

# **Assessing the Principal Agent Problem in Mobile Money Services: Lessons from M – PESA in Lesotho**

A Dissertation  
presented to

The **Development Finance Centre (DEFIC)**,  
Graduate School of Business  
University of Cape Town

In partial fulfilment  
of the requirements for the  
**Master of Commerce in Development Finance Degree**

by

**Matela Thabane**

December 2017

Supervised by: Professor Nicholas Biekpe

Co – supervisor: Dr Nyankomo Marwa

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

## PLAGIARISM DECLARATION

### Declaration

1. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
2. I have used the APA convention for citation and referencing. Each contribution to, and quotation in, this report from the work(s) of other people has been attributed, and has been cited and referenced.
3. This report is my own work.
4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.
5. I acknowledge that copying someone else's assignment or essay, or part of it, is wrong, and declare that this is my own work.

Signature

Signed by candidate

Signed by candidate

**Matela Thabane**

## **ABSTRACT**

The expansion and diffusion of mobile phones globally has resulted in the provision of financial transactional services over the existing mobile phone platforms, generally referred to as mobile money. The supply end of mobile money services is an important factor in the success of the financial transactions offering. This research assessed vulnerabilities in the mobile money supply network that are inherently related to the existence of the principal – agent problem and their implications on availability and access to the services. The research study was conducted using a qualitative approach. Qualitative information was collected through interviews guided by open – ended questionnaires. Thematic analysis approach was followed to systematically analyse the data and generate findings of the study. Agent transactional data was analysed to complement the findings from qualitative analysis

The findings suggest that the principal agent problem permeates the mobile money delivery network mainly after businesses joining as agents and manifests as moral hazard. Moral hazard is the dominant feature of the principal – agent problem, with adverse selection very low. Drivers of moral hazard are demonstrated by the influences and demands of agents’ core businesses and challenges in agent monitoring and training. The existence of the principal – agent problem has limited or no implications on access and availability of services. However, overtime the combined vulnerabilities identified related to the principal agent problem are likely to manifest into risks that are likely to affect access and availability of mobile money services.

Regulators, Mobile Network Operators and agent enterprises must collectively review monitoring approaches for mobile money service providers to address challenges identified and increase the effectiveness of monitoring. Service provision standards should be reviewed to suit the various business environments the services are provided within. Mobile Network Operators and agent enterprises need to institute stronger partnership arrangements that enhance ownership and obligations for all parties, in particular agent enterprises. Agreements must enable application of different mobile money delivery models suitable to meet the demands and requirements of the agents’ core businesses. Innovations such as Near Field Communication (NFC) can be integrated with Point of sale (POS) applications and mobile money platforms to reduce the administration burden on agents and human error. Such applications must consider the cost implications of adoption from the agents’ business perspective.

**Key words:** *principal agent problem, relationship/network structure, agent performance, service delivery, vulnerabilities, quality fade, latent networks*

## TABLE OF CONTENTS

<b>Plagiarism declaration .....</b>	<b>I</b>
<b>Abstract .....</b>	<b>II</b>
<b>Table of Contents .....</b>	<b>III</b>
<b>List of Tables.....</b>	<b>V</b>
<b>List of Figures .....</b>	<b>VI</b>
<b>Glossary of Terms .....</b>	<b>VII</b>
<b>Acknowledgement .....</b>	<b>VIII</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 Research Area .....	1
1.2 Problem Statement .....	2
1.3 Purpose and Significance of the Research .....	3
1.4 Research Questions and Scope .....	4
1.5 Research Assumptions .....	4
<b>2. MOBILE MONEY IN LESOTHO: STRUCTURE, TRENDS AND PROSPECTS.....</b>	<b>5</b>
2.1 Introduction.....	5
2.2 Mobile Telephone Sector in Lesotho .....	5
2.3 Mobile Money Regulation .....	6
2.4 The Mobile Money Sector in Lesotho .....	6
2.5 Agent Network Structure and Distribution .....	7
2.6 Mobile Money Performance .....	8
2.7 Conclusion .....	9
<b>3. LITERATURE REVIEW .....</b>	<b>11</b>
3.1 Introduction.....	11
3.2 The Architecture of the Mobile Money Implementation Models .....	11
3.3 The Principal Agent Theory.....	15
3.4 Mobile Money Research .....	17
3.5 The Principal – Agent Problem and the M – PESA Context .....	21
3.6 Principal - Agent Problem in Supply Chain Management.....	25
<b>4 RESEARCH METHODOLOGY .....</b>	<b>29</b>
4.1 Research Approach and Strategy .....	29
4.2 Data Collection, Frequency and Choice of Data.....	29
4.3 Sampling .....	30
4.4 Data Analysis Methods .....	32
4.5 Research Reliability and Validity .....	36

4.6	Limitations .....	36
<b>5</b>	<b>RESEARCH FINDINGS, ANALYSIS AND DISCUSSION.....</b>	<b>38</b>
<b>6.</b>	<b>RESEARCH CONCLUSIONS .....</b>	<b>63</b>
6.1	Findings .....	63
6.2	Recommendations.....	65
6.3	Recommendations for Future Research .....	66
<b>REFERENCES</b>	<b>.....</b>	<b>67</b>
<b>APPENDICES</b>	<b>.....</b>	<b>72</b>

**LIST OF TABLES**

**Table 1: Summary of Agent Heterogeneity.....39**

**Table 2: Agent Support and Monitoring Challenges Encountered.....54**

**Table 3: Adherence to Performance Standards.....55**

**Table 4: Summary of Key Issues and Findings.....59**

## LIST OF FIGURES

<b>Figure 1: Sector Teledensity Trends 2004 – 2014.....</b>	<b>5</b>
<b>Figure 2: Number of Registered Mobile Money Customers and Agents.....</b>	<b>7</b>
<b>Figure 3: Number of Subscribers and Mobile Money Users.....</b>	<b>7</b>
<b>Figure 4: Agent Network per District.....</b>	<b>8</b>
<b>Figure 5: Volume of Mobile Money Transactions.....</b>	<b>9</b>
<b>Figure 6: Trust Account Balances.....</b>	<b>9</b>
<b>Figure 7: Mobile Money Ecosystem.....</b>	<b>12</b>
<b>Figure 8: Framework for Analysis.....</b>	<b>35</b>
<b>Figure 9: Number of Registered Agent Customers.....</b>	<b>40</b>
<b>Figure 10: Agent E – Float.....</b>	<b>41</b>
<b>Figure 11: Total Number of Agent Transactions.....</b>	<b>42</b>
<b>Figure 12: Number of Lower – Tier Agents per Super – Agent.....</b>	<b>43</b>
<b>Figure 13: Average Annual Revenue of Agents’ Core Business.....</b>	<b>44</b>
<b>Figure 14: Distance from Central Business District.....</b>	<b>45</b>

## **GLOSSARY OF TERMS**

AML	Anti – Money Laundering
CTF	Counter – Terrorism Financing
E – Float	Electronic value issued and stored on a mobile phone in exchange for cash
E – Money	Electronic Money
LSL	Lesotho Loti currency
LT	Lower – Tier Agent
M – Commerce	Mobile Commerce
MNO	Mobile Network Operator
M – PESA	M for mobile, pesa is Swahili for money
NFC	Near Field Communication
TAM	Technology Acceptance Model
SA	Super – Agent

## **ACKNOWLEDGEMENT**

I wish to express my gratitude and appreciation to:

- My supervisors, Professor Nicholas Biekpe and Dr Nyankomo Marwa, for their patience, guidance and opportunity they offered to me to learn throughout the research process.
- My family and friends for the consistent support and motivation they gave me throughout the entire research study process.
- All interviewees that participated in the research, M – PESA agents and Vodacom officials for the time they committed and information they imparted to make this research study a reality.

# 1 INTRODUCTION

## 1.1 Research Area

The expansion and diffusion of mobile phones globally has resulted in the provision of financial transactional services over the existing mobile phone platforms. The ability for people to use and access financial services using mobile phones has been regarded by some as a victory for financial inclusion, in particular for the poor. Boateng and Duncombe (2009) note that current literature hypothesizes that mobile phones have the potential to become low cost accessible accounts or delivery channels for financial services, in particular electronic money and mobile banking. Boateng and Duncombe (2009) note that there exists an inherent need by the poor for low – cost financial services that could be delivered by the mobile phone. Dermish, Kneiding, Leishman & Mas (2012), further note that mobile payments or branchless banking have become a key catalyst for financial inclusion; and make use of agents to penetrate areas where the poor live and work.

The recognition of mobile phones as a key catalyst for financial inclusion is largely driven by the success of M – PESA in Kenya. M – PESA was introduced by SAFARICOM in Kenya in 2007. According to Mas and Morawczynski (2009), M – PESA saw exceptional growth since its inception in March 2007. Mas and Morawczynski (2009) note that 6 million customers registered with the service, which represented nearly half the customer base of SAFARICOM. Use of M – PESA for financial transactions was also high with over \$1.6 billion worth of person to person transfers made over M – PESA (Mas and Morawczynski, 2009).

In 2012 Vodacom Lesotho had 1 million subscribers which is 80% share of the mobile communication market in Lesotho. M – PESA services were introduced in July 2013 and as at May 2016; there were 704 900 registered customers, with 256 600 actively using the service. The total value of transactions cumulative since July 2013 is over LSL67 million.

The M – PESA distribution network is hierarchical and consists of Super – Agents and Agents. Super – Agents are at the higher tier and are responsible for management of agents at the lower tier. Super – Agents and Lower – Tier Agents are existing entities operating their own businesses. M – PESA Lesotho has a total of 1,999 agents, and includes 15 super – agents of which only 7 are active. There is no fixed number of Lower – Tier Agents that Super – Agents can manage, the number of agents depends on the ability and capacity of individual Super –

Agents to recruit and manage agents. Vodacom also acts as a Super – Agent with Lower – Tier Agents under its management. Vodacom has a set of requirements that business entities must meet in order to be part of the M – PESA network.

## **1.2 Problem Statement**

The supply end of mobile money services is an important factor in the success of the financial transactions offering. Duncombe (2009) indicates that delivery of m – payment services entails both availability of the services and access to them. According to Beshowi and Gravrak (2010), in order to get mobile money to the market, operators need a distribution network that can take in and dispense cash from accounts. This is the case for M – PESA where the mobile network operator relies on the existing retail network to act as M – PESA agents to dispense the cash – in and cash – out services to customers. The mobile operator delegates or outsources the services to various retail entities that include local general dealers, supermarkets, filling stations etc.

Duncombe (2009) indicates that a success factor of M – PESA was that it utilised a network of existing agents to facilitate cash – in and cash – cash out services that were licensed to act on behalf of a trusted entity. Apart from the basic cash in – cash out transactions, the mobile money platform also has value added services such as payments for utility bills, purchases in – store etc. M – PESA is therefore an ecosystem that has a number of stakeholders that add and extract value from it through the different roles that they undertake within it. Lal and Sachdev (2015) emphasise the agent network as an essential component of mobile money services and indicate that usage of mobile money services drops if there are no cash – in and cash – out locations in close proximity to customers, and if agents are not accessible at times convenient for customers.

The structure of the M – PESA delivery network, particularly its hierarchical nature demonstrates existence of a principal – agent relationship. However, this relationship is complex as it consists of multiple principals and agents. The mobile network operator is the main principal for all agents and acts as Super – Agent in some cases; and Super – Agents act as principals of Lower – Tier Agents under their management. Aron (2015) indicates that mobile money systems rely on a network of agents linked under various contractual arrangements with a parent Mobile Network Operator and that the nature of these agent network structures and the design of the individual agent contracts is important for the successful development of mobile money systems.

The configuration of the M – PESA delivery network suggests the potential existence of the principal – agent problem in the network. The problem is likely to permeate the network through two possible channels (a) at the point of agent recruitment by the principal into the network and (b) within the network as part of service provision by agents and management of the network by the principal.

Eisenhardt (1989) indicates that the agency problem arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing i.e. the principal cannot verify that the agent has behaved appropriately. Eisenhardt (1989) further notes that the problem arises when the principal and agent have different attitudes towards risk i.e. the principal and agent may prefer different actions because of the different risk preferences.

The potential, success and failure of mobile money has been widely discussed (Radcliffe and Mas 2011; Jack and Suri 2011; Mas and Morawczynski 2009 and Porteus 2007). However, these discussions did not assess the complex relationship structure inherent in mobile money from a principal – agent problem perspective, the likely vulnerabilities to the delivery network as a result of the relationship structure and their implications on the availability and access to the services.

### **1.3 Purpose and Significance of the Research**

The research envisaged to identify vulnerabilities in the mobile money supply network that are inherently related to the existence of the principal – agent problem. These vulnerabilities may be construed as contributory factors to some of the failures of mobile money, and provide an explanation for the high numbers of registered M – PESA users versus the lower numbers of active users.

The research was important for mobile money service providers as it makes available further insight of the potential risks or vulnerabilities inherent in the delivery system as a result of the structure adopted and the different actors involved. The research contributes to the improvement of the services to ensure access and availability for customers at all times.

## **1.4 Research Questions and Scope**

The research aimed to answer the following questions:

- a. How and to what extent does the principal – agent problem manifest itself in the mobile money service delivery network?
- b. What are the implications of the principal – agent problem on availability and access to mobile money services?

The objective of the research was to identify principal – agent problem vulnerabilities in the mobile money service delivery structure and how the vulnerabilities are likely to affect availability and access to mobile money services.

## **1.5 Research Assumptions**

For purposes of this research the following assumptions were made:

- The principal – agent problem vulnerabilities apply in mobile money services regardless of the business model adopted.
- The Vodacom officials and M – PESA agents interviewed are knowledgeable on the issues to be investigated in this study and will be able to provide accurate and reliable information.
- The information collected and analysed was sufficient evidence that enabled realistic conclusions to be made on the questions investigated in this study.
- Mobile money service providers, in particular mobile network operators will find value in the study as it contributes to improving the delivery of mobile money services.

## 2. MOBILE MONEY IN LESOTHO: STRUCTURE, TRENDS AND PROSPECTS

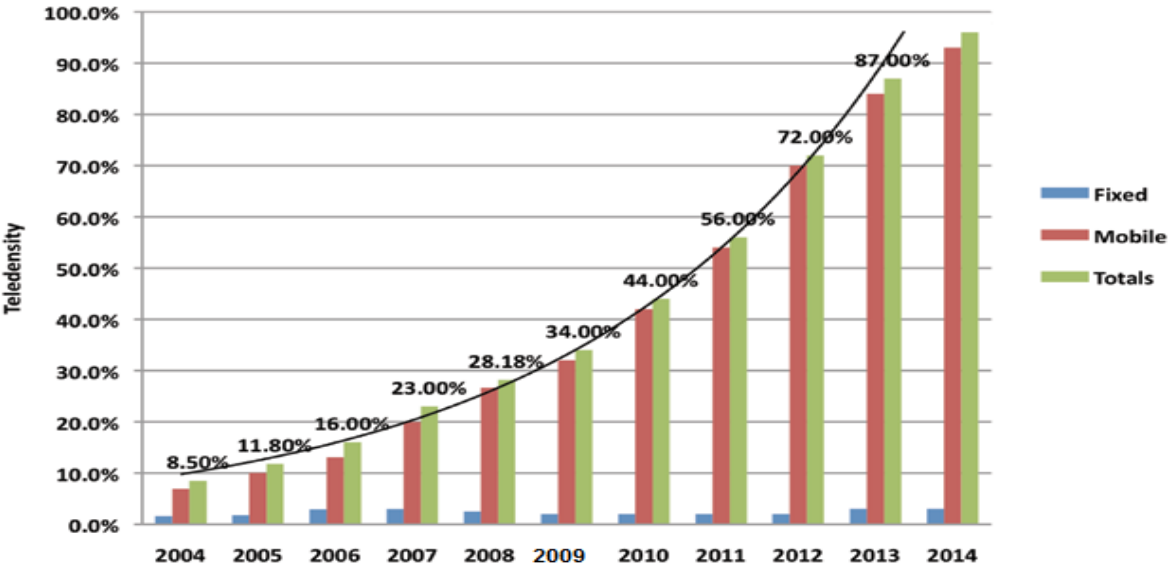
### 2.1 Introduction

This section presents an overview of the mobile money industry in Lesotho for the period 2012 to 2015. Details on the structure of the industry, trends in performance indicators and future prospects are provided in this section.

### 2.2 Mobile Telephone Sector in Lesotho

The mobile phone sector is dominated by two Mobile Network Operators (MNOs), namely Econet Telecom Lesotho (ETL) and Vodacom Lesotho (VCL). ETL was established through a merger between Telecom Lesotho and Econet Ezi ~ Cel Lesotho in April 2008 while VCL is a subsidiary of Vodacom South Africa and began operating in Lesotho in 1996. According to the Lesotho Telecommunications Authority (LCA) (2014), the mobile subscribers reached a total of 1,753,323 in 2014, from 1,580,713 reported in the previous year. LCA (2014) notes that this translates into a teledensity of approximately 93% of the population, with 98% as prepaid subscribers and 2% post – paid subscribers. LCA (2014) indicates that mobile subscribers accounted for 97% of telecommunication market share compared to fixed subscribers at 3%. Figure 1 shows the mobile sector teledensity trends over a period of ten years from 2004 to 2014. According to LCA (2014) the geographic coverage area with access to communications service also increased as a result of by mobile services.

**Figure 1: Sector Teledensity Trends 2004 – 2014**



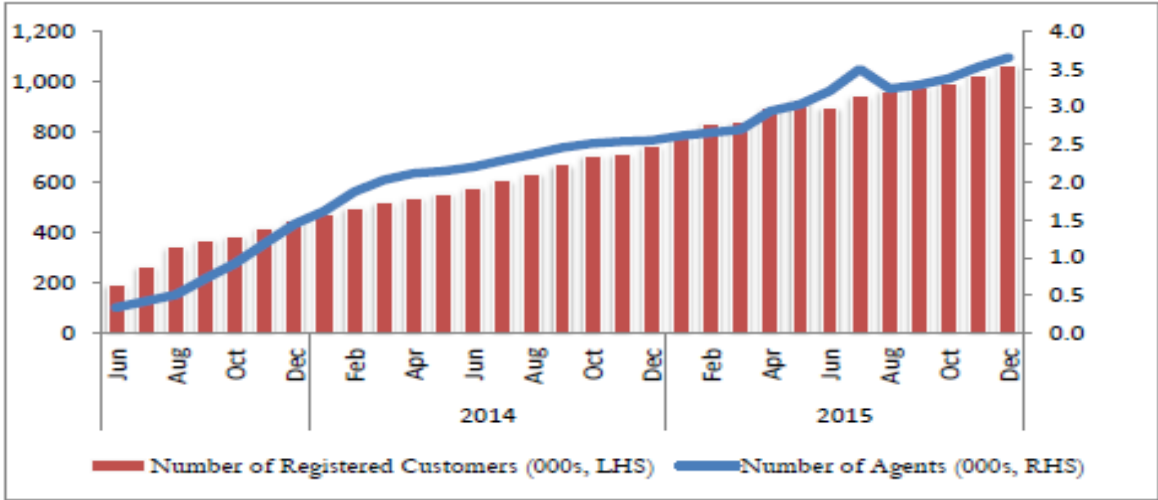
### **2.3 Mobile Money Regulation**

Lesotho does not have a regulatory framework to regulate mobile money financial services, and has instead put in place interim provisions. The Central Bank of Lesotho supervises mobile money services through Mobile Money Guidelines specifically developed for Mobile Network Operators. The Mobile Network Operators operate mobile money services on the basis of a Letter of No Objection from the Central Bank of Lesotho. The Mobile Money Guidelines enable the Mobile Network Operators to maintain standards on financial services such as anti – money laundering and customer balance protection requirements. Important to highlight is that the Guidelines prohibit “exclusivity” arrangements with agents, i.e. if one MNO signs up an agent it cannot prevent the same agent from working for a different service provider. Prohibiting exclusivity is important as it promotes competition and enables participation of agents in both mobile money offerings, especially in rural areas with fewer agents. The Government of Lesotho envisages to introduce comprehensive legislation on payment systems that will include the regulation of mobile money services and replace the current Mobile Money Guidelines.

