALI ENTERPRISE	241	CONQUEST VENTURES
147	SUKADI INVESTMENTS LIMITED	190	SEVEN UP	242	DOLLAR AUTO SPARES
148	MARA FARMING LTD	191	SHAAM GENERAL SHOP	243	FRANK JOY CENTRE
149	AMA INDUSTRIES LTD	192	SHOP 360	244	MESH ECO INCUBATORS
150	DINIZ HOLDING LTD	193	SHOP 38	245	N.B SHOP
151	KIRIMA & SONS LIMITED	194	SMART SHOP	246	UZURI COLLECTIONS
152	PRISTINE INTERNATIONAL LTD	195	TASIA 3 GENERAL SHOP	247	HOME PUB
153	SHOW PACK LIMITED	196	TIME COME LTD	248	WHO'S PUB
154	AFRIOIL INTERNATIONAL LIMITED	197	WA MERCY GEN SHOP	249	KENS BOUTIQUE
155	SCION HEALTHCARE	198	WA-TONNY SHOP	250	REDEM'S INVESTMENTS
156	THE WENTWORTH HOSPITAL NAIROBI	199	NGOTA MAN	251	AFRICAN CABLES LTD
157	FARMING SOLUTIONS LIMITED	200	TILE CARP SACCO	252	QUALICARE PHARMACY
158	BEVOR SHOP	201	MAIKONA SHOP	253	DESTINY CAFE
159	DIEVAS MINI-MART	202	MAO FLOWERS LIMITED	254	EAST WAY ACADEMY
160	EBENEZA ENTERTAINMENT	203	AXXESS GAS POINT	255	STANDARD CHARTERED BANK (K) LTD- J.K.I.A
161	JIMBEN INVESTMENTS LIMITED	204	EASTERN GAS DISTRIBUTORS (K) LTD	256	MY EBENEZER SHOP
162	CWAY KENYA FOODS & BEVERAGE CO. LTD	205	HEAVENLY GAS DISTRIBUTION	257	CHEKE ENTERPRISES
163	SENICS MEDIA DIGITALS	206	MUKOYA GAS STORES	258	DOUBLE VALLEY HARDWARE
164	PORK SHOP	207	BROWNS ENTERTAINMENT	259	EDDORIS HARDWARE AND ELECTRICAL
165	LAVINDA LIMITED	208	CHARISIZ ENTERPRISES	260	JUST IN
166	KLOT INVESTMENTS LTD T/A BROOK HILL ACADEMY	209	ALL SORTS	261	AGRO IRRIGATION & PUMP SERVICES LTD
167	THE RED WOOD SCHOOL	210	WILD FLAVORS KENYA LIMITED	262	CARDINAL ENTERPRISES
		211	CLAVE BEAUTY AND HAIRDRESSING	263	HOPE JUNIOR ACADEMY
		212	DAMA SALON	264	READY BELLY LIMITED
		213	EXCELLENCE SALON		
		214	HOPE LINE SALON		
		215	HOUSE OF STYLE HAIR & BEAUTY SALON	265	DIAKIM FRESH LTD
		216	JUDY SALOON	266	ACHARYA TRAVEL AGENCIES
		217	JULENE B SALON		
		218	MAMA FELIX SALON		
		219			

S. No	Business Name	S. No	Business Name	S. No	Business Name
267	SERICHO AGENCY LIMITED	304	GODS FAVOUR BEAUTY AND COSMETICS	337	TRENZD BEAUTY BAR
268	G-CRAFT AUTO GARAGE	305	NUXE BEAUTY AND COSMETICS	338	WANJI COLLECTION TREND
269	SUMP GUARD CENTRE LIMITED	306	LUMINOUS NAIL PARLOUR	339	MACUA VILLE CLADS
270	PAY LESS EAT FRESH	307	BELLADONNA	340	BISCON COMPANY LIMITED.
271	PAROCKY ENTERPRISES	308	CHARMA SHOP	341	COLLYS CAFE
272	VIDDY STORES	309	CHICHI COSTMETIC AND BEAUTY	342	W-CATERING KITCHEN
273	KANKAM EXPORTERS LTD	310	LA DOROSS BEAUTY SHOP	343	MWAFKA CEREALS GENERAL STORE
274	DUKAPEPE LIMITED	311	PROSPER BEAUTY	344	SARAKAYNE GENERAL SHOP
275	DETOX INTERNATIONAL LABORATORIES LTD	312	ROVIE VENTURES	345	ONROAD ENTERPRISE LIMITED
276	GIDEON'S TAILORING	313	THE COVENANT BEAUTY SHOP	346	FIRST CHOICE CEREALS
277	HOSANA TRAVEL AGENCY AND MANUFACTURER	314	TREASURE MIG ENTERPRISES	347	BEPAK LOGISTICS LIMITED
278	MAMA EVA TAILORING SHOP	315	QUEENS EXECUTIVE	348	KRYPTON TRADING LIMITED
279	SCHOPAN TAILORING	316	TOP TOUCH & BERBER SHOP	349	FORA KENYA LIMITED
280	ELI-ABIGAEEL TEXTILE SHOP	317	VICTORIOUS BEAUTY PARLOUR	350	CARGO EXPRESS AND DOSKI LIMITED
281	JEMELE CREATION	318	BETHSA BOOKSHOP	351	EXPOLANKA FREIGH LIMITED
282	UZIMA VOCATIONAL WORKSHOP	319	GLENN CREATIONS INVESTMENT	352	NAIROBI INDUSTRIAL INSTITUTE
283	QUANTIC SOLUTIONS LIMITED	320	GOLDEX	353	ANYUAN CONSTRUCTION COMPANY LIMITED
284	PLAINS & RIDGES CO. LTD	321	KALARYNE INVESTMENT LTD	354	UNMATCHED INVESTMENTS LIMITED
285	SAI TRAILERS LTD	322	SMART BOOK SHOP AND M-PESA	355	HAE KENYA LIMITED
286	ELIDA (EA)INDUSTRIES LIMITED	323	ANN'S KIDS WEAR	356	NESVAX INNOVATIONS LIMITED
287	ESTHER MAMA	324	BOBO MTOSH COLLECTIONS	357	ESTIM KENYA LTD
288	CELNERIC CONSTRUCTION LIMITED	325	DOREEN BIUTIQUE	358	GLOBAL LIFTING SERVICES LTD
289	FAST DREAM B12	326	FASHION WHISPERS BOUTIQUE	359	NEVITO
290	LIZBAK	327	GEMIVAL ENTERPRISES	360	BLESSING BEAUTY COSMETICS
291	NAKHAYO OMINA COLLECTION	328	MAGGYS BOUTIQUE	361	YASTECH BRANDS LIMITED
292	TASSIA GARDENS BAR AND RESTAURANT	329	MAMA HOPES BOUTIQUE	362	ANN'S COSMETICS
293	SUZAN DUTY FREE	330	MELISA MELS	363	CYAN VIVID INTERIORS
294	TERMINAL ONE	331	NAOMIH MUTHONI WANYOIKE	364	MAX CYBER
295	DUOL PALACE BAR & RESTAURANT	332	PURITY COLLECTION	365	TREETOP SOLUTIONS
296	CHAMPIONS LOUNGE	333	SAIMA BOUTIQUE	366	LEGRANE LIMITED
297	NAIROBI JAVA HOUSE	334	SPARKS COLLECTIONS	367	HOME DECOR DRESS MAKING
298	TOP LIFE PUB AND RESTAURANT	335	STEPS BOUTIQUE	368	SOKONI ONLINE LTD
299	VIOK COMFORT BAR AND RESTAURANT	336	TINAHS GARMENTS		
300	MAKUTI POINT BAR				
301	ZURI BERBER SHOP				
302	MARYUM'S BEAUTY				
303	CUTIE BEAUTY SHOP				

S. No	Business Name	S. No	Business Name	S. No	Business Name
369	B ONE ELECTRICALS AND ACCESSORIES	402	Q7 AIR CARGO KENYA	435	MULTI CHOICE
370	JAYS ELECTRONICS	403	MENT EXPRESS CARGO SERVICES LIMITED	436	MUNYAMWE GENERAL SHOP
371	DIVINE SALOON .	404	JP	437	ROCKERS ISLAND
372	DOMINION VEGFRUITS LTD	405	USIDE MALIMALI	438	UNIQUE RETAIL SHOP
373	YUMMIE FRIES	406	KINANGOP DAIRY LTD	439	URBAN DELIGHT SUPPLIERS
374	Marina Shop	407	MA-LEON`S MILK BAR	440	WA SHAVII SHOP
375	MAGNUM FOREX BUREAU	408	NEW GROLY ENTERPRISES	441	SHALOM SHOP AND GROCERIES
376	HAZMAT LOGISTICS (KENYA) LIMITED	409	ACQUARAYS ENTERPRISES	442	MALIRAHISI SHOP
377	BEX AOTO	410	GONNAH BOUTIQUE	443	AMANI SHOP
378	DIALA GAS CENTRE	411	TIPS 'N'TOES NAIL LOUNGE	444	WANANDEGE SACCO SOCIETY LTD
379	Dana Enterprises	412	ULTIMATE GAMING LOUNGE	445	BAIYE INTERNATIONAL LTD
380	DANCY GENERAL SHOP	413	CHRIST COMMUNITY SCHOOL	446	MONDARO BEAUTY PARLOUR
381	ESTHER SHOP	414	VICAR ENTERPRISES	447	CAKE AND CRUNCH LTD
382	GREENLEAF DELIVERY AND SUPPLIES	415	STAR RENTALS LIMITED	448	MULTICEREALS SUPPLIERS
383	UNIQUE BEAUTY SHOP	416	CATHYS BAR AND RESTAURANT	449	CHICKEN HOUSE
384	PAUFLORN TRADERS	417	HOUSE OF VIRGODY ENTERPRISES	450	PEKESH
385	GREAT BUSINESS TODAY	418	BIBI TRADELINK ENTERPRISES	451	TRUFLOWERS LTD
386	GREENPACK FRESHES	419	ALEX MUIA BETHEL SHOP	452	BY GRACE SHOP
387	DANS FARM FRESH	420	BAO ENTERPRISES	453	VEGZON HORTICULTURAL
388	DELAVERA ENTERPRISES	421	BILASHAKA SHOP	454	ERIKA FURNITURE
389	ELIDA TRADERS	422	BUDAA SHOP	455	ZACHARY KINYUA WACHIRA
390	TUMAINI GUEST HOUSE	423	CAROLINA INVESTMENT	456	EMMASHA BRANDS ENTERPRISES
391	MUJENGO MATERIALS AND HARD WARE	424	DANCY 2 GENERAL SHOP	457	MASI SUPPLIES
392	JOY HARDWARE	425	DONRUSHO ENTERPRISES	458	JIKAZE MBAO
393	MAGOMA HARDWARE	426	EMBAKASI MINI SHOP	459	MAKA INTERIORS AND HOME DECOR
394	PICRITE ROCKS AND STORES	427	FAIR CUT AGENCIES	460	ANSUN FAVOUR SALON
395	UNIQUE BOUTIQUE	428	FAIR PRICE SHOP	461	BABUKASUPU HAIR SALON
396	MAUREEN AKINYI ODINDO	429	HAPPY PETS LOGISTICS LTD	462	HUSNA SALON
397	TASTY ICE CREAMS	430	HIGHHOOD PARTIES AND GIFT SHOP	463	MAKENA BEAUTY PARLOUR
398	CHEMPLUS HOLDINGS LTD	431	IMANI SHOP	464	MY SALON & BEAUTY SHOP
399	Dawnlight Barbershop	432	KIPMAT MINI MART	465	SILKY FLOW BEAUTY SALON
400	GRAND HAIR STUDIO SPA	433	MALEX RETAIL SHOP	466	VERO SALON
401	SILVER CUTZ	434	MAUA TAMU TAMU	467	HAIR ONE SALON & BARBER SHOP

S. No	Business Name	S. No	Business Name	S. No	Business Name
468	TERRYS BEAUTY SALON	501	SAM INK SERVICES	534	NORLINS LIQOUR STORE
469	SKYES SIMBA LIMITED	502	PATIALLA DISTILLERS (K) LTD	535	THE PROMISE BEAUTY
470	RHODA SALON	503	PATIALLA DISTILLERS (K) LTD	536	EVERBEST DARLING
471	C& E SALON AND BERBER	504	PATIALLA DISTILLERS (K) LTD	537	BELLIAM COSMETICS
472	POLISH' D NAIL BAR	505	TOPLINE ROYAL SERVICES LTD	538	E & A BEUTY SHOP
473	HOPE SALON AND BEAUTY	506	WAVETREE CARE LIMITED	539	JORNIC BEAUTY SALON
474	CAROL SALON AND BEAUTY SHOP	507	DESMAN ENTERPRISES LTD	540	GET WELL BEAUTY SHOP
475	FASHIONSTA SALOON	508	MEMPHIS MEAT COMPANY LTD	541	LEAH BEAUTY SHOP
476	TRIZAH SALON/BARBER SHOP	509	SABWA OUTFITTERS	542	MOBELLA BEAUTY SHOP
477	JOSMI SALON	510	TOFADA TAILORING SHOP	543	SOCDAAL COSMETICS
478	Liberty Events	511	KATRINA WITH.A K	544	A.I.P.C.A KAYOLE
479	BETTER START JUNIOR SCHOOL	512	BEST HARVEST FARM PRODUCE SUPPLIERS LIMITED	545	LUKACHE LTD
480	BLISS BRITE ACADEMY	513	BHUMI ENTERPRISES LTD	546	BY GRACE 2018
481	IMAAAN INTERGRATED SCHOOL	514	ATRIUM BEVERAGES	547	CYNTHYA BOUTIQUE
482	PACIFIC JUNIOUR SCHOOL	515	CANDY WINES AND SPIRITS	548	DICE COLLECTIONS
483	ROYAL KINGS EDUCATION CENTRE	516	LIZZ LIQOUR PLACE	549	DULB CLOTHING
484	LUCY BEDDINGS	517	SILVER WINES AND SPIRITS	550	FLORISH BOUTIQUE
485	URBAN SECURITY SOLUTIONS LTD	518	CHANG-JI CONSTRUCTION LTD	551	JAMBO 2 BOUTIQUE
486	R&S BEAUTY AND COSMETICS	519	DAVID OMONDI YUGI	552	KIBS COLLECTIONS
487	MAKUTI SHOE SHOP	520	JADE FRESH LTD	553	MAWARIO BOUTIQUE
488	PLUS-ADD CAPITAL	521	SPC PROPERTIES LTD	554	NEEMA BOUTIQUE
489	ANGLOESPE CEREAL BOUTIQUE	522	OPEN GATE GENERAL SHOP	555	OLIVE BOUTIQUE
490	COVENANT MAKUTI SHOP	523	ACME CONTAINERS LIMITED	556	SAMAR BOUTIQUE
491	DESTINY SHOP	524	MUUNGANO 001	557	WAMWANGI BOUTIQUE
492	EMIRATES STOP AND SHOP	525	EQUATOR INN	558	M J COSMIX
493	MACOLE SHOP	526	FURAHA CONNECTION	559	AZY
494	MUBARAK TYPES	527	BETTY'S LOUNGE BAR AND RESTAURANT	560	FAITHFUL ACCORD CAFE
495	SHAMAH SHOP	528	BASEMENT	561	JOE'S BAKERY
496	TESTIMONY RETAIL SHOP	529	CHIL OUT BAR AND RESTAURANT	562	CHECK POINT CAKE SHOP
497	LICKY BITES	530	MARY"S SMALL PUB	563	NEW OASIS CEREAL SHOP
498	Adtele Media Solutions Limited	531	PATANA CLUB	564	MUGENDI 2 CEREAL SHOP
499	FIDELS MOTOR BIKE ENTERPRISES	532	SANDES 3D'S BAR & TRESTAURANT	565	MWAVAKA'S CEREAL SHOP
500	TATE DIGITECH SOLUTIONS	533	AFRICAN PUB	566	BEI POA

S. No	Business Name	S. No	Business Name	S. No	Business Name
567	LYDIA CEREALS	600	MOSHA SHOP	633	GRACE WANJIKU WAIREGI
568	ANNOINTED CEREALS	601	VEMA ENTERPRISE	634	BEIRA KINYOZI
569	JK CEREALS	602	JANUMET ENTERPRISES	635	ART THE KINYOZI
570	EZERINE FASHIONS	603	BLESSINGS ENTERPRISES	636	ACHIVERS ENTERPRISES
571	PRESBYTERIAN EDUCATION CENTRE	604	NEEMA CAFE	637	BYPASS GENERAL SHOP
572	XPATS COMPUTER CENTRE	605	NEIGHBOURS SHOP	638	G. I. INVESTMENT
573	VENUS ENERGY LIMITED	606	BLACK STAR SHOP	639	WA MARY SUPU
574	L AND J COSMETICS	607	BOSTON RETAIL SHOP	640	MERU FRESH DAIRIES
575	RED ARK ASSOCIATES	608	FAIR POINT GENERAL SHOP	641	PHIMAR MAIZE MILLER LTD
576	KAHVILA CYBER	609	GOD'S FAVOUR	642	MITUMBA BABY SHOP
577	Brilliant star academy	610	GOOD HOPE GEN SHOP	643	LOVELY BIRDS
578	JIWANG ELECTRONICS	611	KALIF MOHAMED OSMAN	644	RIVERINE ACADEMY
579	KAYMORR ELECTRICAL HARDWARE	612	KANINI SHOP	645	WACHIRA PHOTO STUDIO
580	PLATZ ELECTRONICS	613	NELLY STORES	646	KOBI GENERAK SUPPLIES
581	W.N K ELECTRONICS	614	NGAI-MUHEYANI SHOP	647	MUGO JAMES
582	JAMES ELECTRONICS SHOP	615	REHOBOTH	648	ABUHAHIFA ISLAMIC SCHOOL
583	JASUBA FISH SUPPLIER	616	RUJOS DIGITAL SOLUTIONS	649	KWA WATOTO SCHOOL
584	HORIZON FREIGHT FORWARDERS LIMITED	617	JOWANGA GROCERY SHOP	650	UNITY CENTRE SCHOOL
585	MTN FRUITS	618	PRETY SHOP	651	DR.B.T COOPER UNITED METHODIST EDUCATION CENTRE
586	STEMWA FURNITURE	619	RUCHU GUEST HOUSE	652	HIGHLIGHT JUNIOR ACADEMY
587	BUSIA SHOEROOM FURNITURES	620	MREMBO HAIR	653	FRESH FARM
588	NATRICE B	621	88 HAIR SALON	654	MAISH CYCLES
589	WANJIKU MATRESS SHOP	622	BY FAITH HAIR SALON	655	GATHIMA FURNITURES
590	BEI NAFUU SHOP	623	FEDAMA SALON	656	KITCHEN SOLUTION POINT
591	MANYUTUS GENERAL SHOP	624	MAMA EDU HAIR SALON	657	LIPE ENTERPRISES
592	REHOBOTH MALI MALI	625	BQ HARDWARE	658	MA JAYS BIKES
593	EBENEZER SHOP	626	EMAYA HARDWARE & TIMBER LTD	659	BEI NAFOO SHOP
594	H.M GENERAL SHOP	627	KEVANS INVESTMENT	660	BEST SOLUTIONS
595	KINYANYA GEN. STORES	628	PABLO DISHES	661	BRYAN RETAIL SHOP
596	LANDMARC ENTERPRISES	629	JOYWAMY HOUSE DECO	662	BY GRACE GEN. SHOP
597	M. K SHOP	630	HOPE ENTERPRISES	663	BY GRACE GENERAL STORE
598	MAJANI CHAI GENERAL SHOP	631	GOD BLESSINGS HOUSEHOLDS	664	CARFEX GENERAL STORE
599	MICHAMAN ENTERPRISES	632	SMART HOME HOUSEHOLD	665	ESSEY DAIRY MILK

S. No	Business Name	S. No	Business Name	S. No	Business Name
666	GOOD HOPE SHOP	699	HEZM DIGITAL ELECTRONICS	732	VISION HOTEL
667	GRACE GENERAL STORE	700	WONDERFUL FURNITURE	733	KIMONDO GENERAL SHOP
668	GRAMIC MATT	701	TOP END FURNITURES	734	HENAJA ELECTRICALS
669	GREEN RETAILERS SHOP	702	HESHIMA KEROSINE	735	KI-HARDWARE
670	GTAYD SHOP	703	MAGIC BULLET	736	BRAGEGATE HOTEL
671	HAIRFINITY SALON AND KINYOZI	704	BRIGHTSTAR EMPIRE SALON	737	88 BAR & RESTAURANT
672	HIGHWAY SHOP	705	MAMA MEGAN SALON	738	BRIGHTSHINE EDUCATIONAL CENTER
673	J. P STORES	706	MILELE BEAUTY SHOP & MPESA	739	MICKEYS PLAYHOUSE
674	JULIANA SHOP	707	WANDUTA COSMETICS	740	KATHONZWENI B PUB
675	MAMA DESMA SHOP	708	HARVEST LEARNING CENTRE	741	JUNCTION COMFORT INN
676	MAMA DUX SHOP	709	SHALOM EDUCATION CENTER	742	MWAKI GENERAL HARDWARE
677	MAMA FELIX SHOP	710	ELEMENTARY COLLEGE	743	4J SHOP
678	MAMA PIBIS SHOP	711	PESI ENTERPRISE	744	JOYCHA ENTERPRISES
679	MSAFIRI SHOP	712	DORSEE DESIGN	745	TRADE LINE GENERAL SHOP
680	MUGENDI CEREAL	713	SMART SHOE DESIGN COLLECTION	746	SHEKAINA GLORY SHOP
681	MWANANCHI VYOMBO SHOP	714	SHOE PALACE	747	JUNCTION HOTEL
682	NEEMA SHOP	715	BLESSING SHOP	748	MASCO WINES & MPESA
683	OD WADU HANDSHAKE	716	FAMILY PRIDE	749	MT. KENYA SHOP
684	STAR SHOP	717	KWA NEEMA SHOP	750	MILDA WHOLESALERS
685	STEPHEN IRUNGU SHOP	718	LIZSASH SHOP	751	Mumoni Naturopathy cures.
686	uchumi ndogo	719	MAGNUM SHOP	752	BY FAITH FASHIONS
687	UNIQUE SHOP	720	MAMA BERNO SHOP	753	THE GRASSROOTS WALKERS LTD
688	WACHIRA SHOP	721	MAMA SHIBS SHOP	754	KIONGO WELDING
689	WAJOYS RETAIL SHOP	722	MIKE MINI SHOP	755	Masimba Kids parlour
690	WALAMIS SHOP	723	THAR CISSE	756	ZAREEN LIQUOR HOUSE
691	WANYAMA GEN SHOP	724	WAROCKY SHOP	757	STEEL GARDEN LTD
692	WANYOIKE SHOP	725	WINJOY MAKENA	758	AMANI NETS CENTER
693	WICKIE SUNSHINE SHOP	726	VISION GENERAL SHOP/CEREALS	759	JUJARIQ INVESTMENT LTD
694	JONIKA CEREAL SHOP	727	Rissoles Bar and Grill	760	BARAKA ANIMAL FEEDS
695	RAHSAM CHICKEN	728	MOMBASA RAHA BAR	761	INGO FARMCARE
696	CHICKEN MASTERS SHOP	729	KWA BALOZI	762	QAVAH ANIMAL FEEDS
697	TamTam Chicken	730	VITABU BOOKSHOP	763	BILHOPE ENTERPRISES LTD
698	HIGHLITE ELECTRICALS	731	BLESSED BUTCHERY	764	BYPASS AUTO SPARES
				765	BETTO AUTO SPARES