### **2.4 The Mobile Money Sector in Lesotho**

There are two major mobile money service providers in Lesotho. Econet Telecom Lesotho launched its mobile money service, Ecocash, in October 2012 while VCL launched M – Pesa in July 2013. In December 2015, M – Pesa had signed up to 745,242 customers with 1999 agents. On the other hand, Ecocash accumulated 318,786 customers and 1480 agents countrywide during the same period. The number of registered mobile money customers in Lesotho increased since its introduction in October 2012. According to the Central Bank of Lesotho (2015), based on 2006 population census figure of 1,880,661 inhabitants, the number of registered mobile money customers increased from 10% in June 2013 to approximately 57% of the population in December 2015. The Central Bank of Lesotho (2015) indicates that the number of agents increased exponentially from 337 in June 2013 to 3654 in December 2015. Figure 2 indicates the number of registered mobile money customers and agents in Lesotho since June 2013.

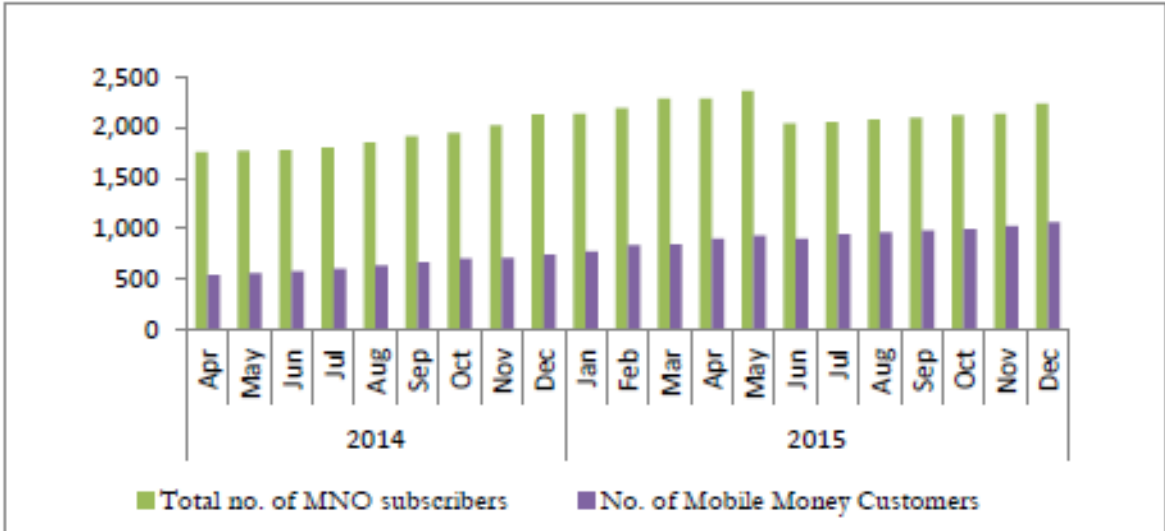
**Figure 2: Number of Registered Mobile Money Customers and Agents**



Source: Central Bank of Lesotho 2015

The Central Bank of Lesotho (2015) further notes that as a proportion of Mobile Network Operators’ subscribers, the two Mobile Network Operators achieved approximately 48% market penetration in December 2015 as indicated in Figure 3 below.

**Figure 3: Number of Subscribers and Mobile Money Users during April 2014 – 2015 (in thousands)**



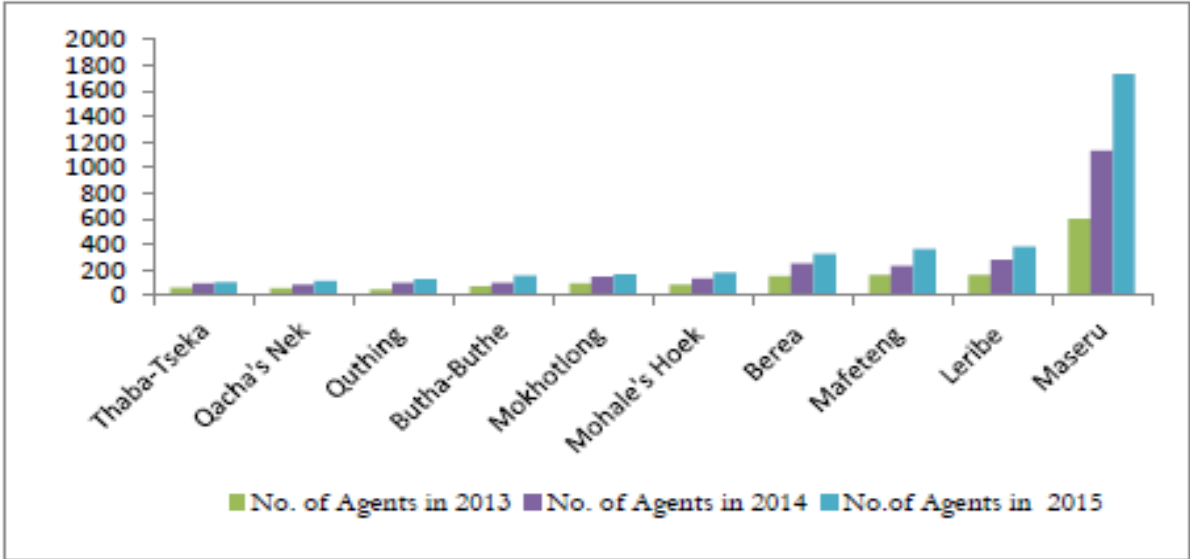
Source: Central Bank of Lesotho 2015

**2.5 Agent Network Structure and Distribution**

The Mobile Network Operators have established agent networks consisting mostly of retail stores to conduct cash – in and cash – out transactions, and “Super – Agents” that enable agents

to balance e – money and cash. The majority of mobile money agents are located in urban districts with few operating in rural districts. This urban bias as noted by the Central Bank of Lesotho (2015) is attributed to failure by Mobile Network Operators to reach remote areas as a result of lack of customer education and inaccessibility of some rural areas located in the country’s mountainous terrain. Figure 4 shows the number of agents operating in the 10 districts of Lesotho.

**Figure 4: Agent Network per District (Number of Agents per district)**

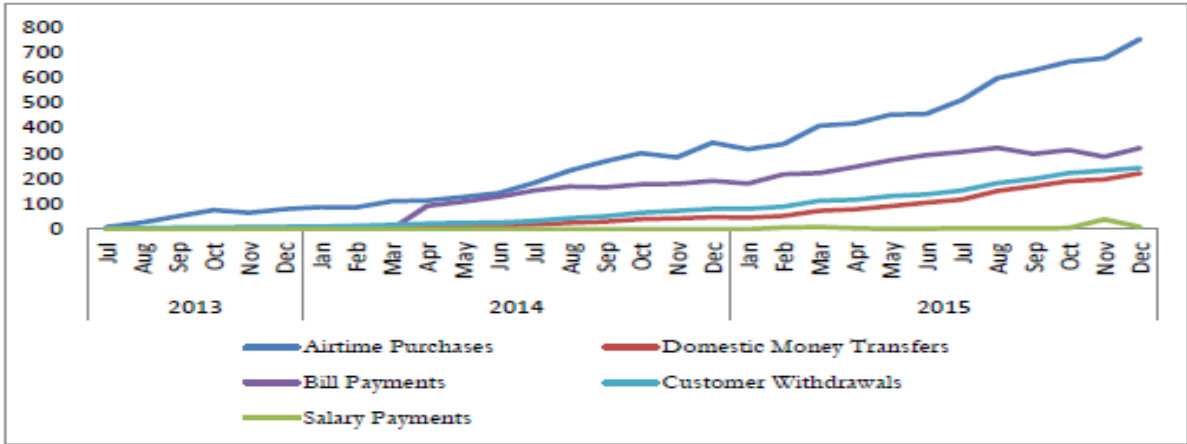


Source: Central Bank of Lesotho 2015

**2.6 Mobile Money Performance**

Since the introduction of mobile money services, transaction volumes, especially customers’ withdrawals, bill payments, domestic money transfers and airtime purchases, have maintained an upward trend consistent with the increasing market penetration. The Central Bank of Lesotho (2015) indicates that as of December 2015, mobile money processed 751,743 airtime purchases, 243,169 customer cash withdrawals, 321,768 bill payments and 221,257 domestic money transfers. Figure 5 shows the volume of mobile money transactions as at December 2015.

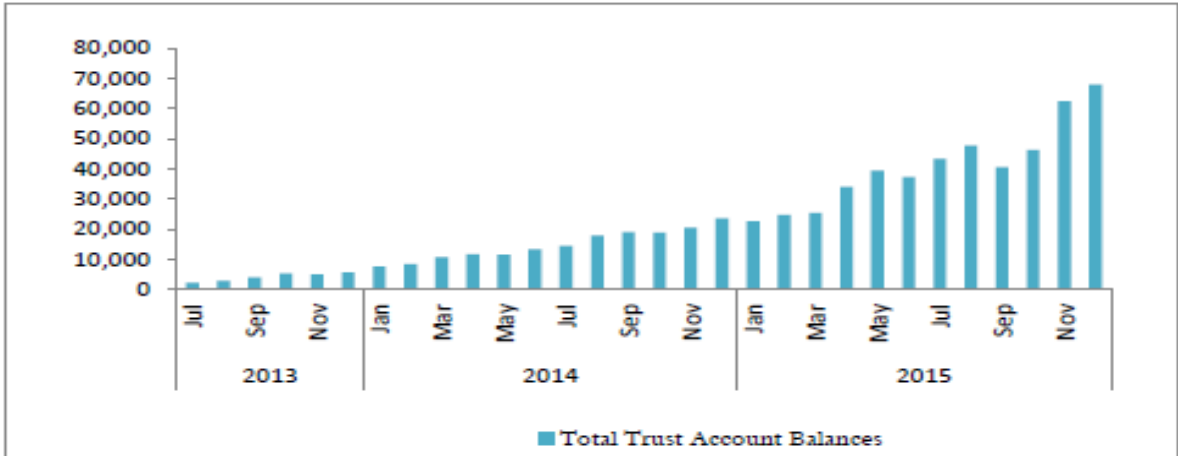
**Figure 5: Volume of Mobile Money Transactions (in thousands)**



Source: Central Bank of Lesotho 2015

The Mobile Money Guidelines prescribe that all customer balances on the mobile money system (e – value) must be backed in full by a deposit in a trust account in the name of the MNO (or subsidiary of the MNO) at a licensed bank. Since the inception of mobile money services in Lesotho, the trust account balances of Econet and Vodacom increased considerably and this is consistent with the high uptake and usage of mobile money as previously indicated. Figure 6 indicates the growth of trust account balances from 2013 to 2015.

**Figure 6: Trust Account Balances (in thousand Maloti)**



Source: Central Bank of Lesotho 2015

**2.7 Conclusion**

The uptake and use of mobile money services increased rapidly since inception in 2012 and has potential for further future growth. A significant proportion of mobile phones owners use

mobile money services, however this is mainly in urban districts and there is potential for more subscribers to use mobile money services in rural areas where the majority of the population resides. Mobile Network Operators should put more effort to scale up customer education on mobile money and increase the agent footprint in rural areas. Potential exists for upscaling transactions with low use such as processing of salaries and Government welfare payments on the mobile money platforms, particularly in rural areas which have limited banking infrastructure. It is unlikely that banks will expand their financial services infrastructure to rural areas because it would not be financially viable. The difficulty of accessing financial services by the majority of the rural population creates an opportunity for mobile money to provide a solution that is cost effective and financially viable. As a result of the growth in use of mobile money services, other non – bank and non – Mobile Network Operators have plans to introduce their own mobile money products; and this requires the Government to develop a single legislative framework that covers mobile money services provided by various types of institutions.

### **3. LITERATURE REVIEW**

#### **3.1 Introduction**

The literature review section first considers a broad overview of research undertaken in the area of mobile money from a perspective of areas covered in the research, methodologies used and theories applied. The section then reviews the principal – agent problem and its relevance to mobile money services. The last part of this section provides an overview of theoretical frameworks that can be applied to assess the principal – agent problem in distribution or supply chain networks and their application to investigate the questions advanced by this research study.

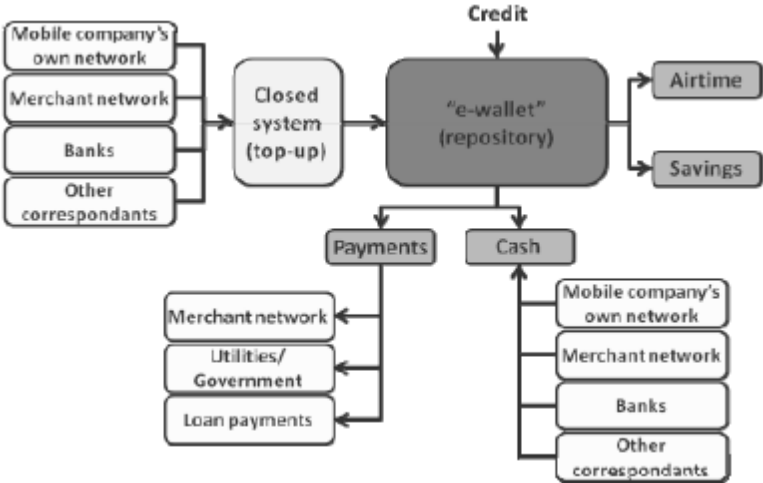
#### **3.2 The Architecture of the Mobile Money Implementation Models**

This section provides a description of the mobile money ecosystem and the architecture of the various mobile money services in use across different countries. The objective is to provide an understanding of the key features and mechanisms in mobile money services, and relationships between the different features and stakeholders.

##### **3.2.1 Mobile Money Ecosystem**

Lal and Sachdev (2015) refer to an ecosystem as the way in which relationships are established/structured and a competitive landscape established. Radcliffe and Mas (2011) indicate that mobile money requires stitching together a complex web of actors who collectively generate the large volumes of transactions needed to fuel the system. The respective actors undertake an important function within the ecosystem. The main actors in the system are Mobile Network Operators, banks, airtime resellers, retailers and regulators. Radcliffe and Mas (2011) indicate that all these actors must collaborate to ensure that the mobile money ecosystem is sustainable and productive. Radcliffe and Mas (2011) further note that the ecosystem is a big, complex undertaking, which involves convincing a range of actors – people, retail shops, corporations and governments that enough players will be brought on board. Radcliffe and Mas (2011) refer to the ecosystem as a multi – sided platform. Figure 7 illustrates the mobile money ecosystem.

**Figure 7: Mobile Money Ecosystem**



Source: Flores – Roux and Mariscal 2010

Figure 7 shows the various players and different roles they occupy within the mobile money ecosystem. An issue relevant to this research study is the relationships that exist between the different players within the ecosystem. The relationships exist as a result of the types of business models for mobile money and the roles of each respective player in the ecosystem.

**3.2.2 Mobile Money Models**

This section provides an overview of the different mobile money delivery models in operation across the world. There are typically four main delivery models in use as indicated by Chaix and Torre 2011.

**3.2.2.1 The Operator Centric Model**

According to Chaix and Torre (2011) there are many examples of Operator Centric Models already available and operational. Chaix and Torre (2011) indicate that in this case, the telecommunication operator offers the technology, operates the transactions and compensates the system. Chaix and Torre (2011) note that before payments, there is a necessity to connect the m – payment system and banking accounts or cash deposits. Chaix and Torre (2011) further note that after the clearing of the last transactions, there is the same necessity to credit the accounts or to pay in cash the last recipients. At this level, a third party must provide the liquidity to the system and be compensated by the operator (Chaix and Torre, 2011). This third party in most cases is a financial institution such as a bank. This scenario is present in all the

cases where the model is an operator centric model (Chaix and Torre, 2011). An illustration of this model is attached in Appendix A.

Chaix and Torres (2011) state that the operator develops and deploys applications for this service. Chaix and Torres (2011) indicate that the adoption of this mode of payment by retailers and consumers is however not immediate. Potential users may be afraid of the different risks that they associate to the system (possibility of fraud, blow to privacy). Adoption costs also integrate material fixed costs (adaptation to the new technology, time to accept operators as financial partners) incurred by retailers, clients and finally the operator which could be involved to differ adoption until their decrease (Chaix and Torre, 2011). The M – PESA mobile money delivery model which is the focus of this research study is an example of the Operator Centric Model.

### **3.2.2.2 The Bank Centric Model**

According to Chaix and Torre (2011), this model is less frequent than the operator model, probably because operators have two advantages over banks: (i) they hold the technology and particularly the secure element and (ii) they usually frequently compete with a few number of partners. Chaix and Torre (2011) note that on the other hand, banks generally face a very different environment, and have many competitors and do not hold the technology. They must compete or more successfully cooperate with other financial partners and collaborate with mobile operators without any substantial bargaining advantage (Chaix and Torre, 2011). The Bank Centric Model can be considered as an evolution of the credit card model as users (households or firms) are in relation with their bank which provide them the way of payment (the mobile-phone) (Chaix and Torre, 2011). The users receiving the payments (frequently commercial intermediaries) are not generally clients of the same bank than the payer (Chaix and Torre, 2011). Chaix and Torre (2011) indicate that a general compensation system must then operate between banks with or without connections with the classic inter –bank flows; and that the partners' banks of this compensation system must also pay fees to one or many mobile operators associated to the operation. An illustration of this model is attached in Appendix A.

### **3.2.2.3 The Independent Service Provider Model**

Chaix and Torre (2011) indicate that in this model a third party, distinct from a financial agent or a telephone operator, plays the role of intermediary between banks, operators, traders and

final users. Chaix and Torre (2011) note that this new actor concentrates all the organizational prerogatives held by banks or operators in the previously presented models. The independent service provider (ISP) manages the distribution of property rights between the operators and the banks, which are in this case less decisional in the coordination process (Chaix and Torre, 2011). Chaix and Torre (2011) indicate that internet companies are the ideal candidates to intervene as ISP given their previous experience with monetary transfers and the organization of electronic commerce websites.

#### **3.2.2.4 The Collaborative Model**

According to Chaix and Torre (2011), this model involves a collaboration between operators, banks and the participation of a third party which creates a link between the two main partners. Chaix and Torre (2011) indicate that all partners derive their revenue from fees charged to merchants and final users: these different sources of revenue are however still subject of disagreements between partners. Chaix and Torre (2011) further note that investment costs generally split between banks, operators and sometimes the third party providing an escrow service. An inquiry by the Smart Card Alliance shows that the collaborative model is considered by 86% of the participants like having the greatest potential for long term propagation (Chaix and Torre, 2011). This model as noted by Chaix and Torre (2011) seems more viable than the others because it allows each partner to concentrate on his own skills; with banks concentrating on financial responsibility and operators on the transmission network. Chaix and Torre (2011) further indicate that this model is then seemingly easier to implement than the other ones because each party is in its natural role. The distribution of profits and the management of property rights however remains an open problem: it requires to imagine an advanced collaborative process requiring a learning period for rather suspicious partners (Chaix and Torre, 2011).

An overview of the architecture of mobile money and the various operational models used was presented in this section. The different operational models have advantages and limits. This study focuses on the operator – centric model and the relationships that exist within it. Chaix and Torre (2011) in outlining the advantages of this model indicate that it is probably more suited to an economy of cash money: it is adapted to small but distant transactions for which it decreases the costs and the risk of transfer. Chaix and Torre (2011) further note that it is convenient for low revenue users that it could help to realize a few number of useful transfers.

This model can possibly compensate in an emerging country or in an isolated region with low density of bank branches by a new form of financial intermediation without financial agent (Chaix and Torre, 2011).

### **3.3 The Principal Agent Theory**

According to Rao (2003), the Principal Agent theory was originally proposed by Ross (1973), and later extended by Jensen and Meckling (1976). Eisenhardt (1989) citing Jensen and Meckling (1976) and Ross (1973), indicates that agency theory broadened risk sharing literature to include the agency problem that occurs when cooperating parties have different goals and division of labour. Specifically, agency theory is directed at the ubiquitous relationship, in which one party (the principal) delegates work to another (the agent), who performs that work (Eisenhardt, 1989).

Jensen and Meckling (1976) as cited by Eisenhardt (1989), indicate that agency theory attempts to describe this relationship using the metaphor of a contract. In this context, Eisenhardt (1989), indicates that the unit of analysis is the contract governing the relationship between the principal and the agent, and the focus of the theory is on determining the most efficient contract governing the relationship. Eisenhardt (1989) further notes that the agency theory is concerned with resolving two problems that can occur in agency relationships. The two agency problems outlined by Eisenhardt (1989) arise when:

- (a) The desires or goals of the principal and agent conflict. The problem here is that the principal cannot verify that the agent has behaved appropriately.
- (b) It is difficult or expensive for the principal to verify what the agent is actually doing. This is the problem of risk sharing that arises when the principal and agent have different attitudes towards risk. The problem here is that the principal and the agent may prefer different actions because of different risk preferences.

Rao (2003) indicates that lack of equivalence of information contents between parties to a common issue that affects each other's interests constitutes an informational asymmetry. A generalisation of this concept would also include unequal capacities among parties to a common issue to process a given set of information (Rao, 2003). It is not only the differential information

content as an input but also its effective contribution to an output or an optimal decision that constitutes the essence of asymmetric information (Rao, 2003).

According to Rao (2003), the role of agency cost, in the framework of the Principal Agent theory suggests that the agency cost, in the context of financial firms, is often a function of the type and extent of informational asymmetry, monitoring and information costs. Rao (2003) indicates that an operational definition of the concept, given by Jensen and Meckling (1976, p.308) states:

“the agency cost comprises the sum of the monitoring costs by the principal, the costs of bonding the agent to perform tasks in conformity with the performance objectives of the principal or economic entity, and that of residual losses that are attributable to the divergence of the optimal decisions effected by the agents in contrast to those that could have been taken by the principal if directly involved in the decisions.”

Rao (2003), indicates that in the formal literature two aspects of the agency problem are cited as moral hazard and adverse selection. According to Rao (2003) moral hazard refers to the lack of effort on the part of the agent. Rao (2003) indicates that the argument here is that the agent may simply not put forth the agreed upon effort. Moral hazard arises ex post, after the decision to lend, issue contract or other event, has been arrived at among interacting parties based on information until that event (Rao, 2003). Adverse selection as indicated by Rao (2003) refers to the misrepresentation of ability by the agent. In this case as noted by Rao (2003), the argument here is that the agent may claim to have certain skills or abilities when he or she is hired. Adverse selection arises because the principal cannot completely verify these skills or abilities either at the time of hiring when the agent is working (Rao, 2003). Rao (2003) indicates that adverse selection occurs ex ante in an interaction among parties leading to a lending decision, contracting or other event, based on information available at the time of the event.

The different aspects of the principal agent theory were briefly covered in this section. This theory and the problems associated with it are an integral part of this study as it aims to examine the extent of the principal agent problem in mobile money. The theory is relevant in the context

of mobile money due to the structural arrangements and delegation of responsibilities in the delivery of mobile money services.

### **3.4 Mobile Money Research**

Dahlberg, Mallat, Ondrus & Zmijewska (2007) undertook a literature review of 73 publications with the aim to summarize findings from past mobile payments research, and to suggest promising directions for future research. According to Dahlberg et al (2007) analysis of the literature revealed that most of the studies reviewed investigated consumer adoption factors. Dahlberg et al (2007) further note that adoption factors seemed especially important in an emerging area such as mobile payments. Dahlberg et al (2007) indicate that the research often involved traditional acceptance models and was mostly based on the technology acceptance model (TAM) and diffusion of innovations model. In this regard, Dahlberg et al. (2007) note that technology was the most researched factor with 29 publications, followed by 20 publications that focused on consumers. Areas with just a few focus of studies as noted by were mobile payment services market and providers, merchant power, legal/regulatory and standards, as well as new e –payments (Dahlberg et al., 2007).

The above – mentioned findings by Dahlberg et al (2007) clearly demonstrate a gap in mobile payments research especially areas focusing on mobile payment services providers and merchant power. This research study focused on investigating the relationship dynamics of providers and merchant power and implications on the services. Another important aspect of this study is the theoretical angle it applies by using the principal agent theory/problem, thereby departing from the research based on acceptance models as indicated by Dahlberg et al (2007).

An important factor considered by this research study as highlighted by Dahlberg et al (2007) is that only four papers focused exclusively on merchants, and that three of them revealed the various barriers to mobile payment adoption by merchants. According to Dahlberg et al (2007) barriers such as high costs (transaction fees), complexity (ease of use), lack of relative advantage, low compatibility, and the interdependence between consumers and merchants at an early stage of development were identified.

These barriers referred to by Dahlberg et al (2007) are important to the investigation of the research study on M – PESA as they have potential to influence the actions of Vodacom as the principal and the different tiers of agents. Dahlberg et al (2007) recommended further areas for

research related to merchants and the mobile payments value chain with focus on issues such as understanding and analysis of merchants' expectations and incentives; how merchants can best attract customers and other merchants to an existing mobile payment services network; competitive impacts of mobile payment services operated by merchants etc. Although the research study did not cover the areas proposed by Dahlberg et al (2007), there are elements which are relevant to them. Despite indicating specific questions and areas for future research, Dahlberg et al (2007) do not propose appropriate theories to base the proposed research on, and only indicate the need for quantitative studies.

Duncombe and Boateng (2009) undertook a literature review of 43 m – finance research articles. The aim of the review was to identify key research trends and gaps relating to a) concepts; b) methodologies; c) issues addressed and questions raised; d) evidence presented; and e) future research directions in the area (Duncombe and Boateng, 2009). The review as noted by Duncombe and Boateng (2009), revealed research gaps in issues and evidence and conceptual approach. Gaps in issues and evidence pointed towards a focus on analysis at the macro level dealing with infrastructure and regulatory issues; as well as at the meso level dealing with the development of applications and the role of financial and mobile phone intermediaries and delivery mechanisms (Duncombe and Boateng, 2009). In relation to gaps in conceptual approach, Duncombe and Boateng (2009) note that research related to design and adoption has been fairly well conceptualized, drawing more strongly on approaches borrowed from innovation research. Duncombe and Boateng (2009) note that this issue explains the dominance of the Technology Acceptance Model (TAM) which has been used to provide conceptual underpinning for studies of m - finance adoption. Based on the gaps identified by Duncombe and Boateng (2009), it is evident that there was need for further research on the supply side of m – finance, mostly the relationship dynamics that exist amongst the different m – finance actors. The limited use of theoretical frameworks to analyze m – finance services is an important area to address; and this study applied the principal – agent theory in analyzing m – finance, specifically mobile money services (M – PESA).

In 2011 Adrian, Diniz & Porto de Albuquerque undertook a literature review of mobile money and payment based on academic and practitioner oriented publications for the period 2001 – 2011. The review focused on mobile payment/mobile money with a special stress on local development, but not limited to works that dealt with development or developing countries (Adrian, Diniz & Porto de Albuquerque, 2011). Adrian et al (2011) note that their review

examined a total of 94 peer reviewed and 92 non – peer reviewed papers. Adrian et al (2011) sought for information that could help to understand the following dimensions: the interactions between the different actors involved in mobile payment/mobile money initiatives; the factors that impeded or encouraged their adoption; the main services delivered; the effects on local flows of money; legal and regulatory environments as well as the role of authorities; and related issues of gender behaviour.

In all the literature covered, Adrian et al (2011) indicate they found that little attention had been paid to the above-mentioned dimensions they searched for. The gaps in the literature, that relate to the dimension on interactions between the different actors involved in mobile payment/mobile money initiatives, is an area that this study investigated. Within this dimension of interaction of different actors, the research focused mainly on the relationship dynamics of the actors responsible for the supply side of mobile money services. An investigation into these interactions provides understanding of the relationship dynamics and their implications on availability and access to the services; as well as success or failure of the services.

Adrian et al (2011) indicate that the central themes of study in the majority of analysed articles focus on issues such as adoption or market analysis and neglecting other relevant themes, such as regulation and effective socio-economic impacts. Adrian et al (2011) further note that they identified a theoretical gap in the central themes of study as most of the articles use theoretical models like TAM (Technology Acceptance Model) and its variations to identify the factors that may influence the adoption of mobile money and payment. It is evident that the focus has been on understanding the demand side and market context but has not focused on understanding the supply side of mobile money services. An understanding of the supply side can provide answers to critical questions on adoption of mobile money services by consumers. Literature on mobile money (Mas and Morawczynski 2009; Donovan 2015; Aron 2015 etc.) emphasises the importance of customer experience, in particular trust by customers in the service, and these factors are largely driven by the relationship dynamics on the supply side. This study aimed to provide an understanding of the supply side of mobile money and also introduces a different theoretical perspective by using the principal – agent theory/problem.

A geographic gap was also identified, with studies concentrated in a few cases/countries, and emphasis on Kenya and the Philippines. According to Adrian et al (2011) this concentration exists despite several mobile payment/mobile money initiatives emerging worldwide. The

geographic element is important as mobile money initiatives have been deployed worldwide, with some being successful and others not successful. Despite emphasis being on Kenya due to its successes, there are other studies which have been conducted in Africa, such as on M – PESA in Tanzania and have provided knowledge on mobile money services in the different contexts. The geographic focus of this study is Lesotho, and similarly with its own context can provide valuable knowledge on the provision of mobile money services.

Adrian et al (2011) indicate that another important gap identified is the relative absence of an analysis of the economic or social impact. Most studies, in particular non-academic ones, take social and economic impacts for granted or just give them a cursory mention, without further investigation or corroborative analysis (Adrian et al, 2011). This study examined to a limited extent the relationship dynamics of M – PESA actors and potential economic implications of the relationships on M – PESA actors.

Adrian et al (2011) also recommended future areas for research based on the gaps in knowledge identified. Emphasis for future research must be placed on understanding the process of building such a complex network of relationships and suggest analysis to be conducted of the actors' interactions that made it possible for the complex mobile payments/mobile money network to grow (Adrian et al, 2011). Other areas for future research as outlined by Adrian et al (2011) include: the typology of business models, the legal issues involved in the implementations (whether successful or unsuccessful), the kinds of technology associated with the particular business models adopted, cultural and demand conditions for a model being disseminated, an analysis of the telecommunications and banking market, obstacles to its adoption, gender issues and services.

The analysis of literature undertaken by (Dahlberg et al 2007; Duncombe and Boateng 2009 and Adrian et al 2011) covered areas that are related or in fact the same, being either m – finance, mobile payments/mobile money and mobile payments. The use of different definitions or names to describe these services presents a challenge as an impression is given that they are different services. However, the issues discussed by the different reviews are relevant to this research, and for its purpose, mobile money was used generally throughout the study.

The reviews by (Dahlberg et al 2007; Duncombe and Boateng 2009 and Adrian et al 2011) revealed similar conclusions on mobile money research and mainly entail a focus on adoption

of the services by consumers, a focus on the delivery technology and dominant application of the acceptance models and narrow application of theoretical frameworks. This study intended to bridge the research gap by examining the relationship dynamics of mobile money delivery actors using the principal – agent theory/problem; and implications for access and availability of mobile money services.

### **3.5 The Principal – Agent Problem and the M – PESA Context**

Specific research conducted on M – PESA is largely dominated by success in Kenya. The research is dominated by customer adoption issues and analysis on why M – PESA was successful in Kenya. Research work by Morawczynski (2011), Mas and Morawczynski (2009), Otieno and Kahonge (2014) etc. generally focused on adoption and success factors that brought M – PESA to scale in Kenya. This research focus corroborates the literature review findings by (Dahlberg et al 2007; Duncombe and Boateng 2009 and Adrian et al 2011).

The structure of the M – PESA supply side resembles that of a distribution network and is hierarchical in nature. This hierarchical network consists of Vodacom, Super – Agents and Lower – Tier Agents, with Super – Agents assuming management responsibilities of Lower – Tier Agents. With the exception of Vodacom, the different tiers of agents are independent business entities with core interests outside of mobile money. The M – PESA supply network therefore consists of multiple principals and agents. Vodacom has a set of requirements that agents must meet prior to providing M – PESA services, and Super – Agents are obliged to sign a contract with Vodacom. The Super – Agents are responsible for supervising agents they recruit, mainly on ensuring that the Lower – Tier Agents maintain adequate cash and electronic float inventories and adhere to stipulated service standards. The agents invest their own capital to purchase electronic money from Vodacom. According to Anon (2015) contracts between operators and agents vary considerably across markets, but common clauses include: operators and agents being able to terminate the contract at any time; prohibition of sub-licensing or delegating by the agent; agents maintaining a stipulated level of float; agents carrying out AML/CTF checking and meeting any reporting obligations of the operator; operators reserving the right to vary commissions at any time; agents using only marketing materials of the operator with which they are furnished.

Monitoring of the agents by Vodacom is mostly undertaken through the electronic system in place and focuses on cash and e – float inventories and incidents of fraud. Physical monitoring by Vodacom to all agents is not always possible and therefore relies heavily on the digital

platform and Super – Agents to monitor. Incentives for agents to provide mobile money services are based on the number of customers registered and number of transactions made, i.e. cash – in and cash – out transactions made. Super – Agents and Lower – Tier Agents in a sub – network share the commissions, with Super – Agents receiving roughly 30% and Lower – Tier Agents 70%.

According to Anon (2015), citing Lonie (2013) the commissions paid express the agent's opportunity cost as they must invest their cash in an e – money float account, which could otherwise be used to purchase inventory for their core business.) Incentives in the initial contract must be sufficient to provide a return on the agents' mobile money investment that makes it worthwhile to divert resources from their core business until the service reaches critical mass and becomes a significant income stream (Anon, 2015). A key issue that is relevant for agent incentives in M – PESA is that because Vodacom has delegated some responsibilities to agents, there is a significant element of risk transfer to the agents. The transfer of risk is an important element related to the agent incentives.

Based on the definition of the principal agent problem by Eisenhardt (1989), the M – PESA supply network is susceptible to the principal – agent problem. Eisenhardt (1989) indicates that the agency problem arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing i.e. the principal cannot verify that the agent has behaved appropriately. The principal – agent problem can permeate the M – PESA supply network through two channels, the first being at the time of registering an independent business as a mobile money service provider. Secondly within the mobile money service network amongst the multiple principals and agents, post registration.

According to Rauchhaus (2009), scholars (Mas – Colell, Whinston and Green 1995:477) have distinguished between two types of principal agent problems: those resulting from hidden actions and those resulting from hidden information. Rauchhaus (2009) indicates that hidden action is what generates moral hazard; hidden information is associated with adverse selection. The two principal – agent problems also differ in their focus on timing; moral hazard occurs when a principal is unable to observe an agent's behaviour once the contract is in place; and adverse selection stems from uncertainty concerning an agent's preferences prior to creating a contract (Rauchhaus, 2009). As indicated, two channels through which the principal agent problem can permeate M – PESA have been identified, and reflect the two types of principal

agent problems described by Rauchhaus (2009). This research study attempted to establish which of the two principal agent problems dominates and as a result explain any inefficiencies, risks, challenges, vulnerabilities and undesirable outcomes in mobile money.

Shah (2014) indicates that for the principal – agent relationship to be problematic conflicting incentives and private information are needed. Within the M – PESA supply network it is evident that the conflicting incentives exist between the multiple principals and agents. The agents have their own core business, and the assumption is that if the incentives are not satisfactory, they will act contrary to the principals’ expectations. On the other hand, the issue of private information plays out at the time of registration and after registration. The agents may deliberately withhold or not provide accurate information just to become a service provider, and after registration the principals may not have full information on the operations of the agents’ businesses that may affect the services.

Super and Lower – Tier Agents undertake the main functions that enable access and usage of the service. They register customers in accordance with the requirements set by the Mobile Network Operator (Vodacom) and also perform cash – in and cash – out functions to customers i.e. registered customers make deposits and withdrawals at the agent outlets. This function requires agents to maintain adequate inventories of cash on their premises and e – float on their cell phones. Jack and Suri (2011) indicate that agents face a non – trivial inventory management problem, as they have to predict the time profile of net e – float needs, while maintaining the security of their operations. From a principal – agent problem perspective, a certain amount of risk is shifted by the Mobile Network Operator (MNO) and super agents to the agents; in exchange for commissions on registration of new customers and cash – in and cash – out transactions. It was therefore important to establish whether the agents are risk averse and consider the incentives in the form of commissions as requisite to the risks they carry or not. The implications of either scenario were examined in relation to access and availability of services and effects on the broader supply network.

Mas and Morawczynski (2009) indicate that the single most important aspect of the M – PESA service that needs to be monitored is the retail agents’ availability of working capital to meet customer demands for cash withdrawals. Eijkman, Kendall and Mas (2010) explored the liquidity needs of M – PESA outlets in Kenya using transactional data over a period of six months from a sample of 20 retail outlets. Eijkman et al (2010) revealed seven key patterns and insights which included but were not limited to (1) agent liquidity management is costly (2)

rural areas do fewer and smaller transactions, in the city centre transactions are much larger (3) rural areas are strongly cash out, whereas urban areas tend to be cash in. From the observations made, Eijkman et al (2010) came up with three high level conclusions that (1) stores require intense daily liquidity management support (2) rural areas face greater difficulties (3) there is evidence of market discipline between stores. The work and findings of Eijkman et al (2010) is relevant to assessing the extent and how the principal agent problem manifests itself in the M – PESA service network. In this regard a key variable for assessment identified was liquidity management which was used to determine whether or not the agents were still aligned with the principals’ goals and expectations. Despite the conclusions made by Eijkman et al (2010) there are shortcomings as their analysis only focused on transactional data but did not interact directly with the agents to investigate other factors which may affect liquidity management such as infrastructure on the premises, capital investment requirements for the agents’ core businesses etc.

Mobile money should at a bare minimum assist in three ways, firstly increase convenience by reducing travelling and queuing times, secondly due to the virtual element of mobile money increase safety of transactions for users when transacting through the mobile device as it is inherent that by instantly transacting live users begin to trust the system; and finally mobile money offerings through their footprint of agents and outlets, give the user a greater control on where to transact, which helps protect privacy and reduce corruption (Heyer and Mas, 2009). This statement by Heyer and Mas (2009) has not considered the possibility of the principal – agent problem’s existence within the mobile money supply network. The assumption in this case is that the agents’ behaviour is not always observed and known and therefore vulnerabilities to fraud, violation of privacy etc. may exist.

Cobert, Helms & Parker (2012) indicate that agent quality is critical for maintaining customers’ faith in mobile money systems and suggest that recruiting only high – potential early adopters such as retail chains, or aggregators, such as Super – Agents. As indicated the principal – agent problem can permeate the mobile money supply network at the point of agent recruitment and as such Cobert et al (2012) have not considered the element of adverse selection in the recruitment of the high potential agents. Another related issue in post registration is that in the case of Super – Agents, their commission structure is based on number of Lower – Tier Agents they enrol and manage as well as the number of customers registered and transactions made; they may not necessarily aim to recruit high quality agents, but rather recruit on the basis of

numbers for more commission. This may occur without the principal's knowledge and have implications on the quality of services and damage the mobile money services' credibility.