S. No	Business Name	S. No	Business Name	S. No	Business Name
766	PERFECT COMMONDITIES LIMITED	811	BARAKA COLLECTION	862	WHITE CITY DRY CLEANER
767	CHECKPOINT BAR & RESTAURANT	812	BINRI STYLES BOUTIQUE	863	HI TECH COMPUTER SERVICES
768	DRICARTER BAR & GRILL	813	BLESSED AND FAVOURED POINT	864	JIRANI HOMES LTD
769	FAMIKE PARK	814	BLESSING FAHIONS	865	FATIMA BEAUTY COSMETICS
770	FLAVOURS BAR & RESTAURANT	815	CMFY COLLECTIONS	866	JANPAL COSMETICS SHOP
771	MAKUTI BAR	816	Coolpark Enterprises	867	SPEEDLINK CYBER
772	THE CADELIS LOUNGE & GRILL	817	CYSTIS COLLECTION	868	LIVING FAITH ACADEMY
773	RIVERSIDE SETTLERS INN	818	ELSIE COLLECTION	869	JUNIOR PREPARATORY CENTER
774	RED VICKERS LOUNGE	819	EUNIQUE COLLECTION	870	JILL'S DAYCARE AND KINDERGARTEN
775	LANDMARK PUB AND RESTAURANT	820	EVA SMART BOUTIQUE	871	SKYWAVE MANAGEMENT SERVICES LTD
776	MANSA AGENCIES BAR AND RESTAURANT	821	F T BOUTIQUE	872	MARUM CHEMICAL SHOP
777	MBEMBANI PUB	822	FASHION MASTERS	873	BRISTEM DEVELOPERS LTD
778	MOONLIFE PUB	823	FURAHA COLLECTIONS	874	WAMBUI DIAPERS
779	SPOT 18 BAR AND RESTAURANT	824	JOY FASHION COLLECTION	875	GIGS DESIGNERS
780	SWEET & SASSY GRILL	825	KAMPALA FASHION	876	MALIC DRESS MAKING
781	TEXAS GARDEN ANNEX	826	LADIES PARADISE COLLECTIONS	877	ZALAIN BOUTIQUE
782	LEOPARDS VILLAGE	827	LUCITAH FASHIONS	878	KENYA BUS SERVICE MANAGEMENT SCHOOL LIMITED
783	EXECUTIVE SILVER BARBER SHOP	828	MACICA COLLECTION	879	UTAWALA BEST DISHES
784	FINE CUTS BARBERSHOP	829	MAKESH FAMILY COLLECTIONS	880	PCEA ST LUKE EDUCATIONAL CENTRE - UTAWALA
785	G & T HAIR STUDIOS	830	MARGARET WAMUYU MUNENE T/A NJOMAX COLLECTION	881	AMANI ELECTRICAL
786	ANNS BEAUTY END BARBER PARLOUR	831	MITUMBA SHOP	882	PEGLAM ELECTRICALS
787	SIRS AND DONS	832	MONICA BOUTIQUE	883	VISION GENERAL MARCHANTS & ELECTRICALS
788	BEST POINT COLLECTION	833	NAFAKA BORA BOUTIQUE	884	JAWAK HARDWARE
789	HYLINEMAKEUP & NAILS STUDIO	834	NDAYAYA BOUTIQUE	885	JEDIA GENERAL MERCHANTS AND ELECTRICALS LTD
790	AFRI FAB BEAUTY ISLAND	835	SAMER SHOP	886	NALIANCE ELECTRICALS
791	QUEENS BEAUTY	836	SHALLIS BOUTIQUE	887	VUVUZELA COMMUNICATIONS LIMITED
792	JD BEAUTY KINYOZI	837	SMART LADIES DRESS COLLECTION	888	CARESIL ENTERPRISES
793	EVA COSMETICS /MPESA	838	SMART LADY	889	CLASSIV ELECTRONICS
794	FUTURE HOPE COMMUNICATION	839	SUSAN BOUTIQUE	890	DAVISHARP TECHNOLOGIES
795	ANGELS BEAUTY PARLOUR	840	PIONNEER	891	FIDMO ELECTRONICS
796	ESSENCE BEAUTY SHOP	841	TED THE ERA DESIGNS	892	HORIZON HORTICULTURE AND EXPORTERS LTD
797	KREVE ENTERPRISE	842	WACHEGE BOUTIQUE	893	CARENA CREATIONS
798	MELVILL BEAUTY PARLOUR	843	WAKIOS CLASSIC FASHION	894	KAGORO FISH POINT
799	JOYFLO FIRST BEAUTY PARLOUR	844	WARIDI COLLECTION	895	BLESSINGS SHOP
800	EMY FASHION DESIHNERS	845	NEEMA SHOP	896	KEMMY COOL BASE
801	KINGS & QUIN'S BEAUTY/CYBER	846	REYLYN SUPER BOUTIQUE	897	GAZE FURNITURE KENYA LTD
802	FT COSMETICS	847	NEVADA BOUTIQUE & COSMETICS	898	BESTWAYS TRUCKS AND PARTS
803	R J BEAUTY SHOP	848	GRAND PRIME HOTEL	899	KOTIGO AUTO TECH GARAGE
804	CLUB UNIQ	849	PASSWORD CAFE	900	PLANET OUTLETS LTD
805	ALKEN BOOKSHOP	850	Nancies CAKE Creations	901	GEOKA TRADERS
806	JOTLINE BOOKSHOP	851	MOLLY CAKES	902	BY GRACE MINI SHOP
807	AMANI DRIVE INVESTMENTS LIMITED	852	IMANI SHOP	903	DANDINGI CONSTRUCTION & ENGINEERING LIMITED
808	ROZIE BOUTIQUE	853	Kalfar Ceramics and Hardware		
809	ABBI CLASSIC COLLECTION	854	QUALITY CEREAL SHOP		
810	AMANI LADIES AND KIDS TREDY FASHIONS	855	YETU CEREALS SHOP		
		856	DAKIMU ENTERPRISE		
		857	M.G.M CEREALS		
		858	MAMA CEREALS SHOP		
		859	ZWIT WATER PHARMACETICALS		
		860	SOMO CLEAN WATER		
		861	FRANICE COLLECTIONS AND BOUTIQUE		
			JACBETA ENTERPRISE		

S. No	Business Name	S. No	Business Name	S. No	Business Name
904	WHELLO MART COMFORT	951	PAULETER GENERAL HARDWARE AND LIGHTING	997	KERRY GAS
905	JOMAFRA ENTERPRISES	952	RUNGA HARDWARE STORE	998	TECH-FARM AGROVET
906	KATIMOK MPESA	953	AKKAD SYSTEMS LTD	999	ANIMAL WORLD
907	MERCY GENERAL SHOP	954	KITCHEN WORLD	1000	GADPAL TRADERS
908	NELMO TRADING	955	SPARKLE & BUBBLE INTERNATIONAL	1001	MISIMBA ELECTRICALS & ELECTRONICALS LIMITED
909	WASAM GENERAL SHOP	956	COMPUTER FOR SCHOOLS KENYA	1002	FASTLANE INTERNATIONAL LTD
910	HAZEL MART ENTERPRISES	957	JAY HOUSE DESIGNS	1003	CASIKI SCHOOL UNIFORMS
911	LAMUGIK ENTERPRISES LTD	958	DESTE BEAUTY SHOP	1004	IGNATUS PETER WAIYAKI
912	GLASCO	959	ZUQKI FOOD MART	1005	YATTA AUTO TYRES
913	LETTIZ KUKU SHOP	960	FAIZUL TRADERS	1006	AROBEL BLESSED TASSIA SHOP
914	LULA VILLAM LTD	961	MARCKEN ENTERPRISES	1007	BARAKA SHOP
915	AHLAN BISMILLAH RETAIL SHOP	962	EXPRESSION BEAUTY PARLOUR	1008	BONAGON AGENCIES
916	JAY GREENS	963	GENTLEMAN'S SHAVE & SPA	1009	DANPE MINI SHOP
917	GOOD LUCK SHOP	964	THE LEEZOZ EXECUTIVE BARBER AND SALON	1010	JAMAA GENERAL SHOP
918	AYUB M RINGERA	965	WEIDA INVESTMENT	1011	JARENG VENTURES ENTERPRISES
919	BENSON GROCERIES	966	AIRPORT GATE VIEW HOTEL LTD	1012	KERICHO QUALITY TEA
920	ELIPHI CEREALS POINT	967	COINWASH LOUDROMAT	1013	KIKIS SHOP
921	MAMA COLLY SHOP	968	SIBO MALI MALI	1014	MAKUTANO SHOP
922	SMALL GROCERY SHOP	969	ERIMA MARCHADISE	1015	MULTI SELECTION
923	KEA GUEST HOUSE	970	ACRES MILK	1016	NYAROKE SHOP
924	STESHA GLASS AND ALUMINIUM	971	RICHFARM MILK SHOP	1017	RAZAQUE ENTERPRISE
925	BROTHERS GLASS MART	972	PIONEER MILK BAR	1018	REISA SHOP
926	KAREMBU HARDWARE	973	Tawala Supermarket	1019	VISION CORNER SHOP
927	RUTHIANA HARDWARE STEEL SHOP	974	TRIZZAH COLLECTIONS MTUMBA CLOTHES	1020	BLUE STAR GENERAL SHOP
928	KARAI SUCCESS	975	SAMUY GAMING ARCADE	1021	ALBACO GLASSMART
929	TIFFANY'S SALON	976	SUCRAY ENTERTAINMENT II	1022	EUNICE TIROP SHOP
930	STESSY SALON	977	GRAMER CERAMIC/MPESA	1023	AGAPE GAS CENTRE
931	THE LEEZOZ EXECUTIVE BARBER AND SALON	978	PESA SERVE DONHOLM RAPHAL GAS SUPPLIES	1024	CHAVISU CLEANING SERVICES
932	BETANI STEEL	979	OZONIC MPESA BOUTIQUE	1025	GAR ELECTRICAL
933	BLESSED WORK GENERAL ENTERPRISES	980	SPLASH MPESA/GAS	1026	CITY COOLING SERVICES
934	BRIDGE HARDWARE	981	BLESSED HAND SHOP	1027	TOGI INVESTMENT K LTD
935	BUILDMART, TILES HARDWARE AND PLUMBING SUPPLIES	982	BLESSED HAND SHOP	1028	TROPICAL STAR
936	DAVICH AND SONS LIMITED	983	MSAFIRI CEREAL SHOP	1029	GRANITE SHOP
937	ELISTA HARDWARE	984	KARL KIM NAIL PARLOUR	1030	ENTICE HAIR BEAUTY AND COSMETICS
938	EMPAYA HARDWARE & SUPPLIES	985	MOH NAIL	1031	BLESSING SHOP
939	KANDA GRANITE SHOP	986	ESMI LEARNING CENTRE	1032	MWIKITA ENT SHOP
940	KARE ABDULLAH ADAN	987	Saleda Pharmaceuticals Ltd- Utawala	1033	CHICKEN POINT
941	LIZ KEV GENERAL HARDWARE	988	MR.GREEN TRADING AFRICA LIMITED	1034	SMURFIT KITCHEN SUPPLIES
942	MBAITU GENERAL STORE	989	J & C COMPASSION ACADEMY	1035	LAGOS INVESTMENT
943	NEHEMA HARDWARE	990	KIDDY STEPS DAVCARE AND KINDERGATEN	1036	EAT MORE FISH
944	NEW EBENEZER	991	LITE VIEW ACADEMY	1037	5 STAR SALOON
945	SABTECH ENTERPRISES	992	INTERGRAL CONSTRUCTION LTD	1038	ADONAH BEAUTY CENTRE
946	SWAP HARDWARE	993	MWANZO MANAGEMENT AGENCY	1039	AMBITIOUS BEAUTY SALON
947	TAFF HARDWARE AND ELECTRICALS	994	MAHAT WHOLESALERS	1040	BANSHEE SALON
948	TENAKE DOO LOCKS	995	PENELA HARDWARE AND ELECTRICALS	1041	BIKON BEAUTY
949	TERRAZZO WORLD ENTERPRISE	996		1042	DIVINE TOUCH SALON
950	TONNY HARDWARE			1043	MERCY BEAUTY SALON
				1044	METY HAIR SALON



S. No	Business Name	S. No	Business Name	S. No	Business Name
1045	MUENI HAIR SALON	1090	HOPE JOY ANIMAL FEED SHOP	1135	FRESHVEPA WATER SERVICES
1046	MUM CHRIS SALON	1091	JULIETA BAR AND RESTAURANT	1136	OXYFLOW ENTERPRISES
1047	MY HAIR LADY SALON	1092	FREE HOUSE PINTS PUB	1137	TIMOTHY GITARI GAKUO
1048	NEEMA BEAUTY SALON	1093	RHUMBA LOUNGE	1138	K'OLWA GENERAL STEEL WORKS
1049	SHERI SALON & BEAUTY PARLOUR	1094	SIMPLE PLANS BOUTIQUE	1139	GREAT WALL WHOLESALERS
1050	TARABIHA BEAUTY SALON	1095	KEZA FILLING POINT	1140	BAKIKI WINES & SPIRITS
1051	TOP TO TOE BEAUTY PARLOUR	1096	BOB NGARAMA NJOROGI	1141	SUBA MOTORS LTD
1052	UNNY BEAUTY & BARBER	1097	JOCAS HARDWARE	1142	BERKAI ENGINEERING & AGRI SUPPLIES
1053	URBAN SCIZZOR SALON	1098	KIOMAR ENTERPRISES LIMITED	1143	COMMERCIAL BANK OF AFRICA - GREEN SPAN BRANCH
1054	TRIAD BEAUTY SPA AND COSMETICS	1099	NGONDA HARDWARE	1144	FIFI BOUTIQUE
1055	CHRISHER TRENDY SALON AND BARBER	1100	SHEYANAH HARDWARE	1145	JANE SHOP
1056	JACY HAIR SALON - COSMETICS	1101	TERRAZO POINT	1146	LUGEMA ENTERPRISES
1057	BY GRACE SALON & KINYOZI	1102	TRIPPLE M	1147	MAMA WANJA
1058	GEMILIA BEAUTY SHOP	1103	WATER WORLD IRRIGATION	1148	PEGGY'S FASHION HOUSE
1059	DUCHES EXECUTIVE SALON AND BARBER SHOP	1104	TECHNOSAM SERVICES LIMITED	1149	POSH COLLECTIONS
1060	ONE TOUCH BEAUTY SALON	1105	REGINA NTHAMBI HARDWARE	1150	WANJIRU MAHIANYU
1061	PEARL SALON & BABER SHOP	1106	BOSTON HIGH SCHOOL	1151	MAMA MUREEN SHOP
1062	SUPERCUT BARBERS	1107	BACK STREET BAR	1152	B -SMART BOUTIQUE
1063	PERFECT TOUCH BEAUTY PARLOUR	1108	PETUNIA SCHOOL	1153	PHARMORE PHARMACY LTD
1064	RESSIE BEAUTY SALON AND KINYOZI	1109	KONGONI TOURS	1154	SHAPEEN CYBER
1065	ALICE ITALIAN FOOD INSTITUTE	1110	IMMACULATE BLESSED CEREALS	1155	HELTZ DRIVING SCHOOL
1066	BRIGHT LIGHT SCHOOL	1111	SYMSONS AND DOTS LTD	1156	CROWN REAPER
1067	GRANDVIEW INTERNATIONAL HIGH SCHOOL LTD	1112	OVEN PLEASURES	1157	MEGA MICROFINANCE CO. LTD
1068	ABIET LED LIGHTING	1113	MOMBASA DISHES FRUITS & FRESH JUICES	1158	FAITH SHOP
1069	AMANI SHOP	1114	J SHOE & COSMETICS	1159	GRAM GENERAL SHOP
1070	ANNOINTED SHOP	1115	KAISA MOTOR SPARE PARTS	1160	NYAMAKIMA NDOGO
1071	ANNYKIM ENTERPRISE	1116	SR AUTO SPARES	1161	USHINDI SHOP
1072	AQUAMART GENERAL SHOP	1117	JAXUS AUTO SPARES	1162	AGNOK LOGISTICS AND SUPPLIERS LIMITED
1073	AYUB SHOP	1118	STEMS AUTO SPARES	1163	MAXICOM MEDIA SERVICES LTD
1074	BESSED ASSURANCE	1119	MUCHUKWO STATIONARY	1164	RAFIQIZ ENTERPRISE LTD
1075	COSHEN INVESTMENT	1120	FYFIE PRODUCTION	1165	MAKENA GREEN GROCER
1076	DIVA GENERAL SHOP	1121	SEIFE & PAUL GENERAL SUPPLIES	1166	MATUNDA SHOP
1077	FAVOURED GROCERY SHOP	1122	TUKUZA HARDWARE & GENERAL SUPPLIES	1167	UVUMBI SHOP
1078	GENERAL MARCHANDISE	1123	ANGIE'S DESIGNS	1168	MERCYRAY'S SALON
1079	GEORGE GITHANGA WAMATHI	1124	DAINTY DECOR	1169	ALIYAH KINDERGARTEN AND DAYCARE
1080	GIFT SHOP	1125	ELIMJA ENT	1170	MALI MALI SHOP
1081	MALI MALI SHOP	1126	EMDA DESIGNS	1171	FASENA FASHIONS & MALI MALI CENTRE
1082	MEGA SHOP	1127	ROSE MAGGIE SHOP	1172	ESTHER MALIMALI
1083	NEIGHBOURS SHOP	1128	SMART CURTAINS	1173	FREDAFRIC ENTERPRISES
1084	PIONEER TRADING CENTRE	1129	MAMA TONY TAILORING /BOUTIQUE	1174	LA CREME GARDEN
1085	SUMEYA TRADERS	1130	DORINE JOSH FASHION DESIGN	1175	MKOMBOZI HARDWARE
1086	TAHRIR SHOP	1131	SUZIE'S INTERIOR DESINGS	1176	KEEP AUTO DIESEL
1087	TAWALA GENERAL SHOP	1132	TEXFAB BUSINESS SERVICES	1177	WEMA COM
1088	TULIA GENERAL SHOP	1133	FINE TIMBER YARD	1178	GLAM NAIL AND BEAUTY PARLOUR
1089	WACHIRA SHOP	1134	WAQWETU TYRES	1179	NEW RAKE ENTERPRISES
				1180	PERFECT JOSALIC ELECTRICALS