The literature covered on M – PESA demonstrates that although there were channels through which the principal – agent problem can permeate the supply network; this issue has not been considered in the research. The studies undertaken provide a simplistic view of the mobile money services and have not considered the complex structure of the services' delivery, the relationship dynamics of the different actors and implications on the quality, access and availability of the services. The review further identified the absence of theoretical frameworks in the mobile money literature that can be used to assess the extent of the principal agent problem in mobile money and implications for access and availability of services. As a result, due to the distribution network nature of mobile money services, supply chain publications were reviewed and there were publications that applied the principal agency theory to frameworks that examined risk and quality in supply chain networks.

### **3.6 Principal - Agent Problem in Supply Chain Management**

The agency problem structure has been applied in a variety of settings such as vertical integration relationships; executive compensation; employment relationships; budgeting and inter – organisational relationships (Zu and Kaynak, 2012). Recent work in the area of supply chain management and logistics provided an insight into assessing the principal – agent problem in distribution networks. This work is relevant and applicable to mobile money services given its setup of a distribution network.

Cheng and Kam (2008) applied the agency theory to develop a conceptual framework for analysing risk in supply networks. According to Cheng and Kam (2008), the complex mix of heterogeneous collaborators in supply networks increases the complexity of the risk profiles of inter – related components within networks. In the same manner, the M – PESA distribution network includes a complex mix of heterogeneous collaborators, especially the agents that range from large retail chain stores to small stores in various geographic locations. To develop the analytic framework, Cheng and Kam (2008) place the principal – agent relationship in the context of a business network. Firms taking part in one end product supply network are assumed to be competing against alternative comparable end product networks; or an agent of an end product network may also be participating in other non – comparable end product networks, which are referred to as latent networks (Cheng and Kam, 2008). The M – PESA distribution network fits well with the description provided by Cheng and Kam (2008) in that the M – PESA

agents are competing against other entities providing similar mobile money services from other MNOs. Furthermore, M – PESA services are not the agents' primary business and are therefore participating in latent networks. In addition, there are instances where M – PESA agents provide alternative mobile money services, in this case Ecocash by Econet Wireless in the same premises without either principals' knowledge.

The conceptual framework as proposed by Chen and Kam (2008) only focuses on addressing operational risks which they refer to as variations in the distribution of outcomes from expected or agreed targets. Chen and Kam (2008), citing Juttner (2003) indicate that adverse outcomes represent realisation of risk and refer to any disruption that affects flows of information and/services from one entity to another in the network in connection to the delivery of a final product or service to the end customer. Chen and Kam (2008) identify risk factors which may influence variations to the service as distinctive supply related characteristics of each entity that include environment, infrastructure, and service delivery, inter organisational linkages or a combination of all. Chen and Kam (2008) further outline the role of each of the risk factors in the supply chain. The risk factors identified equally apply to the M – PESA distribution network and it can be assumed that for any occurrence of any of the factors, there will be variations in the provision of services to M – PESA users. The extent of occurrence of these risk factors was applied to determine the extent of the principal – agent problem and its implications in the M – PESA supply chain.

In developing the conceptual framework, Chen and Kam (2008) define the network structure to determine patterns of delegation, interdependency and interaction; then analyse the dynamics of risk in the network to establish nodes of risk precondition, events, footprints, propagation and backlash. Lastly Chen and Kam (2008) assess impact of risk to establish impact on individual and sub components of the network as well as on the entire network. This methodology adopted by Chen and Kam (2008) is a deductive approach that enables clear identification of how the network is structured, where linkages are within the network, the risk factors and area of occurrence and; lastly assess the impact of risk. This is an important area as the M – PESA platform has evolved from just a money transfer platform to include elements of payments and therefore becoming more complex. Despite not applying the framework with real business examples, Chen and Kam's (2008) findings are that the framework demonstrates how risk factors are affected by complex relationships found in networks through agreements on supply and incentives, and on supply performance. Chen and Kam (2008) also conclude that

exogenous risks can arise from latent networks and hidden perceptions and assessments that the principals and agents engage in during the supply process.

Roh and Whipple (2010) used the agency theory for assessing the likelihood of quality fade in buyer – supplier relationships and prescribing contractual mechanisms for reducing quality fade. Quality fade, an element of supply chain vulnerability is the unforeseen deterioration of agreed to or expected quality levels with respect to product and/or service requirements (Roh and Whipple, 2010). Some examples of service quality fade include using less costly but lower service transportation providers which may reduce on – time delivery performance; holding less than agreed to inventory levels which could negatively impact customer service etc. (Roh and Whipple, 2010).

Roh and Whipple (2010) indicate that quality fade in both product and service requirements can lead to product safety concerns, reduced customer service, lost sales, added costs, and other negative consequences for the buying firm. Roh and Whipple (2010) further note that quality fade maybe an intentional or unintentional action. In this case Roh and Whipple (2010) indicate that the other occurs by intentionally violating agreed to expectations and the other happens in the sense that complacency or lack of attention to detail occurs, and individuals and firms may fail to provide agreed to performance. Quality fade in the supply chain context can also occur in the mobile money supply chain, for example M – PESA agents may intentionally or unintentionally violate agreed to performance levels with the Mobile Network Operator (MNO). On the other hand, the MNO may fail to do continuous screening of new agents or fail to train agents as for example more value added services are included on M – PESA and more agents recruited, and thus quality fade can occur.

Middler (2007), as cited by Roh and Whipple (2010) suggests that often quality fade is not readily detected as the quality degradation occurs incrementally over time; and as such is not often recognised until a disruption actually occurs. In the event a disruption occurs in mobile money, the ultimate responsibility falls on the MNO who is the owner of the services, and not the agent who has delegated responsibility. This raises the importance of monitoring and verification as indicated in the principal agency theory. In this case does the MNO adequately monitor and verify the actions of the various M – PESA agents to detect any symptoms of quality fade over time? The existence and use of information systems in M – PESA by the MNO and agents enables monitoring and verification, however to what extent is the system adequate for monitoring and verifying service provision by agents?

Roh and Whipple (2010) provide a theoretical model for assessing quality fade in the form of a governance matrix that considers outcome measurability and outcome uncertainty in a supply chain and logistics context. The matrix addresses three issues (1) vulnerability of each transacting party (2) the proposed efficient mix of contract types; (3) the appropriate actions to reduce the potential for quality fade and balance the costs of monitoring the agent's behaviour versus the costs of measuring the outcomes and transferring risk to the agent. The governance decision matrix as indicated by Roh and Whipple (2010) illustrates four different outsourcing governance scenarios that take into account the buyers' and suppliers vulnerability. The scenarios as outlined are (1) low outcome measurability and uncertainty (2) low outcome measurability and high – outcome measurability (3) high outcome measurability and low outcome uncertainty (4) high outcome measurability and high outcome uncertainty. Identifying the vulnerability of each transacting party within the different scenarios enables one to determine whether goal conflict and information asymmetry exist. The framework enables the identification of major factors that influence supplier actions. Roh and Whipple (2010) conclude that two specific considerations – low outcome measurability and high outcome uncertainty place a buyer (the principal) at greater risk of quality fade. The governance matrix with some modifications was applied to assess the extent of the principal – agent problem in the M – PESA distribution network.

The framework proposed by Roh and Whipple (2010) uses a simple example that does not have multiple principals and agents, and may not be useful in such cases. The scenarios proposed are realistic but however they focus mostly on the environment within which the supplier operates; and does not give room for assessing the differences in suppliers' capabilities in the supply chain. Within the M – PESA network there are aspects such as geographic location, infrastructure and financial capability that must be considered to determine differences among the agents delegated to provide M – PESA services. These aspects can contribute to determining the vulnerability of each party and therefore the extent/level of the principal – agent problem across the distribution network.

The two frameworks discussed raise two key elements which can be used to guide the assessment of the extent of the principal – agent problem in mobile money and implications on access and availability. The first element is risk which can be used to identify any deviations by the agents from the agreed contract and the second element is quality fade which can be used

to determine deviation as well as implications. The proposed research study applied an adaptation of these frameworks to assess the extent of the principal – agent problem and its implications on service delivery.

### **3.7 Conclusion**

The literature covered suggests that there are gaps in mobile money research, in particular analysis on the relationship dynamics of the supply side and use of more theoretical frameworks for analysis of mobile money. The literature review identified conceptual frameworks developed in the area of supply chain management. These frameworks provide the possibility to assess the extent of the principal agent problem and its implications on access and availability of mobile money services. The case study of M – PESA in Lesotho presented the opportunity to apply these frameworks and contribute to better understanding and analysis of work on the supply side of mobile money.

## **4 RESEARCH METHODOLOGY**

### **4.1 Research Approach and Strategy**

The research study adopted a qualitative approach because it focused on examining relationship dynamics between entities. The qualitative approach enabled discussions with M – PESA agents on their daily operations, challenges encountered in providing the services, relations with the principals (Super – Agents and Vodacom) and Super – Agents and Lower – Tier Agents. In addition, a quantitative analysis using secondary data in the form of agent transactional data was undertaken to complement the qualitative results.

### **4.2 Data Collection, Frequency and Choice of Data**

The study population consisted of 1,999 M – PESA Lesotho agents, which included 15 Super – Agents, with 7 only active; i.e. 1,984 Lower – Tier Agents and 15 Super – Agents. Vodacom Lesotho staff members with responsibilities for M – PESA services were part of the study population. The sample size consisted of 35 agents and were categorised as 5 Super – Agents and 6 – Lower Tier Agents for each of the 5 Super – Agents i.e. 5 Super – Agents and 30 Lower Tier Agents. A sample size of 35 was selected due to logistical feasibility and time constraints. The agent sample was selected in the of city of Maseru due to the high concentration of M –

PESA agents and high volume of transactions. An alternate sample of 30 Lower – Tier Agents was drawn up to counter instances where agents in the main sample were not available to be interviewed. The agent sample was derived from the Vodacom Lesotho agent database and mainly consisted of agents that provided M – PESA services within the past 4 years. The 4-year period was used as M – PESA services were introduced in Lesotho in 2013. This was to ensure that active players with a relative reasonable experience and knowledge about the business dynamics of M – PESA were included and effected contribution to the study. 5 Vodacom M – PESA officials responsible for management of the agent network and overall M – PESA services were interviewed.

An interview question guide was used to conduct agent interviews. Due to the different responsibilities of Super – Agents and Lower – Tier Agents, the interview question guide for each tier differed. Another interview question guide was developed for discussions with the Vodacom staff. All of the question guides consisted of open ended and closed questions depending on the detail and type of information required.

### **4.3 Sampling**

Purposive sampling was used to select the agent sample; specifically, maximum variation sampling strategy was applied and entailed two stages. In the first stage 5 Super – Agents out of the 7 operating Super – Agents based in Maseru were selected. The second stage involved selection of the 30 Lower – Tier Agents under the management of the 5 Super – Agents selected in stage 1, with 6 Lower – Tier Agents per Super – Agent. The 1 Super – Agent and 6 Lower – Tier Agents were treated as a sub network in order to align with the framework to be applied for data collection and analysis. The transactional data for each of the 35 agents selected was used as a measure of performance of agents.

Purposive sampling was selected as the preferred method due to the heterogeneity of the agents participating in the M – PESA network. According to Patton (1990), the maximum variation strategy for purposeful sampling captures and describes the central themes or principal outcomes that cut across a great deal of participant or programme variation. Patton (1990) further notes that for small samples a great deal of heterogeneity can be a problem because individual cases are different from each other. However, Patton (1990) notes that the maximum variation sampling strategy turns that apparent weakness into a strength by applying the logic that any common patterns that emerge from great variation are of particular interest and value in capturing core experiences and central, shared aspects. As a result of the factors indicated,

the maximum variation strategy was applied since it permitted the heterogeneous collaborators to be represented in the sample and allowed for variations and similarities across agents and sub networks to be adequately captured in the sample as well as enabled comparisons to be made across the agent sub networks.

Suri (2011) indicates that a maximum variation sample is constructed by identifying key dimensions of variations and then finding cases that vary from each other as much as possible. For purposes of this study the dimensions of variation that were identified are the following:

1. Number of registered customers per agent – highest and lowest
2. E float available per agent – highest and lowest
3. Total number of transactions made since 2013 – highest and lowest
4. Total number of Lower – Tier Agents under management (applies to Super – Agents) – highest and lowest.
5. Type/size of agent core business – small and largest
6. Location – distance from city centre – nearest and farthest

Suri (2011) citing Patton (2002) indicates that the maximum variation sample yields high quality detailed descriptions of each case, which are useful for documenting uniqueness and important shared patterns that cut across cases and derive their significance from having emerged out of heterogeneity. In the same manner this study aimed to identify essential and variable features of the principal – agent problem in mobile money.

Constraints associated with the sampling method selected as indicated by Duan, Green, Hoagwood, Horwitz, Palinkas & Wisdom (2013) mainly relate to the fact that it is highly prone to researcher bias. The idea that a purposive sample has been created based on the judgment of the researcher is not a good defence when it comes to alleviating possible researcher biases, especially when compared with probability sampling techniques that are designed to reduce such biases (Duan et al, 2013). Duan et al (2013), further note that this subjective component of purpose sampling is only a major disadvantage where judgements have not been based on clear criteria, whether a theoretical framework, expert elicitation, or some other accepted criteria. In order to mitigate this constraint, the dimensions of variation identified for sample selection were clear, linked to the research questions, and were adopted from the literature covered and the framework adopted for data analysis.

#### **4.4 Data Analysis Methods**

The thematic analysis approach was followed to undertake the qualitative analysis. Braun and Clarke (2006) define thematic analysis as a method for identifying, analysing and reporting patterns or themes within data. Thematic analysis was selected as the ideal approach for analysis due to its advantages that are relevant to the current research. Braun and Clarke (2006) indicate that thematic analysis can highlight similarities and differences across the data set, generate unanticipated insights and its usefulness for producing qualitative analyses suited to informing policy development. This qualitative analytical approach was also used as indicated by Bondas, Turunen & Vaismoradi (2013) to improve validity and the consistency between the purpose of the study and the method of data analysis.

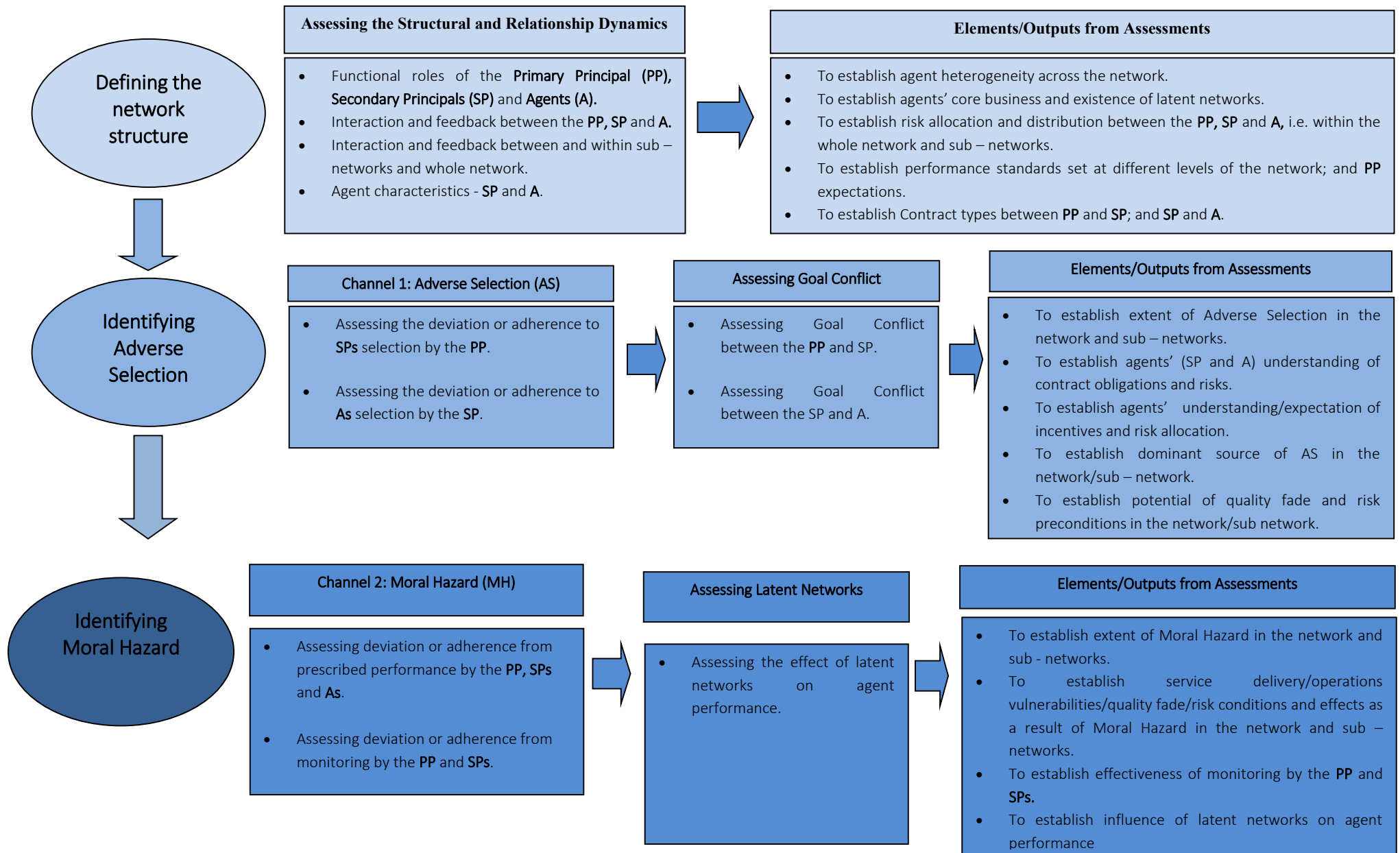
The phases of thematic analysis as described by Braun and Clarke (2006) were followed to enable systematic analysis of the data. The phases are as follows: data familiarization; code generation; searching for; reviewing; defining and naming themes; and producing the report. Familiarization of the data was through notes made during the interviews with the agents and officials and with the transcription of the recorded interviews. The adapted analytical framework depicted in Figure 8 was used to guide the processes of coding, identifying, reviewing and defining relevant themes. The analytical framework main components, namely defining network structure, identifying adverse selection and moral hazard, and their respective sub – components were used as the basis for the information coding and served the purposes of a thematic map. The coded information was then grouped under each relevant component and sub – component of the analytical framework. The information was reviewed and interpreted to generate results deriving from the respective components and corresponding sub – components.

The results from the components and sub – components were reviewed and a comparison of the results was made across the three main components. Secondary agent transactional data was used in the analysis to complement the information gathered from the interviews to support the validity of the findings. The write up of the organised information, interpretation and findings was structured in accordance with the main research questions and the analytical framework.

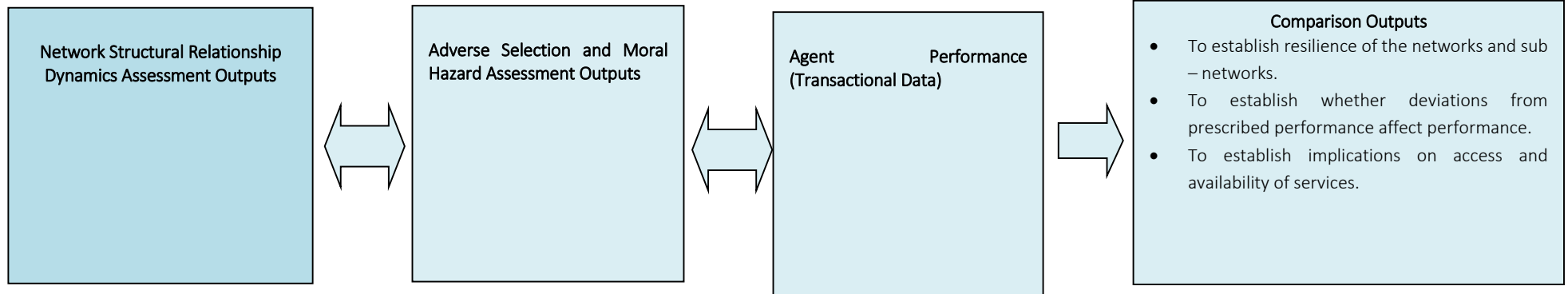
An adaptation of the conceptual frameworks developed by Chem and Kam (2008) and Roh and Whipple (2010) was developed and applied to guide the data analysis process as described above. The analysis followed a deductive approach as applied by Chem and Kam (2008). The

deductive approach enabled identification of elements of potential risk and vulnerabilities that can be interpreted as existence of the principal – agent problem; enabled identification of the type or source of the problem and its implications on the overall sub network and network.

**Figure 8: Framework for Analysis**



Comparison of Network Structural and Relationship Dynamics, Adverse Selection and Moral Hazard Assessment Outputs with Agent Performance



#### **4.5 Research Reliability and Validity**

This study was conducted using the qualitative research design method. Consideration of the aspects of reliability and validity in qualitative research as indicated by Noble and Smith (2015) was made throughout the phases of the study. Credibility of the study was ensured by the use of a theoretical framework that defined the focus area of the study and guided discussions with participants. In addition, the researcher through interviews interacted with a number of participants engaged in the mobile money delivery network at various levels; and observations on the operations of agents during and after interviews as well as while waiting to conduct agent interviews were made. Data from the interviews, secondary agent transactional data and the researcher's observations was cross checked to enhance credibility. The applicability of the study was attained by applying the purposive sampling technique which enabled data on various dimensions to be collected and analysed. Applicability was further strengthened by the use of an adapted analytical framework that enabled systematic analysis of the information collected.

The focus area of this research study is new and the researcher was not entirely familiar with it. The unfamiliarity limited the biasness of the researcher as the study was conducted.

#### **4.6 Limitations**

The following are limitations of the study that were identified and must be taken into account when considering the findings of the research study.

1. Braun and Clarke (2006) indicate that a disadvantage to consider is that a thematic analysis has limited interpretative power beyond mere description if it is not used within an existing theoretical framework that anchors the analytic claims that are made. The analytical framework applied in this research study is an adaptation of frameworks that have not been applied and tested in the real world. The modified analytical framework was specifically for this study and potentially has weaknesses of the original frameworks when applied in actual situations. The findings of this study have been likely affected by these weaknesses. However, the analytical framework applied in this study provided a systematic approach to data collection and analysis; and overtime with testing, review and improvements it can deliver enhanced analysis and results.
2. The context and setting of this research study was in Lesotho which is characterised by lower number of mobile money transactions, agents, customers and competitors. In addition, the geographic focus of the study was in an urban area and did not include rural areas. As a result,

the sample size of the study was not adequate to generalise the findings of the study. This research study focused on one specific mobile money delivery model i.e. M – PESA in Lesotho and did not take account of other models for provision of mobile money offered in Lesotho and other countries, thus affecting the findings' generalisability.

3. During the period of undertaking the research, there was uncertainty on whether M – PESA services would be terminated as in the case of M – PESA services in South Africa. Fortunately, this did not occur, however this uncertainty resulted in delays with continuing with the study.

## **5 RESEARCH FINDINGS, ANALYSIS AND DISCUSSION**

This section of the research report presents main findings of the study derived from the interviews conducted and analysis from secondary agent transactional data. The findings are reflected in a manner that is consistent with the analytical framework illustrated in the previous chapter. This is to ensure that the information is systematically presented to provide direction on the research questions and objectives of this study. The section includes a comparison of the main thematic areas of the analytical framework namely: network structural relationship dynamics, agent recruitment and selection and agent performance. A conclusion of findings is provided at the end of this section.

### **5.1 The Network Structure and Relationship Dynamics**

The M – PESA network structure consists of a distribution network made up of various independent business entities with delegated authority from Vodacom to provide M – PESA mobile money services. The research sought to understand the relationship dynamics within the network of agents, in particular issues on agent heterogeneity, agent interactions, latent networks, risk distribution, allocation and vulnerabilities in the network and performance standards for agents.

#### **5.1.1 Agent Heterogeneity**

To assess agent heterogeneity, the dimensions of variation used to select the agent samples were applied and comprise of the following:

- Number of registered customers per agent – highest and lowest.
- E float available per agent – highest and lowest.
- Total number of transactions made since 2013 – highest and lowest.
- Total number of Lower – Tier Agents under management (applies to Super – Agents) – highest and lowest.
- Type/size of agent core business – small and largest.
- Location – distance from the central business district – nearest and farthest.

**Table 1** provides a summary of the agent heterogeneity based on the dimensions of variation.

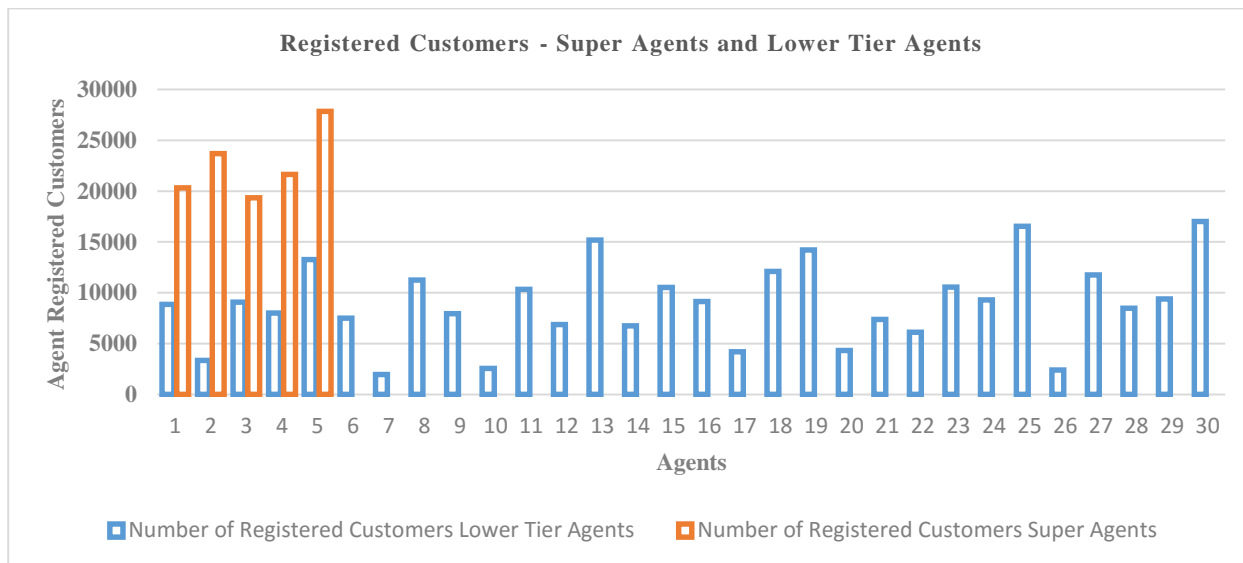
**Table 1: Summary of Agent Heterogeneity**

Dimensions of Variation	Super Agents		Lower Tier Agents	
	n	%	n	%
<b>Number of Registered Customers Lower Tier Agents</b>				
1900 – 8500			12	40
8500 – 17000			18	60
<b>Number of Registered Customers Super Agents</b>				
16000 – 22000	3	60		
22000 – 28000	2	40		
<b>E float available per Lower Tier Agent</b>				
LSL19,000 – LSL65,000			14	47
LSL65,000 – LSL130,000			16	53
<b>E float available per Super-Agent</b>				
LSL320,000 – LSL385,000	2	40		
LSL385,000 – LSL770,000	3	60		
<b>Total number of transactions made since 2013 Lower Tier Agents</b>				
1700 – 3440			17	57
3440 – 6880			13	43
<b>Total number of transactions made since 2013 Super Agents</b>				
35800 – 42700	2	40		
42700 – 85500	3	60		
<b>Number of lower tier agents per Super-Agent</b>				
200 – 300	1	25		
300 – 600	4	75		
<b>Average Annual Revenue from Core Business Lower Tier Agents</b>				
Average annual revenue LSL350,000 – LSL2,100,000			17	57
Average annual revenue LSL2,100,000 – LSL4,200,000			13	43
<b>Average Annual Revenue from Core Business Super Agents</b>				
Average annual revenue LSL6,000,000 – LSL7,500,000	2	40		
Average annual revenue LSL7,500,000 – LSL15,000,000	3	60		
<b>Location – distance from city centre Lower Tier Agents</b>				
<10km			28	93
=10km			2	7
<b>Location – distance from city centre Super Agents</b>				
<10km	10	100		
=10km	0	0		

### 5.1.2 Number of Registered Customers

Figure 9 illustrates the number of registered customers of Super – Agents and Lower – Tier Agents that represented the study population.

**Figure 9: Number of Registered Agent Customers**



The majority of Super – Agents had less than 22,000 registered M – PESA customers, with the highest number of registered customers for a Super – Agent being 27,857 and the lowest with 19,348 registered customers. The average number of registered customers for Lower – Tier Agents was 8000, with 17,000 registered customers the highest and 1,955 the lowest number of registered customers. The respondents indicated that the high number of registered customers was due to Vodacom emphasising on the registration of customers at introduction of M – PESA and registration as agents. The agents and Vodacom officials indicated that the most important factor that pushed agent customer registration was the incentives in the form of commissions received by the agents. As one lower tier agent stated:

*“The Super – Agent that registered my business explained to me that in order for me to make a lot of money from M – PESA, I would have to make sure that I register as many customers as I could. I did not see this as a challenge because I already had a lot of customers coming to my store to buy food and other stuff. I encouraged my employees to talk to people to register because I understood that the more people I registered, the more commission I would receive.”*

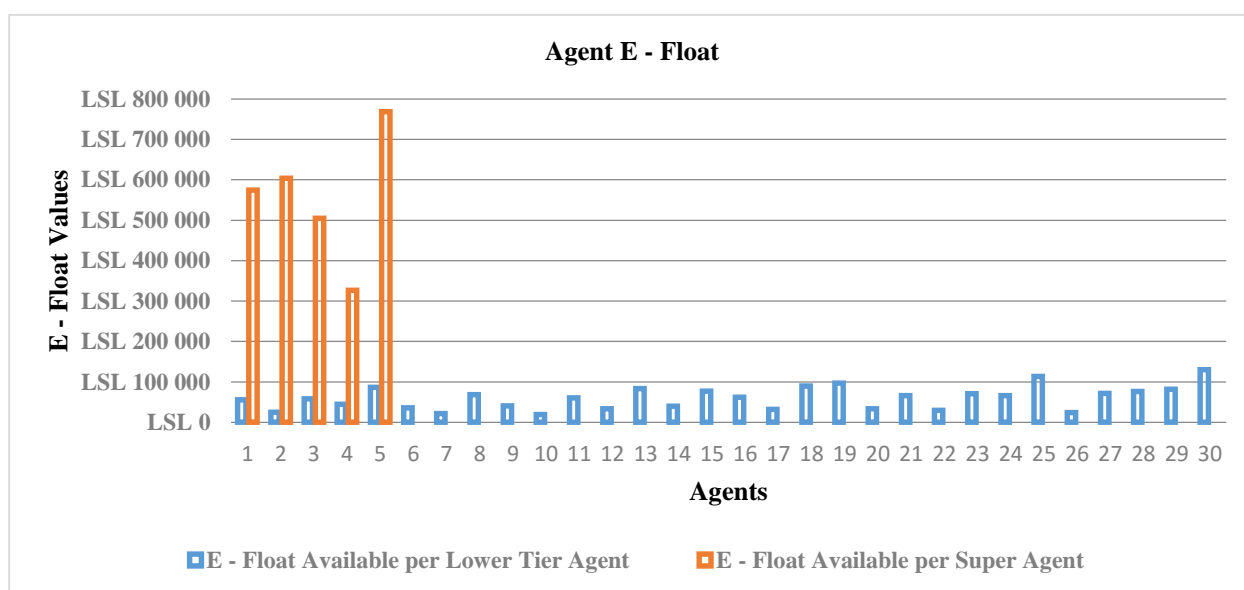
The agents alluded to factors that may have contributed to the lower number of registered customers and they include, in the case of the Super – Agent registration as an M – PESA agent in March 2016; and for Lower –Tier Agents, location in areas farther from the city centre, with less concentration of customers. Other Lower – Tier Agents indicated that they had to relocate to other business premises and believed this affected the number of customers registered. Linked to this

issue is the fact that the majority of agents were located within a radius of 10km within the city centre, an area with high competition for customers.

### 5.1.3 Agent E – Float

Maintaining adequate levels of e – float or electronic money is a key aspect of M – PESA services as it enables agents to provide cash – in and cash – out services. In addition, this is an aspect closely monitored by Vodacom and Super – Agents to ensure that it remains at the required levels for all agents. Figure 10 indicates the e – float available for Super – Agents and Lower – Tier Agents.

**Figure 10: Agent E – Float**



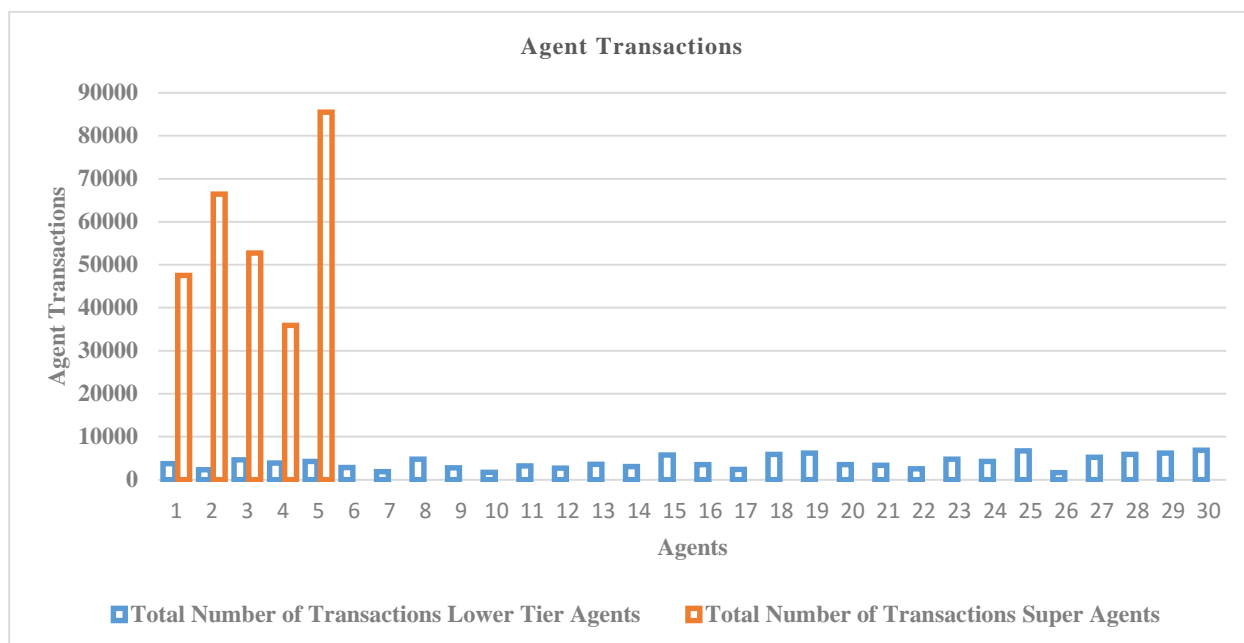
The highest amount of e – float for Super – Agents as at the end of August 2016 was LSL768, 221 and the lowest was LSL326, 408. The average amount of e – float held by Super – Agents was LSL500, 000. The highest amount of e – float for Lower Tier Agents was LSL130, 000 and the lowest was LSL19, 000. There was consensus amongst the agents that the e – float held was not constant and changed depending on customer demand, in particular during month end and weekend periods when cash – in and cash – out transactions were high. The average amount of e – float held by the Lower Tier Agents was LSL59, 000.

### 5.1.4 Agent Transactions

Figure 11 depicts the cumulative total number of transactions of agents since the beginning of their respective M – PESA operations. The transactions made by the agents comprise of cash deposits

and cash withdrawals by customers; balancing of e – float and cash; and in the case of Super Agents cash – in and cash – out transactions as well as replenishing e – float for Lower Tier Agents.

**Figure 11: Total Number of Agent Transactions**

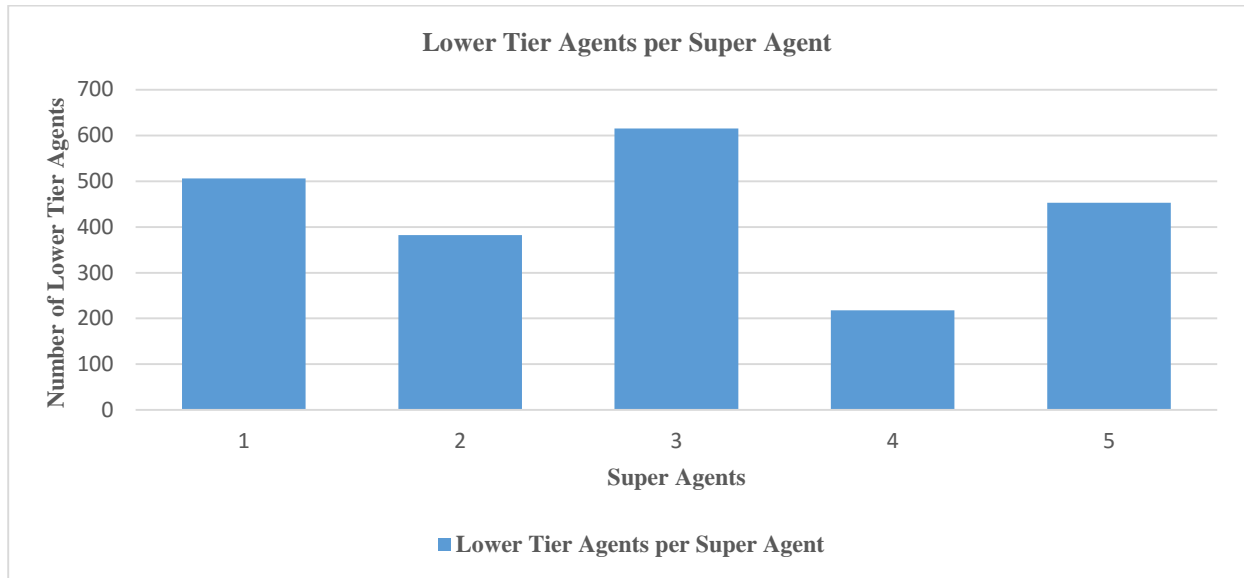


The highest number of transactions for Super Agents was 85, 475 with the lowest number of transactions at 35, 890. The Super – Agent with the highest number of transactions commenced M – PESA operations in 2013 and the Agent with the lowest in 2015. The average number of transactions carried out by Super – Agents was 57, 000. The highest number of transactions for Lower Tier Agents was 6,883 and the lowest was 1,643. The Lower – Tier Agent with the highest number of transactions commenced providing M – PESA services in 2014 and the lowest in 2016. The average number of transactions for the Lower Tier Agents was 4,000. According to the agents, the majority of the transactions were made during payday periods and weekends.

**5.1.5 Recruitment and Management of Lower Tier Agents by Super Agents**

The number of Lower – Tier Agents a Super – Agent can recruit and manage is not limited. Figure 5 indicates the number of Lower – Tier Agents for each of the 5 Super – Agents selected for this study.