S. No	Business Name	S. No	Business Name	S. No	Business Name
1181	THE DIVINE MRS MORPHIS	1227	BELLO AGENCIES	1278	PALACE AROMA ENTERPRISES
1182	FAIRWAY SHOP	1228	DEKA BEAUTY COSMETICS	1279	PAULA'S COLLECTIONS
1183	MAMA GLORIA SHOP	1229	ELENAS JEWELLERY AND BEAUTY PALACE	1280	PRECIOUS FAVOUR BOUTIQUE
1184	NAROK MASAI SHOP	1230	GLAM GALS BEAUTY SHOP	1281	QUALITY COLLECTIONS PROPRIETOR
1185	MONOCLINE ENTERPRISES	1231	GWETH BEAUTY SHOP	1282	ROSEFA BOUTIQUE
1186	MAIN PIPELINE BOUTIQUE AND FOOTWARE	1232	JOYLAND BEAUTY SHOP	1283	S & N BOUTIQUE
1187	CLASSIC TOUCH SALON AND SPA	1233	LA TRENDZ BEAUTY SHOP	1284	SAMCY VINTAGE BOUTIQUE
1188	PELAGY COMFY	1234	LOURAINS BEAUTY SHOP	1285	THE WARDROBE
1189	TESHLYS BEAUTY PARLOUR & SPA	1235	PUOYO STAR	1286	TREDY INVOGUE BOUTIQUE
1190	AL -IKHLAS CENTER FOR QUR'AN MEMORIZATION & ISLAMIC STUDIES	1236	SHANAKI COSMETICS	1287	VAZI HOUZ
1191	KAYLIN COLLECTIONS	1237	L AND M BEAUTY SHOP	1288	SYLVIAS SECRETS
1192	MY CLOSET	1238	FITS BEST GALORE	1289	DAEJEON JUBILEE ENTERPRISE
1193	KITE KINDERGATEN	1239	BEAUTY PALACE	1290	SUNNY WORLD PROPERTIES
1194	JUCHA KANGAROO	1240	JANES PARLOUR	1291	cafe royale
1195	MERCANTILE ENT LTD	1241	LAV BEAUTY SHOP	1292	DADDIES FOOD COURT
1196	EUNIFESTUS DESIGNERS	1242	MADI CYCLE MART	1293	DEMKIES FAST FOOD
1197	BUNAA EXPRESS ENTERPRISES	1243	JOBAN BOOKS AND SERVICES	1294	FLAME FRIED
1198	BARAKA COLLECTIONS	1244	MATRIX COMMUNICATION	1295	MWEA CAFE
1199	MARCY HAPPY SCHOOL	1245	MWAWANGA ENTERPRISES	1296	DIAMOND RESTAURANT
1200	BLOW FISH-THE FISH HUB	1246	SAIKA BOOKSHOP	1297	CICA'Z FRIES
1201	MODERN HYDRAULIC SYSTEMS	1247	MAZURI PURIFIED WATER	1298	BETTY'S FRYZ
1202	MANDY VENTURES	1248	2K LOOX	1299	SIMBISA BRANDS
1203	MAC PEO ENTERPRISES	1249	ALICE FASHION FACTORY	1300	KENYA LIMITED
1204	HENMA HOLDINGS LTD	1250	ANDY TRENDS	1301	KENPHIX HOME
1205	FRESHWAYS DAIRY	1251	ANN'S COLLECTIONS	1302	PELAGY COMFY CARWASH
1206	BUMBLEBEE BABY CARE	1252	BISMALLHI SHOP	1303	EMJAY SUPER DEALER
1207	DISNEY BABY CENTRE	1253	BLESSED COLLECTION	1304	RONIMZ
1208	BELINA BABYSITTING CENTRE	1254	CAROLINE BOUTIQUE	1305	ANNOINTED CEREALS SHOP
1209	MINI BAKERIES (NAIROBI) LIMITED	1255	CHESS COLLECTION	1306	PAGI GENERAL STORE
1210	BIANCA'S LOUNGE	1256	DANJE ENTERPRISES	1307	HEALTHLINK PHARMACY
1211	GROOVE BAR & RESTAURANT	1257	DREAMERS HUB	1308	ISMYK GROUP LIMITED
1212	SIMBA'S BAR & RESTAURANT	1258	EUBRIBLE COLLECTIONS	1309	ORY PHARM PHARMACEUTICALS
1213	NONE STOP PUB	1259	FAB FASHIONS	1310	EURAKA HEALTH SERVICES AND COMMUNICATION
1214	POP INN PUB	1260	FABKIKI FASHIONS	1311	ALIMACH SYSTEMS AND SUPPLIES
1215	RELAX PUB AND RESTAURANT	1261	FAVOURED TRADERS	1312	SUGEDS DRYCLEANERS LAUNDRY SERVICES
1216	TRIPPLE K LOUNGE	1262	FRORENCIAH COLLECTION	1313	SUN FLOWER DRY CLEANERS
1217	BONITO SALON & BARBER SHOP	1263	HAFLO	1314	VITRASE DRYCLEANERS
1218	DEE KINYOZI	1264	HIDDEN TREASURE INVESTMENTS	1315	AMANI 2 DRY CLEANERS
1219	FD CLIPPERS	1265	IDEAL SHOES & CLOTHES	1316	ADVENT COLLEGE OF TECHNOLOGY
1220	TRIPLE HEMU EXECUTIVE	1266	JAYBS COLLECTIONS	1317	STAR LAND SCHOOLS
1221	Uptown Cuts	1267	KAYCEE'S COLLECTION	1318	EVACOM SYSTEMS SUPPLIES
1222	DE LINKS BARBER & SPA	1268	L.K ANKARAS	1319	MECHS DRILLING SERVICES LTD
1223	NEZZIE BEAUTY SALON	1269	MAC PEO ENTERPRISES	1320	AFRI-QUEEN COSMETICS
1224	PENAJ	1270	MAKANA DESIGNERS	1321	IQRA COSMETICS
1225	NNICE BEAUTY AND COSMETICS	1271	MAMA SAFI SHOP	1322	DATA LINK CYBER
1226	AFUENI AFRICA HEALTHCARE	1272	MAVAZI CLOSET		DONVAS CYBER
		1273	MIN MUM KIDSWEAR		
		1274	MZEDU BOUTIQUE		
		1275	ONE STOP SHOP		
		1276	OVERFLOW OUTFIT PALACE		
		1277	P-EXPRESSION		

S. No	Business Name	S. No	Business Name	S. No	Business Name
1323	CYBER/COMPUTER MAINTENANCE& REPAIR	1372	BEST PRICE STORES	1419	Splash DryCleaners, Laundry
1324	ELITE CYBER	1373	ERIC MINI SHOP	1420	WHITEROSE
1325	FANCY CLICK TECH SOLUTIONS	1374	FARM FRESH		DRYCLEANERS T/A FLUSH DRYCLEANERS
1326	GOOGLE CYBER CAFE	1375	GLORY SHOP	1421	VENESSA WAMBUI MBURU
1327	ELEVENTH HOUR SUCCESS	1376	GREENSPANS INVESTMENTS	1422	EAST FIBRE NETWORKS LTD
1328	NWANS EXPRESS	1377	ISINYA SHOP	1423	RUSAM VILLA GUEST HOUSE
1329	HARRYS DRYCLEANERS & LAUNDERERS	1378	JACKSON K LANGAT	1424	NYODODA MERCHANT
1330	MINGINGO FISH CENTRE	1379	JONUBA INVEST (FOOD AND CEREALS)	1425	OMLINE ENTERPRISES
1331	VARIETY SHOP	1380	LEONARD K MUCHIRI		
1332	TECH ELECTRICALS	1381	LIKONI SHOP	1426	FRESHWAYS DAIRY
1333	ROMAN ELECTRICALS AND MOBILE ACCESSORIES	1382	MANYATA SHOP	1427	MINSAM'S MILK ATM
1334	AVIKI ENTERPRISES	1383	MASINGA	1428	MIST MILK ATM
1335	G.S.P ELECTRICAL HARDWARE	1384	NAITITO GLOBAL ENTERPRISES	1429	FAVOURED MILK SHOP
1336	J.B CLASSIC	1385	PAMA TRADERS	1430	FLASH MOVIE STORE
1337	KARSAN MURJI & CO. LIMITED	1386	RAFLO	1431	OLY'S ENTREPRISES
1338	PREMIER KENYA LIMITED	1387	TINA SHOP	1432	FLIX MOVIES ELECTRONICS AND ACCESSORIES
1339	MAGNUM FOREX BUREAU LTD	1388	WA MATHE	1433	ALPHAMED PHARMACY
1340	FARM FRESH JUICE	1389	FLOSS CORNER SHOP	1434	TABORA ENTERPRISES
1341	SYLAN ENTERPRISE'S LTD	1390	MAGGIES GENERAL SHOP	1435	PARIS LONDON
1342	Splash Cleaning Gaming Services	1391	LEBEMA HAIR SALON	1436	GRAND NAIL BAR
1343	MUKOYA GAS STORES	1392	GLORY SALON	1437	THE DASH NAIL ART
1344	CORNER GAS SUPPLIERS	1393	MARIAS HAIR SALON	1438	ROZZY NAILS
1345	MUKOYA GAS STORES	1394	SYLVIA SECRET SALON	1439	THE STANDARD GROUP LIMITED
1346	BENMWAS GAS	1395	KULZ AND KUTZ	1440	TAITA TAVETA DISTRIBUTORS LTD
1347	HOPE GAS SUPPLIES	1396	CARENIC PROFESSIONAL HAIR AND BEAUTY COLLEGE	1441	BRIDGE INTERNATIONAL ACADEMIES LTD
1348	DEU-GAS CENTRE	1397	ELEGANT BOUTIQUE		
1349	HERENCIA GAS	1398	FLEXOQUIP HYDRAULIC HOSES & PIPES	1442	MAGEGANIA ENTERPRISES
1350	BLESSED SHOP	1399	MIMAT INVESTMENTS	1443	EXTRA PAINT
1351	DAVYNSKI GENERAL SHOP	1400	PNM HARDWARE	1444	KABUTHI MILK
1352	DIAPER GENERAL SHOP	1401	JACANTIS TERRAZZO HARDWARE	1445	KIBWEZI AGRO LTD
1353	DIGITAL SHOP	1402	VICTORIA CAFE	1446	FILMA AFRICA ENTERPRISES LIMITED
1354	NELSON KOGI GENERAL SHOP	1403	NINAMIC HOUSEHOLD PARADISE	1447	Splash Cleaning Gaming Store Harambee
1355	PSALM 121	1404	OLLY PERFECT COLLECTION	1448	LAUNAT PLAYMAX SERVICES
1356	WADY INTELLEAGENT SOLUTION	1405	JOSY INTERIORS	1449	KRISS NAIL PARLOUR
1357	ZEMO ENTERPRISE	1406	GASEONS ELEMENTS & WELDING SUPPLIES	1450	DONHOLM ADVENTIST SCHOOL
1358	ALTIMAT (K) CONSULTANTS LIMITED	1407	SARIAK INTERIOR LTD	1451	UMMUL QURA INTEGRATED ACADEMY
1359	GOLDEN SERVICES PROVIDERS LIMITED	1408	DONHOLM SOUTH CONG.OF JEHOVAH'S WITNESSES	1452	VICTORIA CAMPUS PARK ACADEMY
1360	JAWA VIBRANT GENERAL SUPPLIES	1409	JOYKE KERO	1453	CONTINENTAL DEVELOPERS LIMITED
1361	LUNDE VENTURES LIMITED	1410	KIDZILLA KIDS FASHION HUB	1454	EVERLINE CREDIT LTD
1362	FLEXY ENTERPRISE	1411	KIDSTAR		
1363	GOODMORNING TWO	1412	KINDERGARTEN DIASPORA BARBER	1455	DENVA TECHNOLOGIES
1364	AMANI SHOP II			1456	PETROGAS
1365	KARIMI GROCERY SHOP	1413	MUSTACH KINYOZI	1457	NEW JERCY SUPERSTORE
1366	KENNEDY MICENI	1414	TOP CUT KINYOZI	1458	MERCHANDISE STUDIO
1367	OBEID SHOP	1415	LEGENDS BARBER SHOP	1459	LIFESTYLE BOOKSHOP & STATIONERS
1368	FRENCHBOY SHOP	1416	LIZUS SALON	1460	MARY TIMSALE
1369	SAVANNAH CEREALS	1417	TICHI KNITTING SHOP	1461	JODAMS AUTO SERVICES
1370	AMANI SHOP				
1371	ARARAT GROCERY SHOP	1418	VINCY QUALITY PRODUCT ENTERPRISES		

S. No	Business Name	S. No	Business Name	S. No	Business Name
1462	AARON CHICKEN BUTCHERY	1516	VIACOM MOVIE SHOP	1564	PHILY SALON/BOUTIQUE
1463	JUNEWA ENTERPRISES	1517	PREMIUM MITUMBA LIMITED	1565	AHAVA
1464	AL-KHIDIR ENTERPRISES	1518	WAMBI TYRES	1566	MAGIC COMB BEAUTY PARLOUR
1465	LEVI AUTO SPARES	1519	SISTARS COLLECTION	1567	ROCKFIELD KINDERGATEN
1466	ESPAR ENTERPRISES	1520	BACH SOLUTIONS	1568	JOSAL COLLECTION
1467	TAWA AUTO SPARES	1521	BETH SALON	1569	SOKONII
1468	MAYBACH SUPER TYRES LTD	1522	BLESSED BEAUTY	1570	DONHOLM MUSLIM SECONDARY SCHOOL
1469	DINDITEL COMMUNICATIONS	1523	BLESSED HOPE SALON	1571	J DIAPER CENTRE
1470	AL AMIN SHOP	1524	BLESSED SALON	1572	FAVOUR BOUTIQUE
1471	AMANI SHOP	1525	CLIENTELE SALON	1573	NINA WAMBUI MAINA
1472	AVANJAN STORES	1526	CRALOCKS BEAUTY SALON	1574	AMINI SHOP
1473	BISMILLAH SHIP	1527	DABRAT HAIR CARE	1575	AZIZA TRADERS
1474	BLESSINGS SHOP	1528	DIVAS HAIR SALON	1576	GREEN ROSE SHOP
1475	BLESSINGS SHOP	1529	ESUPAT SUPER	1577	IMAN SHOP
1476	DAMUKIS CORNER	1530	FAVOURED LIZ SALON	1578	MABRUK SHOP
1477	DESTINY SHOP	1531	FINCHLEY SALON	1579	MANDERA SHOP
1478	EBENEZER 2 SHOP	1532	HABIBA BEAUTY SALON	1580	NAMANGA SHOP
1479	EBENEZER SHOP	1533	HUMBLE BEGINNING SALON	1581	NGOTOP INVESTMENT LTD
1480	EBENEZER SHOP	1534	JAYDARREEN SALON	1582	SMART FIT 254
1481	FAIR PRICE SHOP	1535	JEMS SALON	1583	SMILESON LTD
1482	FATUMA AHMED	1536	JOYCE BEAUTY CENTRE	1584	UNDUGU SHOP
1483	FEISAL SHOP	1537	MARESH BEAUTY SALON	1585	UPENDO CORNER SHOP
1484	GREEN STORE	1538	MARITA SALON	1586	WEMA GENERAL SHOP
1485	GREENWALL ENTERPRISES	1539	MODERN AFRO HAIR STUDIO	1587	KEMU FURNITURE
1486	IDEAL GENERAL SHOP	1540	RONICK SALON	1588	JACARANDA MINI PUB
1487	JOHWAR SHOP	1541	SHANARY HAIR SALON	1589	NAMUK HARDWARE
1488	KABS GENERAL SHOP	1542	SHANENE ENTERPRISES	1590	EMINING PUB
1489	KARIBU GENERAL SHOP	1543	SHE'S SALON	1591	BRAINCHILD ENTERPRISES
1490	MABRUK SHOP	1544	SLICQUE HAIR AND BEAUTY CARE	1592	FRENA BOOKSHOP
1491	MK MARVEL	1545	TALLYS HAIR AND BEAUTY PARLOUR	1593	CAFE D'EPITOME
1492	NOMADIC SHOP	1546	TIMELY BEAUTY	1594	AIRTEL NETWORK (K) LIMITED
1493	OLD RIDGES SHOP	1547	VYRIAN SALON	1595	EASMS ICT CENTRE
1494	RAFIKI HARDWARE	1548	WA DENNIS SALON AND KINYOZI	1596	JAHAZI CAFE
1495	ROBEM GENERAL MERCHANTS	1549	YOUNG LADIES SALON	1597	DORJE HARDWARE
1496	SAPA SHOP	1550	ERIKA SALON AND KINYOZI	1598	P.G. HARDWARE
1497	SIKOLI HIKOLI OLESALALIA	1551	FLOSS HAIR SALON & BARBER SHOP	1599	SAHKIMS HARDWARE INVESTMENTS
1498	TAHMEED RETAIL SHOP	1552	MIKAYE SALON	1600	PATMEC HARDWARE
1499	THE BLUE SHOP	1553	ELEGANCE SALON & BABERSHOP	1601	AL-HIKMA INTERGRATED ACADEMY
1500	THE DYNAMIC SHOP	1554	VIVT SALON	1602	DELUX WINES
1501	TOP TEN TWO SHOP	1555	GRACIOUS SUMEI HAIR CARE	1603	TOUCH DOWN BAR AND RESTAURANT
1502	TRIKEN SHOP	1556	DIANA SALON & BARBER	1604	DRAMA PUB AND RESTAURANT
1503	WA MORAA SHOP	1557	EXCUTIVE SALOON & BARBER SHOP	1605	RENDEZVOUS BAR AND RESTRAUNT
1504	WAJIR SHOP	1558	TASH SALON AND BOUTIQUE	1606	NEEMAK GENERAL SHOP
1505	WASHALA RETAIL SHOP	1559	NEEAMA PARLOUR	1607	ISINYA GENERAL SHOP
1506	SAFARICOM LIMITED	1560	CELMY'S SALON & BERBER	1608	KINORO ENTERPRISES
1507	WIDE ELECTRICAL & ELECTRNOCS	1561	THE BIKINI SALON	1609	TEXAS SPORTS AGENCIES
1508	BLUE RAY AUTO SPARES	1562	LORTY 'S SALON	1610	KATUAA METAL FABRICATORS
1509	PRECIOUS HOME BAKERS	1563	CICI SALON & BOUTIQUE	1611	TELNAH ENTERPRISES
1510	CRESCENT ELECTRIC K LTD			1612	VICANNAH
1511	DUNKEN ELECTRICALS				
1512	ATAJOY FURNITURES				
1513	FAMWA HOUSEHOLDS				
1514	FRESH ICE CREAM ROLLS				
1515	HBO HOME ENTERTAINMENT				

S. No	Business Name	S. No	Business Name	S. No	Business Name
1613	VINTAGE AUTO SHOP	1654	MWAS AUTO SPARES	1700	LYDWAY BEAUTY SHOP
1614	BENKA EVENTS AND CATERING	1655	PAWADA COMBINATION	1701	MEGA BEAUTY SHOP
1615	PLANFREIGHT LIMITED	1656	LULUZ BABY SHOP	1702	SISTERS HAIR & BEAUTY CENTRE
1616	CENTRICA INVESTMENTS	1657	SEMXY BAR	1703	TATEMU BEAUTY SHOP
1617	NGURO PHOTO STUDIO	1658	WAZITO BAR	1704	SYLCATE BEAUTY SHOP AND SALON
1618	GRAMIABLE SOLUTIONS LIMITED	1659	FAMOUS PUB	1705	ZAHRA BEAUTY SALON
1619	GREEN SWAN GROCERIES ENTERPRISE	1660	MARVEL BAR	1706	THE MUSTACHE EXECUTIVE BERBER SHOP
1620	BEN TAILORING SHOP	1661	MWAURAS	1707	EXCEL BOOK & STATIONERY
1621	BY GRACE TAILORING SHOP	1662	@ D BETTZ LOUNGE	1708	MARKET CENTRE BOOKSHOP
1622	FEDHA SCHOOL UNIFORMS	1663	EVE'S MINI LOUNGE & GRILL	1709	QUEENS OASIS WATER SUPPLY
1623	ISRAEL DESIGNERS	1664	MEMOS BAR AND RESTAURANT	1710	AIRDROP UTAWALA BRANCH
1624	MASCOT ENTERPRISE	1665	NEW BREAK POINT PUB	1711	ASHTIN COLLECTION
1625	RALIA TAILORING	1666	PAZURI SPORT BAR & RESTAURANT	1712	CLASSY LADIES OUTFITS
1626	SEASONS FASHION DESIGNERS	1667	SIR'S PUB	1713	EMILY NONAISHI BUSINESS
1627	TECHNOS MULTILINE TRADING	1668	SITTING ROOM LOUNGE	1714	FAITH & HOPE BOUTIQUE
1628	THE HOUSE CARE CENTRE	1669	SKYLISH LOUNGE	1715	FAITH MERCHANTS
1629	UMOJA FASHION	1670	KIENYEJI BAR AND RESTAURANT	1716	FEICY BOUTIQUE
1630	HADESTHER CREATIVE DESIGNS	1671	OFFSIDE BAR AND RESTAURANT	1717	GETTY'S BABY SHOP
1631	MAKENA DESIGNERS	1672	THE EMPIRE BAR AND RESTAURANT	1718	GLAM FASHIONS
1632	TAQWA TAILORS	1673	THE VOGUE ROULETTE ENTERPRISES LTD	1719	HARMONY BOUTIQUE
1633	ARLAADI TAILOR FASHION AND COSMETICS	1674	NEW MOTEL	1720	IDEAL SHOES
1634	NOBEL COLLEGE OF PROFESSIONAL STUDIES	1675	NESTWOOD HOTEL	1721	JOIDA FASHION COLLECTION
1635	CRUZE TECHNOLOGIES LTD	1676	PASHA BARBERS	1722	JOY BOUTIQUE
1636	MONTROSE COMPANY LTD	1677	MILLONHAIRS BARBER SHOP	1723	KAMPALA PRODUCTS
1637	WAIRIKI WATER SERVICES	1678	TRENDS EXECUTIVE BARBER & SPA	1724	LAW JASON COLLECTIONS
1638	SAVANNAH SAPHIRE ENTERPRISE	1679	WILLS BARBER SHOP	1725	MIRIAM BOUTIQUE
1639	TION PRECISION ELECTRONICS	1680	CLADZENE EXECUTIVE	1726	MOONVOYAGE KENYA
1640	OTIENO FABRICATORS	1681	ABDIKADIR BILLOW	1727	NEEMA SHOP
1641	IKIGWULU ENTERPRISES LIMITED	1682	WESTERN BARBERSHOP	1728	P AND H COLLECTIONS
1642	ISPAX WINES AND SPIRITS	1683	SEREDI BOUTIQUE	1729	PEDDS BEAUTY / BOUTIQUE
1643	ANASTY WINES AND SPIRIT	1684	GLOWFACE BEAUTY AND COSMETICS	1730	PETS COLLECTION
1644	HASHTAG WINES AND SPIRITS	1685	WASAFI BEAUTY & COSMETIC SHOP	1731	PRICEWISE SECOND HAND CLOTHES
1645	SHEM JOEL AGENCIES	1686	JEMAC BEAUTY & COSMETICS	1732	ROYAL SUCCESS
1646	ANN FURNITURES	1687	RICH WORLD GENERAL TRADING PROPRIETOR COMPANY	1733	RUJO BOUTIQUE
1647	OJEYS DESIGNS LIMITED	1688	RHEMIDAK BEAUTY BAR	1734	SMART COLLECTION
1648	BANANA RESTAURANT	1689	BELLA COSMETICS	1735	SUPER COLLECTION
1649	VIMAX FRESH EXPORTER ENTERPRISES	1690	CLASSIC COLLECTIONS & BEAUTY	1736	TE'AMO LIFESTYLE
1650	MWANGI ANIMAL FEEDS	1691	SHELLYS BEAUTY PARLOUR	1737	THE OB SHOP
1651	TREASURE CENTRE SUPPLIERS	1692	SUSCO BEAUTY SHOP	1738	TREDY LADIES WEAR
1652	JB AUTO CAR ACCESSORIES	1693	FASHIONS & DESIGNER	1739	TRIPPLE C
1653	KIM'Z AUTO SPARE	1694	NICOLE BEAUTY PARLOUR	1740	VAL COLLECTIONS
		1695	AKIM PRECISION	1741	VISIONS FASHION
		1696	BLUSH BEAUTY SHOP	1742	WAREMBO WA NAI BOUTIQUE
		1697	DALMA BEAUTY SHOP	1743	WINFRED JOSEPH SHOP
		1698	IMANI RETAIL SHOP	1744	X - TINE HOME DECOR AND BEAUTY SHOP
		1699	LOFIEL BEAUTY SHOP	1745	B & B COLLECTION
				1746	GRANDE LTD
				1747	PORK CENTRE
				1748	MSAFI GRILL BUTCHERY
				1749	LACOSTE GRILL