**Figure 12: Number of Lower – Tier Agents per Super – Agent**



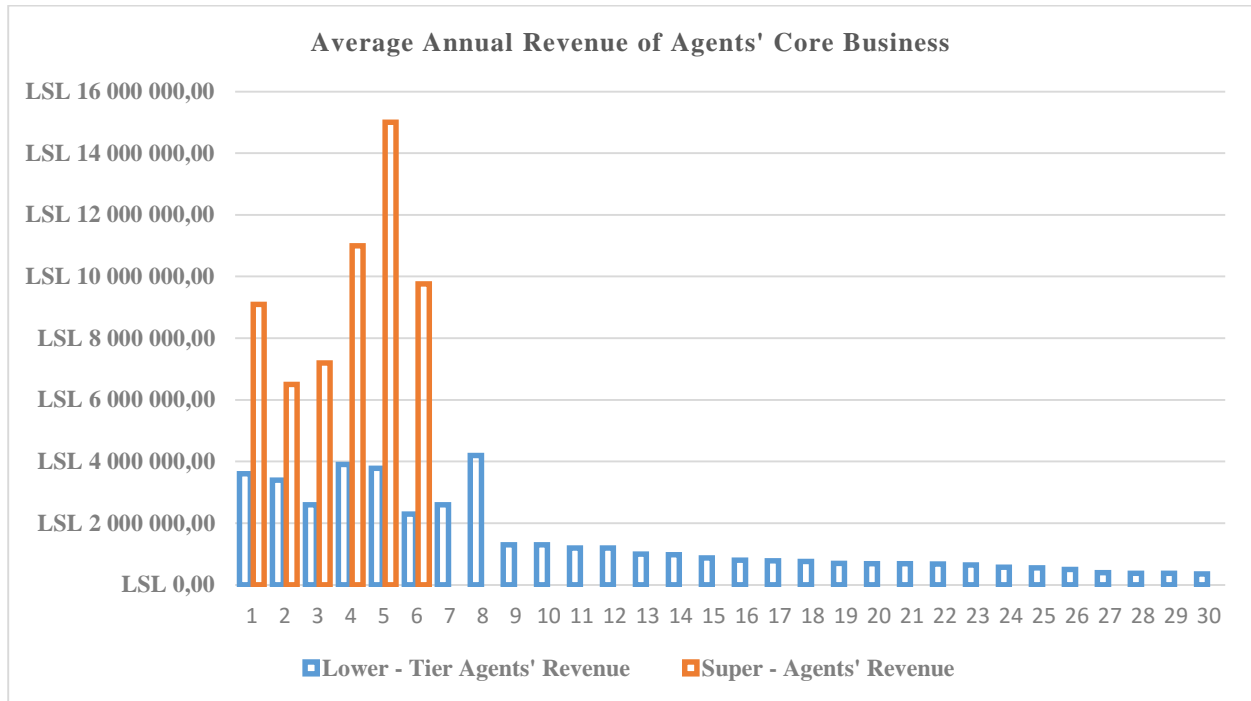
The highest number of Lower – Tier Agents managed by a single Super – Agent was 615 and the lowest was 218. The type and size of the Lower – Tier Agents’ businesses Super – Agents’ management varied. The Super –Agents’ and Lower – Tier Agents’ businesses consist of either subsidiaries of their businesses; businesses within the same holding company as the Super –Agents; those within the same supply or distribution network related to their core business and largely small to medium enterprises. The majority of the Lower – Tier Agents under management of Super Agents were mainly independent businesses; and had prior business relations with them through distribution and reselling of airtime.

### **5.1.6 Type/Size of Agent Core Business**

The Lesotho Industrial Licensing Act 2014 defines small and medium enterprises based on the number of employees and annual turnover thresholds. As defined by the Industrial Licensing Act 2014, a small enterprise is an entity that employs between 6 and 21 employees with an annual turnover of less than LSL1, 000,000. The Act defines a medium enterprise as an entity that employs between 21 and 50 employees with an annual turnover of less than LSL5, 000, 000.

For purposes of this study the type and size of the agents’ core business was assessed based on the Industrial Licensing Act 2014 definition of small and medium enterprises of annual turnover thresholds. Figure 13 indicates the average annual revenue of the Agents’ core business since 2013 to determine the type and size of the Agents’ businesses.

**Figure 13: Average Annual Revenue of Agents' Core Business**

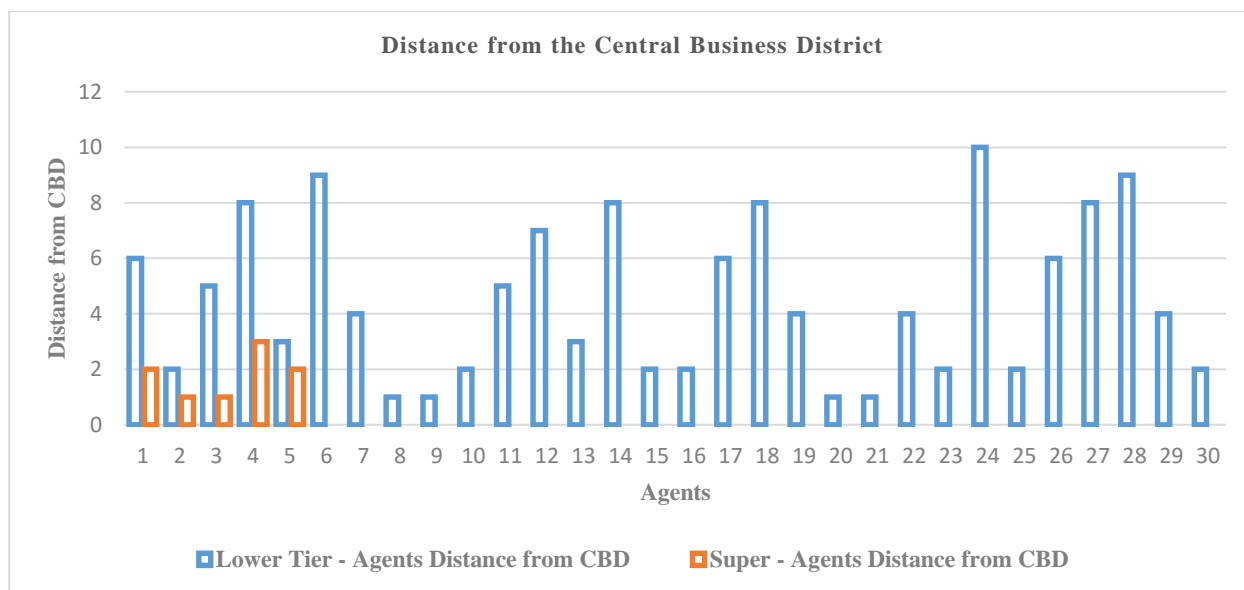


All Super – Agents earned average annual revenue of LSL9, 700,000 since 2013. The highest revenue earned by a Super - Agent was LSL15, 000,000 and the lowest was LSL6, 500,000. Based on the Industrial Licensing Act 2014 definition, all Super – Agents can be classified as non – small or medium enterprises. Lower –Tier Agents earned average annual revenue of LSL1, 600, 000; with the highest revenue at LSL3, 600, 000 and lowest at LSL350, 000. The average annual revenue of 17 Lower – Tier Agents was less than LSL1, 000, 000 and can be classified as small enterprises. 13 of the Lower – Tier Agents had average annual revenue of more than LSL1, 000, 000 but less than LSL5, 000, 000 and are therefore classified as medium enterprises.

**5.1.7 Agent Business Location from Central Business District**

Distance of the agents’ business premises from the Maseru central business district was assessed as part of the dimensions of variation. A radius of 10km from the central business district was selected due to the high concentration of businesses and population within a 10km radius. The Google Maps application was used to measure the respective distances. Figure 14 shows the distances of the respective agents’ businesses from the central business district.

**Figure 14: Distance from Central Business District**



The average distance of Super – Agents’ business premises from the central business district was 1.8km. All the Super – Agents’ premises were within a radius of 3km from the central business district. The average distance of Lower – Tier Agents’ business premises from the central business district was 5.3km. The agents emphasised the importance of being located within or closer to the central business district as there was a high volume of customers, ease of access to services related to their businesses as well as ease of access for customers.

**5.2 Agent Interactions and Feedback**

Interactions amongst the agents are between the Super – Agents and Lower – Tier Agents under their management. These interactions are compelled by the contracts signed by the parties. The agents all indicated that the intensity and frequency of the interactions has varied in line with registering as an agent and on issues of performance. The agents indicated that during the registration process and immediately after, there was a lot of interaction between the Super – Agent and Lower – Tier Agent. The interactions entailed convincing the Lower –Tier Agents to register and ensure that the Lower –Tier Agents are properly set up to provide services. The agents all agreed that interactions on performance issues were on maintaining adequate cash and e – float balances. The agents indicated that a lot of the feedback information was available on the M – PESA digital system as well as on transactional forms that are filled by the agents every time a transaction is performed. The agents noted that there was little or no interaction between the Lower –Tier Agents within or across the Super – Agent sub networks.

Vodacom through its M – PESA Distribution and M – PESA Partnerships officials interact on a regular basis with Super – Agents on issues of performance, agent capacity and branding of M – PESA outlets. The interactions were important for M – PESA as they enabled the performance standards to be maintained at required levels, assisted Vodacom to quickly identify problems encountered by agents, and made it possible for Vodacom to assess, plan and introduce new services on the platform. The Vodacom officials emphasised that the Super – Agents played an important role of ‘outreach’ to the thousands of M – PESA agents and therefore the interactions were important.

Challenges on interactions and feedback identified include:

- Frequent changes in shop assistants providing M – PESA services, in particular at Lower – Tier Agent levels therefore requiring retraining and establishing new relationships.
- Delays by Lower –Tier Agents to inform Super – Agents about any problems they encounter and delays by Super – Agents to respond to or address problems raised by the Lower –Tier Agents.

### **5.3 Agent Recruitment**

The interview data was analysed to assess any deviation from prescribed agent selection processes and requirements. In addition, the analysis assessed the existence and extent of goal conflict between the Primary Principal (Vodacom) and Secondary Principal (Super Agents); and Secondary Principals and Lower – Tier Agents in the network at the recruitment stage.

#### **5.3.1 Agent Recruitment Criteria and Process**

Requirements for appointment as an authorised M – PESA agent are clearly stipulated by Vodacom. The requirements entail elements that include the legal registration of a potential agent as a business; minimum time of the business’ existence; infrastructure requirements mainly ICT equipment; and minimum cash investment for operating capital. The requirements for appointment between the Super – Agents and Lower – Tier Agents differ primarily on cash investment, infrastructure requirements and prerequisite for minimum number of lower tier agents. Exceptions are made for standalone businesses such as hotels to register as authorized Super –Agents, without recruiting and managing any Lower – Tier Agents.

Vodacom M – PESA Partnerships Officials undertake due diligence on potential Super – Agents to ensure that all prerequisites are met. The M – PESA Partnerships officials indicated that the due diligence process focused on the potential Super – Agents’ financials to ensure that it would be able to invest and sustain the proposed cash investment. The officials noted that another critical issue assessed was the ability of the potential Super – Agent to manage and sustain an agent network. The officials alluded to challenges in the recruitment process that include: delays in submission of required documentation such as valid tax clearance certificates by respective businesses, reluctance to disclose financial status of the business and appointment of personnel without decision – making authority in the business to lead the process. Due to such challenges the officials noted that the process could take up to 3 months or more to complete. However, the officials also expressed the view that these challenges were not encountered with all businesses; in particular, with those that already had a relationship with Vodacom as airtime wholesalers/distributors. The likelihood of a business being granted authorization to register as an M – PESA agent without meeting all requirements was non – existent due to the rigorous process used. As one official noted:

*“We go through stages with the agents until the process is complete. On completion of each stage authorisation is given by the division personnel involved such as legal division to proceed to the next stage. There is no way that we can continue with the process without the approval. After all the stages are completed, the Quality Assurance and Verification Team validate that all is in order, including physically inspecting the agents’ business premises.”*

The process and requirements for businesses to be appointed as M – PESA agents at the lower tier differ slightly from that of Super – Agents. The businesses must meet all legal requirements, undergo a due diligence process and provide the cash investment stipulated. The Super – Agents, with assistance and guidance from M – PESA Partnerships officials organise the registration process of the agents under their management. The Super – Agents cited challenges they encountered with recruiting lower tier agents and include the following:

- Reluctance of some businesses to sign up as agents due to a lack of understanding of how the M – PESA service works, the commission structure, contributions towards branding and the overall benefits it had for any business. This reluctance required several meetings with the business representatives in order to convince them, and therefore prolonged completion of the registration process.

- Delays in providing the required documentation, particularly bank statements by some businesses.
- Delays in providing the required cash investment, some businesses opted out of the process at this stage when they had to release the funds.
- Businesses deciding to withdraw completely from the registration process when it had already commenced.
- Some businesses opting to register with the competitor Mobile Network Operator mobile money services.
- Delegation of the registration process to employees without decision making authority and changes to employees given responsibility to facilitate the process. This resulted in distortion of information and misunderstanding, and therefore caused delays.

These challenges were common amongst independent businesses as they occasionally encountered them with the businesses that were either their subsidiaries, part of one supply network or had an existing business relationship. The Super – Agents’ views were that it was easier to work with subsidiary businesses and those that they had an existing relationship with as they could easily access all the information needed. Some indicated that due to the standing relationships they had even advanced cash investments on behalf of businesses and agreed on repayments terms easily.

The Lower – Tier Agents’ views on the requirements and process for appointment as an M – PESA agent were similar and reflected consensus on the following:

- Generally, the requirements were not difficult to meet, in particular the legal documentation required. They cited difficulty in providing information on their business finances such as bank statements to either Vodacom officials or Super – Agent representatives.
- Contribution towards M – PESA branding costs was an issue that some agents were dissatisfied with. Reasons for their dissatisfaction varied and included issues such as disclosure of branding costs at later stage after cash investment was committed and it

seemed unfair to pay for branding that largely was about Vodacom and therefore were of the view it had to pay for the branding.

- The process to register as an agent took a long time, with several meetings on different issues. The expectation was that the process would not be long and they would start providing services within a reasonably short period of time.
- Some of the agents that were subsidiaries of the Super – Agents did not have similar views like above, they indicated that most of the registration processes were directly dealt with by the head office or main company. However, some noted that they made input to the process by providing additional information and attending meetings when required.

#### **5.4 M – PESA Stakeholder Goals, Expectations and Risk Perceptions**

In order to assess the existence of goal conflict within the M – PESA distribution network, the data collected was examined to identify the stakeholders’ goals, expectations and risk perceptions in relation to providing the mobile money services.

##### **5.4.1 Vodacom Expectations on Agents**

Vodacom as the primary principal in the M – PESA mobile money services has specific corporate goals, objectives and expectations regarding M – PESA.

The M – PESA Partnership officials interviewed indicated that Vodacom’s main expectation was for agents to adhere to the terms and conditions of the contracts signed with Vodacom. The emphasis in adherence was to ensure that agents maintain the standards and quality stipulated for providing M – PESA services. An expectation on maintaining stipulated standards is placed on agents because they are the direct link between the service and customers. The officials’ views were that delivery of the services relies on the agents in order for customers to access it; and if the standards and quality are not as expected utilisation of M – PESA would decline; negatively affect sustainability of services and introduction of other services on the platform.

##### **5.4.2 Vodacom Risk Perceptions**

The M – PESA Partnerships officials indicated that awareness and management of risk was a critical factor in the day to day operations of M – PESA. The officials’ views on risk were that the M – PESA agent network was the main source of the risks that the mobile money services were

exposed to. The officials highlighted agent fraud as a major risk that they were constantly monitoring. Another risk cited was agents providing sub – standard services or not providing services at all. The officials noted that non – functioning of the M – PESA platform as a result of technical system failures was a risk that emanates from Vodacom. The officials’ view was that incidence of such actions can negatively affect M – PESA’s reputation as a service and brand as well as that of Vodacom as the company behind the service and brand. They further noted that such incidents had financial and legal consequences for Vodacom and the agents.

### **5.4.3 Super – Agent Expectations**

The Super – Agents raised the following issues in relation to their goals for M – PESA:

- The aim was to provide M – PESA services in order to increase their businesses’ overall revenue sources.
- Supply of Vodacom airtime as a wholesaler resulted in considerable income for their businesses over time and the aim for M – PESA was to complement the existing airtime sales and in the end increase income for the businesses.
- Some agents viewed Vodacom as a long standing partner and providing M – PESA services was to support Vodacom and continue the existing partnership.
- Awareness of the expansion of digital payments and mobile money, the decision to provide M – PESA services was to keep up with the trends and remain relevant in the market.

The Super – Agents’ views were that as ‘owners’ of the agent networks, a lot was expected from them by Vodacom and the agents under their management. The Super – Agents noted that their understanding of the expectations were a result of the responsibilities they had committed to as stipulated in the contract agreements. The Super – Agents’ expectations on Vodacom were that it had to regularly provide the necessary support, particularly training for their employees and ensure that the M – PESA system functions properly. The Super – Agents’ expectations on the Lower – Tier Agents were that they adhere to the M – PESA service standards in particular managing the cash and e – float inventories.

#### **5.4.4 Super – Agent Risk Perceptions**

The Super – Agents’ perceptions were that the potential source of risk was actions of fraud and unethical behaviour at the Lower –Tier Agent level. They indicated that despite the existence of strong systems to detect and prevent fraud, there was a likelihood of fraud by shop assistants as well as customers. They indicated that it was their responsibility to ensure that such acts do not occur as they would have negative consequences on their businesses and relationship with Vodacom.

#### **5.4.5 Lower– Tier Agent Expectations**

Most of the Lower –Tier Agents interviewed indicated that their goal for providing M – PESA services was to gain more income for their businesses. They noted that they although M – PESA was not the principal service in their businesses, it was a source of revenue. The Lower – Tier Agents further noted that they considered existence of M – PESA services in their businesses and association with Vodacom as an advantage for status of the businesses. They indicated that this had potential to attract more customers to their businesses. Other agents, specifically those that were subsidiaries of Super – Agent companies indicated that they did not have views on the businesses’ goals for M – PESA as the parent company managed everything; but however noted that they regarded M – PESA as part of the day to day services provided by the businesses.

The Lower – Tier Agents reported that they expected that M – PESA services would generate the anticipated income for their businesses because a lot of money had been invested to provide the services. Another expectation raised by the Lower –Tier Agents was that of continuous support by Vodacom and the Super – Agents particularly on training of employees and support in cash inventory management. The Lower – Tier Agents noted that they placed more expectations on the Super – Agents for support as they had recruited them and therefore had a responsibility to ensure that they were successful in providing M – PESA services.

#### **5.4.6 Lower – Tier Agent Risk Perceptions**

The risk perceptions raised by the Lower – Tier agents were within their own remit, and related to the actual provision of services. The main risk they alluded to was that of fraudulent actions that could be committed by shop assistants and customers. They noted that this was the main reason they expected support from the Super – Agents in order to prevent incidents of fraud and any losses resulting from them. The agents indicated that they were well aware of the consequences of the fraudulent activities which included suspension from the M – PESA network as well as reputational damage for their businesses.

## 5.5 Agent Support and Monitoring and Performance

The interview data was assessed to analyse any deviation from the prescribed service provision standards and requirements. In addition, the analysis assessed the effect of latent networks on the provision of M – PESA services.