S. No	Business Name	S. No	Business Name	S. No	Business Name
1750	AUTO IMPRESS	1792	ELEGANCE BERNANDAH	1835	HEALTH MATE JUICES
1751	BOUTIQUE KAIZEN COOKING CENTER	1793	RUSLY INVESTMENT	1836	ASSORTED FRUITS PARLOUR
1752	REJOS CEREAL SHOP	1794	CAROL DALUS	1837	GLADWAYS
1753	ALMASY CEREALS AND GROCERY	1795	COSMETIC SHOP	1838	TELTANE FRUITS & VEGETABLES SHOP
1754	GOD GRACE CEREAL SHOP	1796	MOFA COSMETIC & BEAUTY SHOP	1839	VIC ED FURNITURE AND INTERIOR
1755	JACQUIENS CEREAL SHOP	1797	TIMELINE COSMETICS AND BEAUTY SHOP	1840	INTEX FURNITURE CENTRE
1756	NYASH CEREALS STORES	1798	KAYS COSMETIC STORE & BEAUTY PARLOUR	1841	VERISA INVESTMENTS
1757	WANYAMBURA CEREAL	1799	PINC INTERIORS	1842	EARTHLINK AUTO WORKS
1758	BRYALV SUPER STORES	1800	GALAXY CYBER	1843	GREYPPPO AFRICA LTD
1759	BY PASS CEREALS	1801	MARINELINKS CYBER	1844	JEKS MOTOR PARTS
1760	FAVOUR CEREALS	1802	KOKO BEE CYBER PARLOUR	1845	KAGUNDA AUTO SPARES
1761	JOSELLA CEREALS	1803	THE BRIDGE CYBER UTAWALA	1846	CROWN POWER GAS
1762	LOLOLI CEREALS & GENERAL SUPPLIES	1804	SPEEDBALL COURIER SERVICES	1847	LUDIMILLA RICE SHOP
1763	MAMA GREG CEREALS AND ENTERPRISES	1805	KIKI FLOWERS (K) LIMITED	1848	NABAY INVESTMENTS
1764	MKULIMA FOOD STORES	1806	CROPCHEM EAST AFRICA LIMITED	1849	BESTMAK INVESTMENTS
1765	NUTRICS GENERAL STORES	1807	BANKASO DREADLOCKS AND SALON	1850	CASAMOKO CONTRACTORS LTD
1766	PEHIJO CEREALS	1808	KHADJA AFRICAN DESIGN	1851	E -RULER GENERAL MERCHANTS
1767	ANUP LASER PHARMACEUTICALS LTD	1809	SAWIRI TAILORS	1852	CELL EXPRESS
1768	BONFAITH PHARMACEUTICAL	1810	HELTZ DRIVING SCHOOL	1853	ACHATE ENTERPRISES
1769	DANNCHEM PHARMACEUTICAL	1811	Royal White Dry Cleaners	1854	BONNIE GEN SHOP
1770	DURAMED PHARMACEUTICALS	1812	AMANI DRYCLEANER	1855	BTN GENERAL SHOP
1771	JOSCOVIA	1813	PRIORITY DRYCLEANERS AND LAUNDRY LTD	1856	CES LUBRICANTS AND AUTO CENTRE
1772	NYAMBO CHEMIST	1814	DON DRYCLEANERS COLLECTION POINT	1857	EBENEZER SHOP
1773	PHILIMAR PHARMACEUTICALS LTD	1815	RAMSY ELECTRICALS SUPPLIES	1858	EXOTIC CEREALS & GENERAL SHOP
1774	ST MICHAEL CHEMIST LTD	1816	AMJOY ELECTRICALS	1859	FRAMES MEDIA ENTERPRISES
1775	TRIDAN CHEMIST	1817	SILVER ELECTRONIC	1860	FRAYNE SHOP
1776	T SHI FAST FOODS	1818	MAJAI ENTERPRISES	1861	GAKS SHOP
1777	TOP BRASS HOME CLEANING SERVICES	1819	ROSMA HARDWARE & ELECTRICALS	1862	MAHITAJI SHOP
1778	GALLION LOGISTICS LIMITED	1820	JANE ELECTRONIC SHOP	1863	MAMA AFRICA SHOP
1779	IMPEX FREIGHT LTD	1821	FIDMO 4G	1864	NEEMA CEREALS
1780	FLORA SHOP	1822	IMANI ELECTRICALS	1865	NIKIS FRESH FARM GOODS
1781	JOYSWORTH COLLECTIONS WEAR WITH PRIDE	1823	WANDOLA ENERGY SYSTEMS	1866	OLOSHIWUO MAYIAN SHOP
1782	SHINE COLLECTIONS	1824	FRAMES MEDIA ENTERPRISES	1867	SANITECH INVESTMENT
1783	THINK ONCE TEXTILE	1825	SIKEM INVESTMENT	1868	SHACKLINE ENTERPRISES SHOP
1784	TABARE FASHION SHOP	1826	TRIPLE KAY ELECTRONICS & HOUSEHOLD GOODS	1869	SHADRIAM SHOP
1785	TOPS CLOTHING SOLUTIONS	1827	MA SHARON ELECTONIC SHOP	1870	SHOP & CEREALS
1786	AMANI COLLECTIONS	1828	TERRA BUILDERS LIMITED	1871	ANDUX GENERAL SUPPLIES
1787	ANNS KIDS AND LADIES COLLECTION	1829	FUN JUICE	1872	Davi Commeatus Enterprise
1788	SHAAN LAUNDERS	1830	OILING MAXIMUM KENYA LTD	1873	LUBETA LIMITED
1789	TOPKEV ENTERPRISES	1831	PEKA FILLIBG STATION	1874	NEOLAIN LIMITED
1790	JOMOKERS COMPANY LIMITED	1832	NYASEMBO FRESH FISH	1875	BISCAYNE AGENCIES LTD
1791	FASALI INVESTMENT LIMITED	1833	CONCRETE JUNGLE FLOWERS	1876	VILLAS GREEN GROCERY/BUTCHERY
		1834	FLOMAR	1877	HOMELY SUPPLIES
				1878	SAFARIGREENS
				1879	UTAWALA COMMUNITY STORES
				1880	BY GOD'S GRACE SHOP

S. No	Business Name	S. No	Business Name	S. No	Business Name
1881	HARMONY GENERAL ENTERPRISE SHOP	1928	ROYAL EXECUTIVE KINYOZI	1973	ITS MOM'S
1882	KASHA ONE SUPPLY	1929	GLASSIC SALON& KINYOZI	1974	WEST WORLD SHOP
1883	KIRANGARI HARDWARE SHOP	1930	PAH BARBARA & BEAUTY PARLOUR	1975	JOCKTONIA LTD
1884	MAZE TRADERS	1931	CUTE EXECUTIVE	1976	GLORIOUS GLASSMART
1885	MIHENDU CEREALS & GAS SHOP	1932	TIANAS BEAUTY	1977	SWEEMS CONSULT LTD
1886	MY FAVOURITE	1933	DOMINION & SALON SHOP	1978	BY PASS VETERINAY CENTRE
1887	RAZACK ENTERPRISES	1934	KNEAT HOME INTERIORS	1979	LEN BISTRO WINES & SPIRITS
1888	UTAWALA GROCERS	1935	BESTFIT DRYCLEANERS	1980	DEMUS CEREAL
1889	VIKS ENTERPRISES	1936	iWash Laundry	1981	WA - MUTHII SHOP
1890	CREATIVE GYPSUM DECORS	1937	ALMOND GROVE ACADEMY	1982	SAB CHEMICAL ENTERPRISES
1891	FAIRWAYS HARDWARE AND GENERAL SUPPLIES	1938	ZULU LIQUOR STORE	1983	POTENTIAL ELECTRONICS
1892	MOTHERLAND HARDWARE	1939	SKYLINE LIQUOR LIMITED	1984	MASID HOLDINGS LIMITED
1893	MUSCLE PLUMBER SOLUTION	1940	AMAZE SNOOP	1985	SHIKU INTERIOR DESIGN
1894	SHA -FIT HARDWARE	1941	GREAT VIEW INVESTMENT	1986	ACRES MILK
1895	CHRISTYS SALON	1942	MARY WANGUI MAHIATU MALIMALI	1987	CONA FRESH MILK
1896	GREAT FAVOUR SALON	1943	RADHESTHYAM TRANSPORT LTD	1988	BAKATH ENTERPRISES
1897	SHEKINA SALON	1944	PREMIER CREDIT LIMITED	1989	BY PASS TERRAZO
1898	WAKANDA EXECUTIVE BARBER SHOP	1945	BENRO MILK ATM	1990	ORANGE TYRES AUTOMAT
1900	BENESTER HARDWARE	1946	JAMII BORE	1991	HOPE UNIFORM OUTFITTERS
1901	BLESSING HARDWARE	1947	ACRES MILK	1992	ONE MORE SUPPLIERS
1902	CROCO GENREAL HARDWARE	1948	ACRES MILK	1993	JAMMO'S SPAREPARTS & ELECTRICAL FITTING
1903	EAGLE HARDWARE	1949	JOY MILK BAR& SNACKS	1994	APHLIRONO
1904	JOJAMSA	1950	TAP MAX MILK SHOP	1995	BAHAMASA SHOP
1905	MOFRAH HARDWARE	1951	JAMII FRESH MILK & SNACKS	1996	BEST ONE SHOP
1906	MORGEN GENERAL HARDWARE	1952	JESA MILK SHOP	1997	BIDII CONNECTION GLORY SHOP
1907	PECRISAH TIMBER AND HARDWARE	1953	MAMA PRINCES SHOP	1998	BLESED HANDS SHOP
1908	PERKS ELECTRICAL SERVICES	1954	STREAM LINK ENTERTAINMENT	1999	CATHERINE NEKESA
1909	ROYAL GENERAL HARDWARE	1955	MODISANS ICE AND MOVIE SHOP	2000	CHIRIMBI SHOP
1910	SAPRIM ENTERPRISES LIMITED	1956	MIGHTMAX SHOW	2001	CLASSIC ACHIVERS
1911	SPARKIE GENERAL STORES	1957	CECILIA MUCHIRI	2002	CONSUMER SOLUTIONS
1912	NEW EMPIRE HARDWARE & ELECTRICALS	1958	THE NAIL GARDEN UTAWALA	2003	DEJUS ELECTRICAL
1913	SAHIL HARDWARE AND AUTO SPARES LTD	1959	KELERINE INVESTMENT COMPANY LIMITED	2004	EAGLES SHOP
1914	SUPER CERAMICS	1960	REPUTE SERVICES LTD	2005	EVEJEFAS ENTERPRISE
1915	MITEX HARDWARE AND ELECTRICALS	1961	FAMICA MONTESSORI KINDERGARTEN	2006	FAVOUR TRADERS
1916	MZALENDO HOUSE	1962	JOS SCHOOL	2007	FON-CALLAWAY SERVICES LIMITED
1917	SANDRA HOUSEHOLD COLLECTION	1963	JUDAH J.M EXCEL	2008	GIFT LAND SHOP
1918	APRIL SUN TRADING CO LTD	1964	TENDER CARE JUNIOR ACADEMY LTD	2009	GITHUNGURI JUNCTION SHOP
1919	NANGITA INTERIORS	1965	GROVE IMPORT & EXPORT CO.LTD	2010	GOLD STONE
1920	FINE TOUCH INTERIORS	1966	CAESWA LTD COMPANY	2011	GOLDEN HAND SHOP
1921	KAIRO'S SUGARCANE JUICE	1967	NYAMACHE INN PUB	2012	HEARD SPEAR
1922	HOPE KINDERGARTEN	1968	SENIORS PUB	2013	HYEMES AGENCIES
1923	ATOMIC KINYOZI	1969	LELACH PURE WATER	2014	JASHO SHOP
1924	HAIR MANIAC	1970	GEO SOLARWORKS TECHNOLOGY LIMITED	2015	JOGES SHOP
1925	HOPE KINYOZI	1971	LEMSHA MOTORBIKE SPARES AND REPAIR	2016	LILIANNA AGENCIES
1926	KWETU CUTS	1972	KLUB DE MOFAYA	2017	LINA ANIMAL FEEDS
1927	NOSIM BARBER CUTZ			2018	MAMA KELVIN SHOP
				2019	MAMA SAMMY SHOP
				2020	MOON LIGHT
				2021	MURITHI'S SHOP
				2022	OMEGA TEXTILE FASHIONS LTD
				2023	ON THE MOVE PROVISION STORE
				2024	PAULEX SHOP
				2025	SIMBA EXPERIENCES (K) LTD