### 5.5.1 Agent Support and Monitoring

Agent support through training and performance monitoring are crucial aspects of M – PESA operations that ensure agents adhere to service standards. These roles are undertaken by the M – PESA Partnership officials and Super – Agent employees. The interviewees indicated that key aspects of agent support are training of shop assistants and owners or managers and rebalancing of cash and e – float. They however noted that not all Lower –Tier Agents required support in managing their cash and e – float requirements, in particular those with larger business operations. The Partnership officials indicated that there was mandatory initial training for every agent upon registration and refresher training provided at intervals of 2 to 3 times a year. According to the officials, the mandatory initial training focused on adhering to legal requirements of customer registration (in particular know your customer and anti – money laundering) and customer protection; conducting customer transactions; record keeping and reporting and rebalancing of cash and e – float.

The Partnership Officials and Super – Agents indicated that the monitoring aspect required a lot of effort, especially conducting physical visits to Lower –Tier Agents. The interviewees indicated that the main reason for monitoring was to ensure that the Lower – Tier agents adhered to the prescribed standards for service provision. They indicated that the main issues they focused on during monitoring are:

- **Agent liquidity management:** whether agents keep adequate amounts of e – float.
- **Record keeping:** whether agents are recording customer and transactional information as required.
- **Branding merchandise:** whether agents are displaying M – PESA branding material such as agent number and tariff information as required.

The Partnership Officials noted that despite the level of effort required for monitoring, the M – PESA operation system was able to track and record transactions in real time and this enabled them to keep track and identify potential acts of fraud as well as immediate follow – up.

**Table 2** outlines challenges encountered in agent support and monitoring as indicated by M – PESA Partnerships officials, Super Agents and Lower Tier Agents.

**Table 2: Agent Support and Monitoring Challenges Encountered**

M – PESA Partnership Officials	Super – Agents	Lower – Tier Agents
<p>Frequency of follow – up training not happening as planned. Initially it was possible to provide follow – up training for agents 3 times a year, however due to the increase in number of agents the number of times to conduct refresher training in a year has decreased. More focus is placed on Super – Agent training to ensure that they provide training and support to Lower Tier - Agents regularly.</p>	<p>Staff turnover at Lower – Tier Agent businesses requires re – training of shop assistants regularly. This is also linked with staff rotations that some businesses practice wherein shop assistants’ responsibilities are changes. This has implications on monitoring and training in that the assistant may not know where record books are kept or not entirely familiar with the processes, and therefore cause delays or require another field visit.</p>	<p>Time demands for shop assistants presents a problem as they are employed for responsibilities other than M – PESA. Another related issue is the turnover rate of shop assistants which results in retraining requirements for new assistants or redeployed assistants.</p>
<p>Staff changes in Super – Agent businesses have compelled frequent unplanned for re – training.</p>	<p>Business owners and managers do not regularly participate in monitoring visits and training. They usually delegate shop assistance who are either new, cannot make decisions or not entirely familiar with the M – PESA function. This adds a burden to Super – Agent staff as they have to continuously remind owners and managers about their expectations for training and monitoring.</p>	<p>Communication from Vodacom and Super – Agents about monitoring and field visits sometimes not clear and not provided on time and this creates confusion. However some agents indicated that the problem emanates from within their businesses because shop assistants don’t pass on the messages to them as they are supposed to.</p>
	<p>Reluctance by businesses to release shop assistants for training sessions as well as delays in confirming their attendance.</p>	<p>Unintended costs for shop assistants’ travel to attend training.</p>
	<p>Record books sometimes not available in – store, this usually occurs with businesses directly managed by the owner and records are kept where staff cannot access them.</p>	
	<p>The large number of Lower – Tier Agents under the management of each Super – Agent makes it difficult to effectively manage, support and service them as expected. Undertaking physical visits to all Lower – Tier Agents was expressed as a challenge for Super – Agents.</p>	

The issues indicated by two stakeholder categories (Partnership Officials and Super – Agents) have consensus that agent support and monitoring challenges encountered largely emanate from the issues related to shop assistants employed by agents and the high numbers of Lower – Tier Agents to be supported. Some Lower – Tier Agents also concurred with this observation, however to a certain extent. The Lower – Tier agents’ views on challenges differ from those of the Partnership Officials and Super – Agents and indicate existence of reluctance on their part to allow shop assistants to participate fully in agent support activities. From the challenges outlined, a lot of the agent support and monitoring burden in terms of time and cost is carried by the Super – Agents. Feedback on agent adherence to the prescribed standards by the agents is presented in the next section on agent performance.

### 5.5.2 Agent Performance

The analysis of agent performance at all levels was based on the main issues assessed during monitoring and agent support functions. Focus of the analysis was on the non – adherence of agents to prescribed standards of service provision. Other elements important for overall performance of the M – PESA network were also included in the analysis. **Table 3** below depicts the findings from the analysis.

**Table 3: Adherence to Performance Standards**

Performance Standard	Super Agents	Lower Tier Agents
<b>Liquidity Management</b> ( <i>whether agents keep adequate amounts of e – float and cash</i> )	Generally, agents at this level adhere to this rule mainly due to rebalancing responsibilities for Lower – Tier Agents under their management. Super – agent practice is to have e – float and cash inventories that are above the required levels because Lower – Tier Agent rebalancing requirements can sometimes be unpredictable. Initially at M – PESA introduction there were instances where some Super – Agents did not maintain the required e – float and cash balances.	The majority of Lower – Tier Agents do not keep e – float and cash inventory levels as prescribed mainly due to the unpredictable nature of customer demand. Inventory levels are usually lower and only increased during identified peak times such as month end and weekends.
<b>Record Keeping</b> ( <i>whether agents are recording customer and transactional information as required</i> )	100% adherence to record keeping requirements. However, common for delays in reconciling own information with that from Lower – Tier Agents under their management.	Several problems with record keeping – transactions not immediately recorded in log books; errors in recording transactions ( <i>e.g. figure entered in log book not the same as figure on system</i> ); double recording – transactions and customer registration; misplacement/loss of log

		books; delays in updating log book information and reports etc.
<b>Branding Merchandise</b> ( <i>whether agents are displaying M – PESA branding material such as agent number and tariff information as required</i> )	Not all Super – Agents adhere to these standards. Agent number is usually displayed visibly, however in most of the agent premises the M – PESA tariff information is not displayed at all or displayed in an area where customers cannot clearly see it.	M – PESA brand name and agent number are visibly displayed in all agent premises. Tariff information not displayed as required in most of the outlets.
<b>System Outage/Down time:</b> ( <i>frequency of M – PESA system not accessible/not operational</i> )	Incidents of system outages usually occur once a week. In this case this is when the system is completely offline but network coverage available. Other problems are when the system is slow and when network coverage is completely not available, and these occur regularly for short periods of time.	Incidents of system outages usually occur once a week. In this case this is when the system is completely offline but network coverage available. Other problems are when the system is slow and when network coverage is completely not available, and these occur for short periods of time.
<b>Equipment</b> ( <i>availability and functionality of dedicated computers and cell phones to conduct transactions</i> )	All equipment requirements are 100% met by Super – Agents.	Issues of non – adherence encountered mainly relate to availability and functional condition of cell phones dedicated for M – PESA. Common issues include cell phones off due to depleted batteries, cracked screens, ruined key pads etc.

The agents indicated the following reasons for non – adherence to the prescribed standards:

- **Liquidity Management:** the agents indicated that they were unable to adhere to the required levels because customer transaction demand was unpredictable. Another reason noted by the agents was that due to increased number of agents, competition had increased and as a result transactions had decreased since customers were accessing services from other agents. Therefore, it was not to their benefit to keep e – float and cash inventories at required levels. Other agents indicated that during periods of few transactions they had on occasion diverted M – PESA cash they held to expenditure related to their core business and at a later stage return the cash. Some agents also indicated that at times the inventories were not at required levels due to delays in rebalancing either because shop assistants or managers were busy to do it, not informing the Super – Agent on time and delays by the Super – Agent to assist.
- **Record keeping:** the main reason for transgression was indicated as human error and negligence, in particular by the shop assistants. The agents further noted that this maybe a result of several factors such as lack of concentration due to undertaking other core business functions while also serving an M – PESA customer; the information is entered manually and takes time

especially when there are many customers and shop assistants usually postpone filling the log books until later; shop assistants not properly trained as well as delegation of duties to a shop assistant without any training at all.

- **Branding merchandise:** the interviewees' reasons for non – adherence were that space was limited on their premises and therefore they could not exclusively give display priority to M – PESA over the core business needs for advertising space. Another reason alluded to was that overtime the M – PESA displays had worn out and had not been replaced.
- **Equipment:** The Lower – Tier Agents indicated that the issue of cell phones was a problem mainly because of their negligent use by shop assistant. They noted that the cell phones were specifically purchased for M – PESA but because of negligence by shop assistants and use by different people, it was difficult to ensure that they were not damaged. Some also indicated that they had purchased the phones more than once and were not willing to incur further costs on them.
- **System Outage/Down time:** The M – PESA Partnership officials seemed to be sensitive to this issue, however they indicated that the outages usually occurred when system upgrades were made and that agents were always informed when such work was to be undertaken. They did however accept that there were instances when the system did not function properly because of network technical problems. Most of the agents indicated that system outages and network problems were a regular occurrence and resulted in customers being turned away as they could not conduct any transactions.

Vodacom has put in place measures to address transgressions by agents that include total suspension from the agent network, charging a penalty and withholding of commissions. In relation to implementation of these recourse measures on transgressors the M – PESA Partnership Officials indicated that strong recourse measures were not applied frequently and cited one Super – Agent that was suspended from the network as an example of a tough action taken. The officials noted that the majority of transgressions occurred at the Lower – Tier Agents' level, and due to their high numbers it was not always possible to immediately detect such actions. They indicated that it was not easy to enforce the severe measures for non – adherence as there were various reasons for such happening and at times not caused directly by the agents; and they considered possible enrolment of suspended agents by the rival mobile money service provider. They however expected that the agents remained aware of the continued existence and potential enforcement of the measures. The

officials indicated that measures such as re training are usually taken to support the agents to address the problems and improve the service.

**Table 4** illustrates a summary of the main issues emanating from the analysis of findings and is based on the following analytical framework presented in Chapter 3:

1. Network Structure and Relationship Dynamics
2. Agent Selection and Recruitment
3. Agent Performance

**Table 4: Summary of Key Issues and Findings**

Element	Vulnerabilities and Risk	Latent Networks and Quality Fade	Implications
<p><b>Network Structure and Relationship Dynamics</b></p>	<ul style="list-style-type: none"> <li>• Unlimited number of Lower – Tier Agents (LTAs) per Super – Agent (SA) increases the burden of management resulting in inconsistencies in support to Lower – Tier Agents across the sub – networks.</li> <li>• <b>Agent heterogeneity:</b> LTAs capacities differ and those with limited capacity are likely to be sources of vulnerability and risk within the network.</li> <li>• All agents are aware of the risks and their implications, however;</li> <li>• Risk allocation is unevenly distributed with SAs assuming more risk, especially those that have put up cash investments for their subsidiary businesses and some independent businesses.</li> <li>• Communication challenges within SA sub – networks create potential vulnerabilities and risk pre – conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• All the agents manage their own core businesses, no business dedicated to solely providing M – PESA services. This demonstrates existence and dominance of latent networks.</li> <li>• Agent sub – networks are largely built on existing relationships started prior to introduction of M – PESA. These relationships can either be an advantage to minimize M – PESA’s exposure to latent network vulnerabilities OR increase its exposure to such vulnerabilities.</li> <li>• Existence of the latent networks a precondition for quality fade in M – PESA services, particularly at the LTAs level.</li> </ul>	<ul style="list-style-type: none"> <li>• Risk pre – conditions exist within SA sub – networks as a result of vulnerabilities from: <ul style="list-style-type: none"> <li>○ varying agent capacity</li> <li>○ burden of management and risk on SAs</li> <li>○ communication challenges</li> </ul> </li> <li>• Latent networks a dominant feature of the M – PESA service delivery network.</li> <li>• Existent latent networks and the risk pre – conditions interact to create a situation of vulnerabilities that can result in quality fade in M – PESA services.</li> </ul>
<p><b>Agent Selection and Recruitment</b></p>	<ul style="list-style-type: none"> <li>• Clearly stipulated requirements and processes for agent recruitment, as well as effective due diligence system limits potential for recruitment of agents that do not qualify; however</li> <li>• Minor signals of potential information asymmetry evident from reluctance by some LTAs to provide required financial information.</li> <li>• Capital investments paid by SAs on behalf of LTAs under their management create potential risk pre – conditions and goal conflict as the LTAs do not carry exposure to risk on any investment, and do not directly benefit from any incentives gained OR the SAs receive a greater portion of commissions where</li> </ul>	<ul style="list-style-type: none"> <li>• Challenges encountered during agent recruitment are indications of possible vulnerabilities that can arise post – registration, and result in quality fade.</li> <li>• Some SAs’ recruitment of LTAs is mainly based on existing relationships started prior to introduction of M – PESA. These relationships can either be an advantage to minimize M – PESA’s exposure to latent network vulnerabilities OR increase its exposure to such vulnerabilities. AND</li> <li>• There is potential for hidden information from Vodacom as SAs recruit LTAs without Vodacom’s direct involvement.</li> <li>• Capital investment and branding requirements affect or compete with the agents’ core business and vice versa.</li> </ul>	<ul style="list-style-type: none"> <li>• Despite challenges encountered in agent recruitment, there is no evidence of deviation from agent recruitment criteria and requirements.</li> <li>• Vodacom and Super – Agents share common motivation for M – PESA, namely profit and reputation for the brand and own businesses, indicating limited or no goal conflict.</li> <li>• SAs and LTAs also share a profit and reputational motive, however the SAs motivation is higher due to the multiple agents it manages – the more LTAs, the more commissions, transaction costs and risks.</li> <li>• However, existence of latent networks in the form of core businesses can potentially offset the shared goal.</li> </ul>

	<p>investments are put up for independent LTA businesses.</p> <ul style="list-style-type: none"> <li>• All agents clearly understand their obligations, risk exposure and recourse on any transgressions to contractual obligations.</li> <li>• Vodacom does not have any third party agreement with the Lower – Tier Agents, only has agreement with Super – Agents. This presents potential vulnerabilities and risk exposure for Vodacom as it relies on entities it does not have direct relationship with to provide services on its behalf.</li> </ul>	<ul style="list-style-type: none"> <li>• Without any direct formal agreement with Vodacom, Lower – Tier Agents may not feel compelled to adhere to service provision standards of M – PESA. Lower – Tier agents are more obligated to adhering to any prescribed standards of their core businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• There are indications of possible vulnerabilities that can arise post – registration, and result in vulnerabilities that can result in quality fade.</li> <li>• Absence of third party agreements between Vodacom and Lower – Tier Agents demonstrates the existence and influence of latent networks which may result in quality fade.</li> </ul>
<b>Agent Performance</b>	<ul style="list-style-type: none"> <li>• Expectations, responsibilities and obligations are not met or executed as expected. This is demonstrated by various challenges in providing support/training and monitoring. These challenges create vulnerabilities in the network and manifest as risk conditions.</li> <li>• There is evidence of transgressions of service delivery standards which (e.g. non – adherence to maintaining prescribed levels of e – float and cash inventories) demonstrates direct risk conditions/events, particularly at the Lower – Tier Agent level.</li> <li>• The transgressions are either caused by unintentional actions or deliberate decision – making based on operational requirements and core business demands and result in vulnerabilities.</li> <li>• Limited recourse/not implementing full penalties on transgressors by Vodacom creates vulnerabilities in the network.</li> </ul>	<ul style="list-style-type: none"> <li>• Latent networks or core business takes precedence over quality. The latent networks present exogenous risks and competition to M – PESA and therefore vulnerabilities that can lead to quality fade in M – PESA services.</li> <li>• Quality fade inherent in M – PESA services due to non – adherence to required performance standards, limited recourse and non-implementation of severe penalties.</li> <li>• System outages and network problems affecting service provision.</li> <li>• Variations in agent capacity, particularly at the Lower – Tier Agent level determines the extent to which latent networks can create vulnerabilities on M – PESA services. Agent capacity variations evident in levels of adherence to required standards as well as differences in the dimensions of variation such as size of the core business, number of registered and number of transactions.</li> <li>• Leniency of Vodacom on transgressing agents demonstrates that it is cognisant of the existence of latent networks and competition from Econet to lead the mobile payments market.</li> </ul>	<ul style="list-style-type: none"> <li>• There is deviation from the service delivery standards, in particular at the Lower – Tier Agent level. However the deviations as vulnerabilities and risk events do not severely affect M – PESA services across a sub – network or whole network. This demonstrates the resilience of the agent network collectively against transgressions and latent networks.</li> <li>• Moral hazard is inherent in M – PESA services and manifests through latent network demands/core business demands; challenges to physically monitor all Lower – Tier Agents and unintentional actions or deliberate decision – making based on M – PESA operational requirements by agents.</li> <li>• Vodacom has limited control and authority over the businesses providing M – PESA services and relies heavily on Super – Agents to ensure performance is maintained at required levels.</li> <li>• Existence of moral hazard and latent networks can affect expansion of M – PESA value added services such as use of M – PESA for in – store purchases by customers.</li> </ul>

## 5.5 Conclusion

The results indicate that agent heterogeneity within the M – PESA delivery network demonstrates different capacity levels of the agents, mainly at the Lower – Tier Agents level. The varying capacity levels characterize the ability of the Lower – Tier Agents to provide services within the prescribed standards and processes. This demonstrates that the M – PESA services are not provided at the same level of standards across the network, therefore demonstrating existence of vulnerabilities that result in quality fade.

The results further demonstrate that interactions are predominantly between Super – Agents and Lower – Tier Agents mainly on initial registration and monitoring and performance. The findings indicate that there are specific challenges encountered in the interactions between the Super – Agents and Lower Tier Agents that affect the effective provision of services by the Lower – Tier Agents. The challenges identified relate to inability to physically monitor all Lower – Tier Agents, ineffective communication and high turnover of shop assistants. These challenges contribute to non – adherence of specified standards of service provision by Lower – Tier Agents. The findings also illustrate that the high number of Lower – Tier Agents managed by a single Super – Agent is a factor that prevents their effective management and monitoring. A related finding is that Vodacom does not have third party agreements with the Lower – Tier Agents but with Super – Agents only. This demonstrates that the burden of responsibility and risk is allocated on the Super – Agents who must ensure that the agents under their management effectively operate M – PESA services.

The results indicate that there is no deviation to adherence to recruitment requirements by Vodacom and Super – Agents. However, the results show deviation from prescribed service provision requirements mainly by Lower – Tier Agents. The non – adherence by the Lower – Tier Agents signals risk events across the delivery network. Reasons for non – adherence are attributed to unintentional actions and intentional actions by the agents. The unintentional actions are associated to human error and intentional actions linked to prioritisation of core business requirements over M – PESA services. This demonstrates the existence and influence of moral hazard and latent networks over M – PESA services.

The secondary transactional data reveals a growth in provision of the services by the agents despite the challenges and non – adherence incidents indicated above. This growth is demonstrated by the

number of transactions conducted, number of Lower – Tier Agents recruited and e – float available.

## **6. RESEARCH CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH**

The research objective was to identify principle agent problem vulnerabilities in the mobile money service delivery structure and how the vulnerabilities are likely to affect availability and access to mobile money services. Specifically, the research focused on investigating the following two research questions: **(a) How and to what extent does the principal – agent problem manifest itself in the mobile money service delivery network? (b) What are the implications of the principal – agent problem on availability and access to mobile money services?** This chapter presents a discussion on the key findings in relation to the research questions under investigation, and conclusions.

### **6.1 Findings**

Two channels through which the principal agent problem could permeate the M – PESA delivery network were identified as (a) at the point of agent recruitment by the principal into the network and (b) within the network as part of service provision by agents and management of the network by the principal.