S. No	Business Name	S. No	Business Name	S. No	Business Name
2026	TRIPPLE W GENERAL SHOP	2072	GLAM BY KEYKEY SALON	2119	DALWAS ENTERPRISES
2027	TUKUTANE KIOSK	2073	GOD GRACE	2120	GALLEX SHOP
2028	TUMAINI SHOP	2074	MAGIK HAIR SOLUTIONS	2121	KAMWEGI SUPPLIERS
2029	VICTORIA GENERAL SHOP	2075	MAMA CATY	2122	LORDS BARBER SHOP
2030	RAFIKI SHOP	2076	NAFO SALON	2123	MAMA ASHLEY SHOP
2031	PESISO GAS TRADERS	2077	NANCY SALON	2124	PURE MINI SHOP
2032	UTAWALA FARM CARE	2078	PENEL SALON	2125	SAM BLESSING
		2079	PHILOH SALON	2126	SMART CHOICE SHOP
2033	MWANGI SHOP	2080	PRINCESS SALON	2127	NEW WOOD
		2081	ROYAL DIVA'S BEAUTY PARLOUR	2128	AVAITORS PUB
2034	PRICERITE COMMUNICATIONS CITY CABANAS STAGE OFF	2082	RUBY NAIL LOUNGE	2129	BACKYARD 2
		2083	SALON HERITAGE	2130	WHITE UP ENTERPRISES
2035	PRICERITE COMMUNICATIONS TUSKEYS HEADQUARTERS	2084	SYTLISH SALON AND BEAUTY CENTRE	2131	CAFE CLISA
		2085	TEPHIS SALON	2132	SWEET VALLEY CAFE
2036	TRAMOM CO-OPERATIVE SAVINGS AND CREDIT SOCIETY LTD	2086	TETTY DREADLOCKS MAKEOVER	2133	SUPERSOL QUALITY DELICASY
		2087	UNITY SALON	2134	FLAME FRIED
2037	FRAISSAC ENTERPRISES	2088	UTAWALA HAIR SALON	2135	PACIFIC FILLING STATION
2038	JAZEEL WHOLESALE	2089	WAKANINI SALON	2136	LANCET KENYA
2039	IBRAHIM KIBIRO MUCHUMU	2090	MAMA ELVIRO	2137	CAN ENTERPRISES
2040	CALMAX BICYCLE SHOP	2091	TRENDY SALON AND BARBER	2138	G-STAR HARDWARE
2041	CITY-PRIME AUTO WORLD	2092	FAITH SALON AND COSMETICS	2139	HIBISCUS INTERIORS & DECOR
2042	KIDS OUTFIT & PERFUME	2093	INTESSAR COLLECTION	2140	NEEMA HARDWARE
2043	RAHISI BOUTIQUE	2094	BLESSED BEAUTY PARLOUR-UTAWALA	2141	FRIENDS GUEST HOUSE
2044	JOYVET INVESTMENTS LIMITED	2095	Nelly's Beauty Salon and Barbershop	2142	CHECHA TRADING COMPANY LTD
2045	KAYPHIL COLLECTIONS	2096	KEVRICK BEAUTY PAROUR & BARBER	2143	KIRIATH JIAM SCHOOL
2046	DREAM WORLD DIAPER SHOP	2097	DOMINION & COSMETICS SALON	2144	KAIZEN SAMATI INTERNATIONAL
2047	JAJO TRDADERS	2098	AMAZING BEAUTY SALON & COSMETICS	2145	ARMANI GENERAL SHOP
2048	DOMINION FURNITURES	2099	KINGS AND QUEENS SALON AND KINYOZI	2146	WESTKAM INTERNATIONAL LTD
2049	EBENEZER FURNITURE	2100	PEARL SALON & BARBER SHOP	2147	JUKIM TRADERS
2050	PAMOJA FURNITURES	2101	TINA'S HAIR SALON & KINYOZI	2148	CITY SNACKS
2051	SQUARE GLASSMAT	2102	SONI BEAUTY SHOP AND SALON	2149	QUPID DELIGHTS
2052	UTAWALA GLASSMART	2103	ASSUMPTION HIGH SCHOOL-NAIROBI	2150	JELIGERS CAFE
2053	INTERIOR INVESTMENT	2104	DAY SPRINGS ACADEMY	2151	BIKES CARTEL
2054	ZANLEE HOLDINGS	2105	SPRING OF HOPE ACADEMY	2152	UTAWALA BIKE SHOP
2055	FRESH JUICE	2106	ABANDANT COLLECTION	2153	MELROSE MOTOCYCLE SPARES
2056	CHITIVO INVESTMENT	2107	EMINENT SECURITY SERVICES LTD	2154	BAYETE HOLDINGS LTD
2057	GNAME LTD	2108	KUKU SHOP	2155	FLODIDA CONSTRUCTION MACHINERY
2058	Kithan Autocare Limited	2109	NOBLE FURNITURES	2156	GREEN TRADING LIMITED
2059	GLORIOUS AUTO SPARES & ELECTRICALS	2110	SCHOOL MATE UNIFORMS	2157	GEOCHRIS TRADERS LTD
2060	PATHI AUTO SPARES	2111	DARAJA WATER SERVICES	2158	SPARKS AND WALK LTD
2061	TELCOM SHOP UTAWALA	2112	MURANO ENTERPRISES	2159	MAROCK HOLDINGS LTD
2062	CROSSROAD TIMBER	2113	SAMS SHOE RACK	2160	MEPA ENTERPRISES LTD
2063	JUNCTION TIMBERYARD	2114	FORESTER SHOE COLLECTION	2161	ROYAL PRIDE DESIGN
2064	MOON LIGHT	2115	MORAX SHOE	2162	AMAZING COLLECTIONS
2065	PHABO ENTERPRISES	2116	AMANI SHOP	2163	BETH FASHION DESIGN
2066	HANSHI WHOLESALE AND RETAIL	2117	BENSI SHOP	2164	DAMSA
2067	ARK GOLDEN ORNAMENTS	2118	CHAMPION SHOP	2165	FINELAND TAILORING WORKSHOP
2068	AFRO BEAUTY TRIXY PARLOUR			2166	FRIDAH DESIGN
2069	AMIDAN SALON			2167	GLAMDUST COLLECTION
2070	CARPHAEL SALON & BOUTIQUE			2168	HUSTLE AND SOUL FASHION HOUSE
2071	FINE TOUCH SALON			2169	JOY TAILORING SHOP
				2170	MAMA STEV
				2171	MAMA TOBI FASHION



<b>S. No</b>	<b>Business Name</b>
2172	PEDIAS FASHIONS
2173	SMART TAILORING
2174	TENTWORLD SERVICES
2175	HOPE TAILORING & DRESSMAKING
2176	CHEMA DESIGN' S
2177	GALAXY HOTEL
2178	KIRINYAGA SPECIAL TEA & CEREALS
2179	JACKTEC OUTFITTERS
2180	Geomag Ventures
2181	EURO BOUTIQUE
2182	ELMO GAMING SPOT
2183	PALORA ENTERPRISE
2184	REDDZ WINES & SPIRITS
2185	MALKIA WINES AND SPIRITS
2186	CARDOCTORS AUTO GARAGE
2187	FICUS ENGINEERING LTD
2188	FOUR GOOD ENTERPRISES
2189	JOYNEL ENTERPRISE
2190	LOGIC BRICKS LTD
2191	PATIALLA DISTILLERS (K) LTD
2192	BIGFLOWER LTD
2193	ASCOT PALLET FURNITURE
2194	HYPATIA ENTERPRISES

**Source: Nairobi  
County Licensing  
Records, 2019**

## Appendix 7: SPSS Data Output Process Macro Model 4 and Model 59

**Table 5.1: SPSS Output Model 4 (Self-control, FINN and Financial Inclusion)**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 3.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.

www.afhayes.com

Documentation available in Hayes (2018).

www.guilford.com/p/hayes3

\*\*\*\*\*  
\*\*\*\*\*

Model : 4  
Y : ZFI  
X : ZSC  
M : ZFINN

Covariates:

ZE1 ZE2 ZE3

Sample

Size: 413

\*\*\*\*\*

OUTCOME VARIABLE:

ZFINN

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3349	.1122	.8600	12.8875	4.0000	408.0000	.0000

Model

	Coeff	se	t	p	LLCI	ULCI
constant	-.0583	.0457	-1.2758	.2028	-.1482	.0316
ZSC	.3188	.0456	6.9909	.0000	.2292	.4084
ZE1	.0474	.0514	.9231	.3565	-.0536	.1484
ZE2	-.0531	.0516	-1.0285	.3043	-.1546	.0484
ZE3	-.0499	.0476	-1.0500	.2944	-.1435	.0436

\*\*\*\*\*  
\*\*

OUTCOME VARIABLE:

ZFI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.6040	.3648	.6482	46.7443	5.0000	407.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.0208	.0398	-.5235	.6009	-.0990	.0574
ZSC	.4461	.0419	10.6478	.0000	.3637	.5285
ZFINN	.2953	.0430	6.8709	.0000	.2108	.3798
ZE1	-.0036	.0446	-.0815	.9351	-.0914	.0841
ZE2	.0089	.0449	.1980	.8431	-.0793	.0971
ZE3	.0038	.0414	.0913	.9273	-.0775	.0851

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	
.4461	.0419	10.6478	.0000	.3637	.5285	

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
ZFINN	.0941	.0269	.0436	.1496

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:  
5000

----- END MATRIX -----

**Source: Research Data, 2019**

**Table 5.2: SPSS Output Model 4 (Confidence, FINN and Financial Inclusion)**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 3.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)  
 Documentation available in Hayes (2018).  
[www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model : 4  
 Y : ZFI  
 X : ZC  
 M : ZFINN

Covariates:  
 ZE1 ZE2 ZE3

Sample  
 Size: 413

\*\*\*\*\*

OUTCOME VARIABLE:  
 ZFINN

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4056	.1645	.8093	20.0846	4.0000	408.0000	0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.0372	.0443	-.8395	.4017	-.1242	.0499
ZC	.3894	.0442	8.8030	.0000	.3024	.4763
ZE1	.0160	.0499	.3202	.7490	-.0822	.1141
ZE2	-.0542	.0501	-1.0828	.2795	-.1527	.0442
ZE3	-.0301	.0462	-.6502	.5160	-.1210	.0608

\*\*\*\*\*

\*\*

OUTCOME VARIABLE:  
 ZFI

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5959	.3551	.6581	44.8245	5.0000	407.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.0073	.0400	.1829	.8550	-.0712	.0858
ZC	.4471	.0435	10.2752	.0000	.3615	.5326
ZFINN	.2617	.0446	5.8629	.0000	.1740	.3495
ZE1	-.0393	.0450	-.8737	.3828	-.1279	.0492
ZE2	.0080	.0452	.1779	.8589	-.0809	.0969
ZE3	.0229	.0417	.5495	.5829	-.0591	.1049

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.4471	.0435	10.2752	.0000	.3615	.5326

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
ZFINN	.1019	.0277	.0524	.1595

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----

**Source: Research Data, 2019**

**Table 5.3: SPSS Output Model 4 (Social Proof, FINN and Financial Inclusion)**

Run MATRIX procedure:

```

***** PROCESS Procedure for SPSS Version 3.3 *****
                Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
                Documentation available in Hayes (2018).
                www.guilford.com/p/hayes3

*****
Model   : 4
  Y     : ZFI
  X     : ZSP
  M     : ZFINN

Covariates:
  ZE1   ZE2   ZE3

Sample
Size:   413

*****
OUTCOME VARIABLE:
  ZFINN

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .3754  .1410    .8321   16.7375   .0000   408.0000  .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  -.0340   .0449   -.7583   .4487   -.1223   .0542
ZSP       .3511   .0438   8.0114   .0000   .2649   .4372
ZE1       .0393   .0505   .7769   .4377   -.0601   .1386
ZE2      -.0633   .0508  -1.2448   .2139   -.1632   .0366
ZE3      -.0344   .0469   -.7347   .4629   -.1266   .0577

*****
OUTCOME VARIABLE:
  ZFI

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .5681  .3227    .6911   38.7895   5.0000  407.0000  .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  .0120   .0409   .2927   .7699   -.0685   .0925
ZSP       .3868   .0430   9.0040   .0000   .3024   .4713
ZFINN     .2952   .0451   6.5434   .0000   .2065   .3839
ZE1      -.0139   .0461   -.3014   .7633   -.1045   .0767
ZE2       .0000   .0464   .0005   .9996   -.0912   .0912
ZE3       .0188   .0427   .4391   .6608   -.0652   .1028
***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

```

Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	
.3868	.0430	9.0040	.0000	.3024	.4713	

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
ZFINN	.1036	.0279	.0512	.1616

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:  
5000

----- END MATRIX -----

**Source: Research Data, 2019**

**Table 5.4: SPSS Output Model 59 (Self-control, FL, FINN and FI)**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 3.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.                      www.afhayes.com  
Documentation available in Hayes (2018).  
www.guilford.com/p/hayes3

\*\*\*\*\*

Model : 59  
Y : ZFI  
X : ZSC  
M : ZFINN  
W : ZFLsc

Covariates:  
ZE1        ZE2        ZE3

Sample  
Size: 413

\*\*\*\*\*

OUTCOME VARIABLE:  
ZFINN

Model Summary	R	R-sq	MSE	F	df1	df2	p
	.3558	.1266	.8502	9.8077	6.0000	406.0000	.0000

Model	coeff	se	t	p	LLCI	ULCI
constant	-.0546	.0461	-1.1837	.2372	-.1452	.0361
ZSC	.2793	.0481	5.8040	.0000	.1847	.3739
ZFLsc	.0126	.0468	.2686	.7884	-.0795	.1046
Int_1	.1248	.0495	2.5192	.0121	.0274	.2222
ZE1	.0467	.0513	.9092	.3638	-.0542	.1476
ZE2	-.0406	.0518	-.7835	.4338	-.1423	.0612
ZE3	-.0521	.0473	-1.0996	.2722	-.1451	.0410

Product terms key:  
Int\_1 :        ZSC        x        ZFLsc

Test(s) of highest order unconditional interaction(s):	R2-chng	F	df1	df2	p
X*W	.0137	6.3464	1.0000	406.0000	.0121

-----

Focal predict: ZSC        (X)  
Mod var: ZFLsc        (W)

Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.1672	.0757	2.2092	.0277	.0184	.3160
-.1123	.2653	.0503	5.2790	.0000	.1665	.3641
1.1205	.4192	.0601	6.9712	.0000	.3010	.5374

\*\*\*\*\*



OUTCOME VARIABLE:

ZFI

## Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.6250	.3906	.6265	32.3694	8.0000	404.0000	.0000

## Model

	coeff	se	t	p	LLCI	ULCI
constant	-.0243	.0397	-.6114	.5413	-.1022	.0537
ZSC	.4038	.0430	9.3797	.0000	.3191	.4884
ZFINN	.2671	.0442	6.0395	.0000	.1801	.3540
ZFLsc	.0584	.0404	1.4464	.1488	-.0210	.1378
Int_1	.1499	.0444	3.3775	.0008	.0626	.2371
Int_2	.0253	.0451	.5602	.5757	-.0634	.1140
ZE1	.0020	.0442	.0462	.9632	-.0848	.0889
ZE2	.0221	.0446	.4958	.6203	-.0655	.1097
ZE3	-.0031	.0408	-.0755	.9398	-.0832	.0771

## Product terms key:

Int_1	:	ZSC	x	ZFLsc
Int_2	:	ZFINN	x	ZFLsc

## Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0172	11.4078	1.0000	404.0000	.0008
M*W	.0005	.3138	1.0000	404.0000	.5757

-----  
 Focal predict: ZSC (X)  
 Mod var: ZFLsc (W)

## Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.2691	.0659	4.0856	.0001	.1396	.3986
-.1123	.3869	.0446	8.6744	.0000	.2992	.4746
1.1205	.5717	.0567	10.0914	.0000	.4604	.6831

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

## Conditional direct effect(s) of X on Y:

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.2691	.0659	4.0856	.0001	.1396	.3986
-.1123	.3869	.0446	8.6744	.0000	.2992	.4746
1.1205	.5717	.0567	10.0914	.0000	.4604	.6831

## Conditional indirect effects of X on Y:

## INDIRECT EFFECT:

ZSC	->	ZFINN	->	ZFI
-----	----	-------	----	-----

ZFLsc	Effect	BootSE	BootLLCI	BootULCI
-.8985	.0409	.0256	-.0019	.0972
-.1123	.0701	.0223	.0303	.1170
1.1205	.1238	.0488	.0441	.2325

---

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

Number of bootstrap samples for percentile bootstrap confidence  
intervals:  
5000

W values in conditional tables are the 16th, 50th, and 84th  
percentiles.

----- END MATRIX -----

**Source: Research Data, 2019**

**Table 5.5: SPSS Output Model 59 (Confidence, FL, FINN and FI)**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 3.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)  
 Documentation available in Hayes (2018).  
[www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model : 59  
 Y : ZFI  
 X : ZC  
 M : ZFINN  
 W : ZFLsc

Covariates:

ZE1 ZE2 ZE3

Sample

Size: 413

\*\*\*\*\*

OUTCOME VARIABLE:

ZFINN

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.4144	.1717	.8062	14.0313	6.0000	406.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.0393	.0447	-.8795	.3797	-.1272	.0486
ZC	.3588	.0470	7.6276	.0000	.2663	.4513
ZFLsc	-.0008	.0453	-.0173	.9862	-.0898	.0882
Int_1	.0895	.0476	1.8815	.0606	-.0040	.1830
ZE1	.0197	.0501	.3941	.6937	-.0787	.1182
ZE2	-.0488	.0502	-.9722	.3315	-.1474	.0499
ZE3	-.0343	.0462	-.7419	.4586	-.1252	.0566

Product terms key:

Int\_1 : ZC x ZFLsc

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0072	3.5400	1.0000	406.0000	.0606

-----

Focal predict: ZC (X)  
 Mod var: ZFLsc (W)

Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.2784	.0736	3.7811	.0002	.1337	.4232
-.1123	.3488	.0491	7.0980	.0000	.2522	.4454
1.1205	.4591	.0577	7.9581	.0000	.3457	.5725

\*\*\*\*\*

OUTCOME VARIABLE:

ZFI

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6140	.3770	6405	30.5552	8.0000	404.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.0033	.0399	-.0819	.9348	-.0817	.0752
ZC	.3995	.0449	8.9070	.0000	.3113	.4877
ZFINN	.2374	.0459	5.1755	.0000	.1472	.3276
ZFLsc	.0401	.0405	.9908	.3224	-.0395	.1197
Int_1	.1401	.0442	3.1713	.0016	.0533	.2270
Int_2	.0365	.0456	.7990	.4248	-.0532	.1261
ZE1	-.0270	.0447	-.6036	.5464	-.1149	.0609
ZE2	.0164	.0449	.3645	.7157	-.0719	.1047
ZE3	.0117	.0413	.2844	.7763	-.0695	.0930

Product terms key:

Int_1	:	ZC	x	ZFLsc
Int_2	:	ZFINN	x	ZFLsc

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0155	10.0573	1.0000	404.0000	.0016
M*W	.0010	.6384	1.0000	404.0000	.4248

-----  
 Focal predict: ZC (X)  
 Mod var: ZFLsc (W)

Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.2736	.0674	4.0579	.0001	.1411	.4062
-.1123	.3838	.0464	8.2645	.0000	.2925	.4750
1.1205	.5565	.0572	9.7371	.0000	.4441	.6688

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y  
 \*\*\*\*\*

Conditional direct effect(s) of X on Y:

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.2736	.0674	4.0579	.0001	.1411	.4062
-.1123	.3838	.0464	8.2645	.0000	.2925	.4750
1.1205	.5565	.0572	9.7371	.0000	.4441	.6688

.6688

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

ZC -> ZFINN -> ZFI

ZFLsc	Effect	BootSE	BootLLCI	BootULCI
-.8985	.0570	.0270	.0127	.1178
-.1123	.0814	.0234	.0404	.1308
1.1205	.1277	.0450	.0474	.2207

---

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

Number of bootstrap samples for percentile bootstrap confidence  
intervals:  
5000

W values in conditional tables are the 16th, 50th, and 84th  
percentiles.

----- END MATRIX -----

**Source; Research Data 2019**

**Table 5.6: SPSS Output Model 59 (Social proof, FL, FINN and FI)**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 3.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)  
 Documentation available in Hayes (2018).  
[www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model : 59  
 Y : ZFI  
 X : ZSP  
 M : ZFINN  
 W : ZFLsc

Covariates:  
 ZE1 ZE2 ZE3

Sample  
 Size: 413

\*\*\*\*\*

OUTCOME VARIABLE:  
 ZFINN

Model Summary						
	R	R-sq	MSE	F	df1	df2
p	.4056	.1645	.8133	13.3248	6.0000	406.0000
	.0000					

Model						
	coeff	se	t	p	LLCI	ULCI
constant	-.0307	.0450	-.6818	.4957	-.1191	.0577
ZSP	.3183	.0447	7.1252	.0000	.2305	.4062
ZFLsc	.0347	.0455	.7630	.4459	-.0547	.1241
Int_1	.1448	.0441	3.2810	.0011	.0580	.2315
ZE1	.0453	.0502	.9030	.3671	-.0533	.1440
ZE2	-.0644	.0504	-1.2789	.2017	-.1634	.0346
ZE3	-.0443	.0464	-.9533	.3410	-.1356	.0470

Product terms key:  
 Int\_1 : ZSP x ZFLsc

Test(s) of highest order unconditional interaction(s):					
	R2-chng	F	df1	df2	p
X*W	.0222	10.7647	1.0000	406.0000	.0011

-----

Focal predict: ZSP (X)  
 Mod var: ZFLsc (W)

Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.1882	.0664	2.8346	.0048	.0577	.3188
-.1123	.3021	.0461	6.5515	.0000	.2114	.3927
1.1205	.4806	.0582	8.2527	.0000	.3661	.5950

\*\*\*\*\*

OUTCOME VARIABLE:

ZFI

Model Summary

	R	R-sq	MSE	F	df1	df2
p	.5822	.3389	.6796	25.8904	8.0000	404.0000
	.0000					

Model

	coeff	se	t	p	LLCI	ULCI
constant	.0027	.0412	.0655	.9478	-.0782	.0836
ZSP	.3714	.0436	8.5227	.0000	.2858	.4571
ZFINN	.2615	.0469	5.5702	.0000	.1692	.3537
ZFLsc	.0841	.0417	2.0177	.0443	.0022	.1660
Int_1	.0793	.0413	1.9204	.0555	-.0019	.1605
Int_2	.0562	.0459	1.2246	.2214	-.0340	.1465
ZE1	-.0006	.0460	-.0133	.9894	-.0910	.0898
ZE2	-.0009	.0464	-.0202	.9839	-.0921	.0902
ZE3	.0067	.0426	.1574	.8750	-.0770	.0904

Product terms key:

Int_1	:	ZSP	x	ZFLsc
Int_2	:	ZFINN	x	ZFLsc

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0060	3.6880	1.0000	404.0000	.0555
M*W	.0025	1.4996	1.0000	404.0000	.2214

-----

Focal predict: ZSP (X)  
Mod var: ZFLsc (W)

Conditional effects of the focal predictor at values of the moderator(s):

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.3002	.0613	4.8965	.0000	.1797	.4207
-.1123	.3625	.0445	8.1449	.0000	.2750	.4500
1.1205	.4603	.0586	7.8485	.0000	.3450	.5756

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

Conditional direct effect(s) of X on Y:

ZFLsc	Effect	se	t	p	LLCI	ULCI
-.8985	.3002	.0613	4.8965	.0000	.1797	.4207
-.1123	.3625	.0445	8.1449	.0000	.2750	.4500
1.1205	.4603	.0586	7.8485	.0000	.3450	.5756

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

ZSP -> ZFINN -> ZFI

ZFLsc	Effect	BootSE	BootLLCI	BootULCI
-.8985	.0397	.0236	.0040	.0958
-.1123	.0771	.0234	.0351	.1269
1.1205	.1559	.0535	.0604	.2665

---

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

Number of bootstrap samples for percentile bootstrap confidence  
intervals:  
5000

W values in conditional tables are the 16th, 50th, and 84th  
percentiles.

----- END MATRIX -----

**Source: Research Data 2019**