In the first instance of agent recruitment the principal agent problem is in the form of adverse selection and as noted by Rauchhaus (2009) arises from uncertainty concerning an agent's preferences prior to creating a contract. The extent of adverse selection in the M – PESA delivery network is very low as a result of factors such as strict adherence to the agent recruitment criteria and processes stipulated by Vodacom, agents 'understanding of their obligations and risks and common goal of profit making by agents. However, despite the limited extent of adverse selection, the challenges encountered during agent recruitment create latent risk pre – conditions which can result in vulnerabilities in the delivery network post registration. These challenges can be interpreted as modes through which the principal agent vulnerabilities can permeate the delivery network during agent recruitment.

In relation to the second channel of permeation, the principal agent problem manifests as moral hazard, and as indicated by Rauchhaus (2009) moral hazard occurs when a principal is unable to observe an agent's behaviour once the contract is in place. This situation according to Eisenhardt (1989) occurs because it is difficult or expensive for the principal to verify what the agent is actually doing. The research findings on moral hazard are from the perspective of agent performance on whether they adhere to the M – PESA performance standards prescribed by Vodacom and supply chain vulnerabilities due to unforeseen deterioration of agreed to or expected

quality levels with respect to product and/or service requirements as indicated by Roh and Whipple (2010). Challenges to effective monitoring and support can be viewed as a channel through which moral hazard manifests in the M – PESA delivery network, and is in line with the definition by Eisenhardt (1989). The inability of Super – Agents to monitor all Lower – Tier Agents’ actions regularly and the deviation by Lower – Tier Agents from prescribed standards demonstrate how moral hazard permeates the M – PESA network.

The existence and influence of latent networks in the form of the agents’ core business activities was identified. This demonstrates that latent networks are a channel through which moral hazard enters the M – PESA network and confirms the assertion made by Cheng and Kam (2008) that agents may alter specifications imposed on it, depending on risk taking profile and potential responsibilities to fulfil other commitments external to the observed network.

The deviations from prescribed service standards particularly at the Lower – Tier Agent level can be perceived as quality fade risk events occurring across the M – PESA delivery network. These risk events, including risk factors posed by latent networks propagate across the delivery network. The sum of these risks overtime has the potential to result in negative implications for future M – PESA value added services such as use of M – PESA for in – store purchases and bulk distribution payments such as salaries and social grants. Such services require extensive monitoring and training to ensure that there are no deviations from prescribed standards of service provision. The existence of the latent network effects and deviations from prescribed standards can inhibit the potential of effectiveness of agent interoperability because the demand on time and effort on agents is likely to increase. Agent interoperability can be viewed as a solution to some of the challenges identified such as limited training and monitoring. In this case mobile money service providers can share investment costs in monitoring and training.

Despite the identification of the existence of moral hazard, agents continue to invest in and provide mobile money services. Agents’ cash investments in mobile money, commissions or incentives and cognizance of reputational risk have been identified as factors that potentially limit the effects of the principal – agent problem in mobile money. The vulnerabilities related to moral hazard have the potential to erode the quality of mobile money services in the long term and must be addressed.

## **6.2 Recommendations**

Despite the limited effects of the principal – agent problem on mobile money services, there are challenges and vulnerabilities that are likely to affect access and availability of the services. The recommendations provided below serve to inform policy to improve the services, address challenges and mitigate potential risks identified.

1. The identified future potential vulnerabilities and risks require MNOs and agent enterprises to institute stronger partnership arrangements that enhance ownership and obligations for all parties, in particular agent enterprises. These agreements must enable the application of different mobile money delivery models that consider and are suitable to meet the demands and requirements of the agents' core businesses.
2. Regulators, MNOs and agent enterprises must collectively review the monitoring approaches for mobile money service providers in order to improve the effectiveness of monitoring. This review should be undertaken in conjunction with the review of service provision standards to enable them to be suitable to the various business environments the services are provided within.
3. Mobile network operators (MNO) should use dedicated mobile money agents to reduce the influences of latent networks that can result in deterioration of services. This should be undertaken in conjunction with review of the commission structures to ensure that the dedicated mobile money agents have viable sustainable businesses.
4. Mobile network operators adopt agent interoperability using one float and transactional record system to reduce the risks and workload of agents. Agent interoperability can potentially curb deviations from prescribed standards due to reduction in the workload, and assist agents to manage the fluctuations in customer demands at particular periods. The benefit of interoperability as indicated by Bourneau and Hoernig (2016) is that it can result in reduction in the number of agents, and lead to effective monitoring and management through cost sharing by MNOs. Fewer agents can result in frequent interaction with the MNO and likely curtail information asymmetry.
5. Mobile network operators should introduce innovations mobile money that reduce the administration burden on agents. MNOs should consider rolling out point of sale (POS) applications using systems such as Near Field Communication (NFC) on the mobile money platforms that enable provision of mobile money services and purchasing on one system by

agents to reduce the burden of the current parallel systems. Such applications must consider the cost implications of adoption from the agents' business perspective.

### **6.3 Recommendations for Future Research**

1. This research study focused on one specific mobile money delivery model i.e. M – PESA. There is need for similar research to be undertaken that assesses the principal – agent problem in mobile money using other business models. Such research can also assess the various mobile money business models and compare their strengths and vulnerabilities from a principal – agent problem perspective. This can enable comparable understanding of the dynamics of the principal – agent problem in various mobile money business models.
2. Mobile money offerings have multiple stakeholders involved in its supply to customers. This research did not include all stakeholders including customers. Future research should assess the principal agent problem and include all stakeholders involved in the supply side such as regulators and the demand side, mainly customers.
3. This research identified that agents had registered a large number of customers to the mobile money service. However, the number of users was lower than that of registered customers by more than half. Research can be conducted to investigate the reasons for the high number of registered customers and lower number of actual users.

### **6.4 Conclusion**

This chapter offered a key summary of the study findings, recommendations and future research areas. The conclusions were constructed from the primary data results of the preceding chapter, which highlighted the channels of the principal – agent problem, levels of penetration of moral hazard, challenges associated with monitoring and latent network effects, quality fade risks and the resilience of the services despite the challenges identified.

## REFERENCES

Adrian, C.K., Diniz, H.E., & Porto de Albuquerque, J., (2011). Mobile Money and Payment: a literature review based on academic and practitioner oriented publications (2001 – 2011), GlobDev, Paper 7

Aron, J., (2015). Leapfrogging’: A Survey of the Nature and Economic Implications of Mobile Money. CSAE Working Paper, Centre for the Study of African Economies, Oxford

Baptista, P., & Heitmann, S. (2010). Unleashing the power of convergence to advance mobile money ecosystems. Washington, DC: IFC and the Harvard Kennedy School.

Beshouri, C.P., & Gravråk, J., (2010). Capturing the promise of mobile banking in emerging markets, Telecommunications Practice, McKinsey Quarterly, February 2010. Retrieved from <http://www.mckinsey.com/industries/telecommunications/our-insights/capturing-the-promise-of-mobile-banking-in-emerging-markets>

Bondas, T., Turunen, H., & Vaismoradi, M., (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3), 398-405. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/nhs.12048/epdf>

Bourreau, M., & Hoernig, S., (2016). Interoperability of mobile money: International experience and recommendations for Mozambique, S-36404-MOZ-1. Retrieved from <https://www.theigc.org/wp-content/uploads/2017/01/Hoernig-et-al-2016-Final-Report.pdf>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101. Retrieved from <http://www.tandfonline.com/doi/pdf/10.1191/1478088706qp063oa?needAccess=true>

Chaix, L., & Torre, D. (2011). Four models for mobile payments. (Unpublished paper). Retrieved from [http://hp.grdeg.cnrs.fr/torre/wprkpap/chaix\\_torre\\_gdr2011.pdf](http://hp.grdeg.cnrs.fr/torre/wprkpap/chaix_torre_gdr2011.pdf)

Central Bank of Lesotho. (2015). Annual Report. Central Bank of Lesotho, Maseru.

Cheng, S.K., & Kam, B.H., (2008). A conceptual framework for analysing risk in supply networks, *Journal of Enterprise Information Management*, 21(4), 345 – 360. Retrieved from <https://doi.org/10.1108/17410390810888642>.

Cobert, B., Helms, B., & Parker, D., (2012). Mobile money: Getting to scale in emerging markets, McKinsey on Society, May 2012. Retrieved from <http://www.mckinsey.com/industries/social-sector/our-insights/mobile-money-getting-to-scale-in-emerging-markets>.

Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2007). Past, present and future of mobile payments research: A literature review, *Electronic Commerce Research and Applications*, 7(2), 165 – 181.

Dermish, A., Kneiding, C., Leishman, P., & Mas, I., (2011). Branchless and Mobile Banking Solutions for the Poor: A Survey of the Literature, *Innovations*, 6(4), 81 – 98

Duan, N., Green, C. A., Hoagwood, K., Horwitz, S. M., Palinkas, L. A., & Wisdom, J. P., (2013). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research, *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533 – 544. Retrieved from <https://doi.org/10.1007/s10488-013-0528-y>

Duncombe, R., (2009). Assessing the Potential for Mobile Payments in Africa: Approaches and Evidence from Uganda, *Development Informatics Working Paper Series, Paper 41*. Retrieved from <http://www.developmentinformatics.org/conferences/2009/papers/11-duncombe-r.pdf>

Duncombe, R., & Boateng, R. (2009). Mobile Phones and Financial Services in Developing Countries: A review of concepts, methods, issues, evidence and future research directions. *Third World Quarterly*, 30(7), 1237 – 1258. DOI: 10.1080/01436590903134882

Eijkman, F., Kendall, J., & Mas, I., (2010). Bridges to Cash: the retail end of M – PESA, the challenge of maintaining liquidity for M – PESA agent networks, *Savings and Development*, 219 - 252. Retrieved from <https://www.ifc.org/wps/wcm/connect/3595bd0049585f1b9ec2bf19583b6d16/Tool+10.7.+GSM+Example+-+M-PESA+Liquidity+Management.pdf?MOD=AJPERES>

Eisenhardt, K.M., (1989). Agency Theory: An Assessment and Review, *Academy of Management Review*, 14(1), 57 – 74.

Ernst and Young, (2009), Mobile Money: An overview for global telecommunications operators. Retrieved from [http://www.ey.com/Publication/vwLUAssets/Mobile\\_Money.-%24FILE/Ernst%20%26%20Young%20-%20Mobile%20Money%20-%202015.10.09%20\(single%20view\).pdf](http://www.ey.com/Publication/vwLUAssets/Mobile_Money.-%24FILE/Ernst%20%26%20Young%20-%20Mobile%20Money%20-%202015.10.09%20(single%20view).pdf)

Flaming, M., McKay, C., & Pickens, M., (2011). Agent management toolkit: building a viable network of branchless banking agents. Consultative Group to Assist the Poor (CGAP). Retrieved from <http://documents.worldbank.org/curated/en/898731468340143196/Agent-management-toolkit-building-a-viable-network-of-branchless-banking-agents-technical-guide>

Harsh, S., (2011). Purposeful Sampling in Qualitative Research Synthesis, *Qualitative Research Journal*, 11(2), 63 – 75, <https://doi.org/10.3316/QRJ1102063>

Heyer, A. & Mas, I., (2009). Seeking Fertile Grounds for Mobile Money, Draft, 3<sup>rd</sup> September, 2009, Bill and Melinda Gates Foundation. Retrieved from [https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/03/fertile\\_grounds\\_mobile\\_money55.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/03/fertile_grounds_mobile_money55.pdf)

International Finance Corporation (ed.), 2010. M – Money Channel Distribution Case – Kenya: SAFARICOM M-PESA. International Finance Corporation. Retrieved from <http://www.microfinancegateway.org/gm/document-1.9.50997/MMoney%20Channel%20-20Kenya.pdf>.

Jack, W., & Suri, T., (2011). Mobile Money: The Economics of M – PESA, National Bureau of Economic Research, Working Paper 16271, January 2011, JEL No. O16, O33, O55. Retrieved from <https://www.microlinks.org/sites/microlinks/files/resource/files/The%20Economics%20of%20M-PESA.pdf>

Kabonge M.A. & Otieno, E., (2014). Adoption of Mobile Payments in Kenyan Businesses: A Case Study of Small and Medium Enterprises in Kenya, *International Journal of Computer Applications*, 107(7), 0975 – 8887

Lal, R., & Sachdev, I., (2015). Mobile Money Services - Design and Development for Financial Inclusion, Working Paper 15-083 Harvard Business School. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.697.5349&rep=rep1&type=pdf>

Lesotho Government Gazette, Industrial Licensing Act No 10 of 2014. Retrieved from <https://www.lesotholii.org/ls/legislation/num-act/2014/10>

Lesotho Communications Authority (2013/2014). Annual Report 2013-2014. Maseru, Lesotho. Available online at [http://www.lca.org.ls/images/documents/LCA%20Annual%20Report%202013\\_14.pdf](http://www.lca.org.ls/images/documents/LCA%20Annual%20Report%202013_14.pdf).

Mas, I. & Morawczynski, O., (2009). Designing Mobile Money Services: Lessons from M – PESA, *Innovations*, 4(2), 77 – 91. Retrieved from <http://www.mitpressjournals.org/doi/pdf/10.1162/itgg.2009.4.2.77>

Morawczynski, O., (2011). Examining the Adoption, Usage and Outcomes of Mobile Money Services: The Case of M-PESA in Kenya, Science and Technology Studies, Ph.D. Thesis Edinburgh: University of Edinburgh, May 2011. Retrieved from <https://pdfs.semanticscholar.org/2aa9/7eced1877e5faa5140a9fee5624b14e412c1.pdf>

Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing*, 18(2), 34 - 5. DOI: 10.1136/eb-2015-102054. Retrieved from [http://pure.qub.ac.uk/portal/files/18568873/EBN\\_validity\\_reliability\\_Dec14\\_final\\_pre\\_submission\\_1.pdf](http://pure.qub.ac.uk/portal/files/18568873/EBN_validity_reliability_Dec14_final_pre_submission_1.pdf)

Patton, M., (1990). *Designing Qualitative Studies, Qualitative Evaluation and Research Methods*. (pp. 169 – 180) Beverly Hills, CA: Sage. Retrieved from <http://legacy.oise.utoronto.ca/research/field-centres/ross/ct11014/Patton1990.pdf>

Porteous, D., (2007). Just How Transformational is M – Banking? FinMark Trust, February 2007. Retrieved from <https://www.microfinancegateway.org/sites/default/files/mfg-en-paper-just-how-transformational-is-m-banking-feb-2007.pdf>

Poth, S. & Selck, T.J. (2009). Principal Agent Theory and Artificial Information Asymmetry, *Politics*, 29(2) 137 – 144. doi:10.1111/j.1467-9256.2009.01349.x

Radcliffe, D. & Mas, I., (2011). Scaling Mobile Money, *Journal of Payments Strategy & Systems*, 5(3), September 2011. Retrieved from <https://ssrn.com/abstract=1681245>

Rao, P.K., (2003). *Development Finance*. Berlin, Germany: Springer

Rauchhaus, R.W., (2009). Principal – Agent Problems in Humanitarian Intervention: Moral Hazards, Adverse Selection, and the Commitment Dilemma, *International Studies Quarterly*, 53(4), 871 – 884. Retrieved from <https://doi.org/10.1111/j.1468-2478.2009.00560.x>

Roh, J. & Whipple, J. M., (2010). Agency theory and quality fade in buyer-supplier relationships. *International Journal of Logistics Management*, 21(3), 338 – 352. DOI: [10.1108/09574091011089781](https://doi.org/10.1108/09574091011089781)

Shah, S.N. (2014). The Principal – Agent Problem in Finance: A summary, CFA Institute Research Foundation. Retrieved from [https://www.cfainstitute.org/learning/foundation/research/Documents/principal-agent\\_problem\\_in\\_finance.pdf](https://www.cfainstitute.org/learning/foundation/research/Documents/principal-agent_problem_in_finance.pdf)

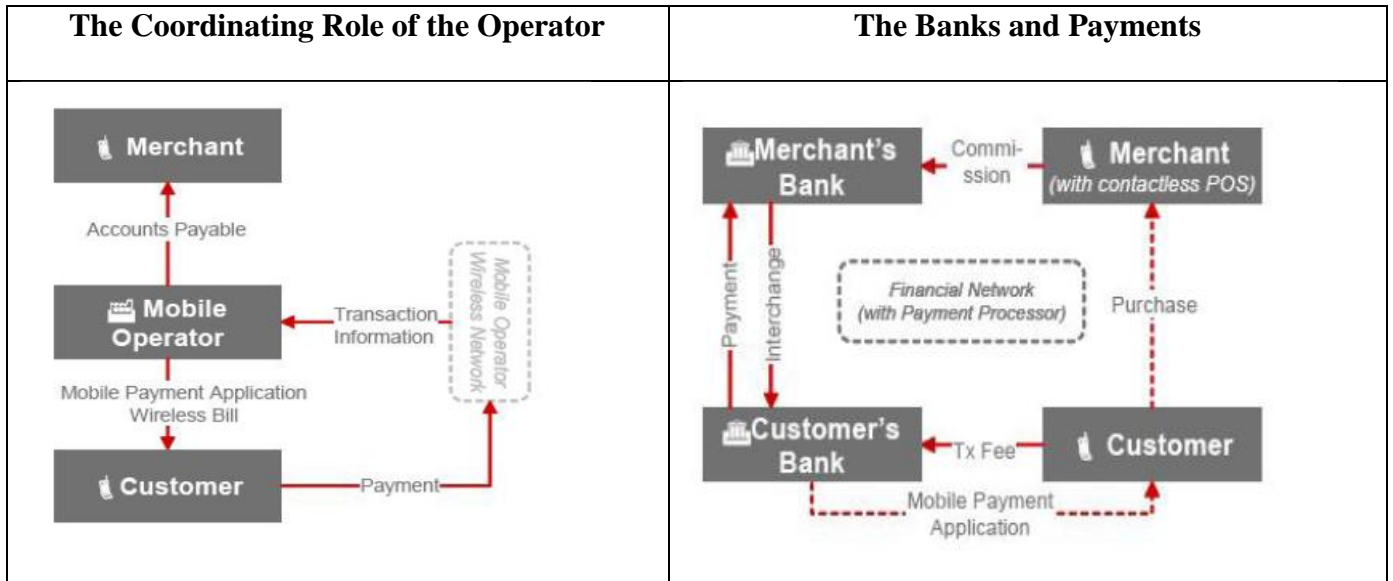
Stokes, P. P., & Peeples, D. K. (2006). The Dirty Dozen: Common Problem Areas in Principal–Agent Relationships. *Employee Responsibilities and Rights Journal*, 18(3), 189 – 204. <https://doi.org/10.1007/s10672-006-9016-9>

Zu, H., & Kaynak, H., (2012). An agency theory perspective on supply chain quality management, *International Journal of Operations & Production Management*, 32(4), 423 – 446, <https://doi.org/10.1108/01443571211223086>.



# APPENDICES

## Appendix A: Mobile Money Implementation Models



## Appendix B: Interview Guideline

<p><b>Main Research Questions</b></p> <ul style="list-style-type: none"> <li>• How and to what extent does the principal – agent problem manifest itself in the mobile money service delivery network?</li> <li>• What are the implications of the principal – agent problem on availability and access to mobile money services?</li> </ul>
<p><b>Questions to Vodacom Officials</b></p> <p><b><u>Adverse Selection and Goal Conflict</u></b></p> <ul style="list-style-type: none"> <li>• How are M – PESA agents recruited (super agents and lower tier agents)? What are the criteria used to select an agent?</li> <li>• Have there been any changes made to the agent selection criteria since introduction of M – PESA? If yes, why?</li> <li>• How does Vodacom ensure that agents registered by super – agents meet all requirements/criteria?</li> <li>• How long does it take for an agent to be fully registered as an M – PESA service provider?</li> <li>• Is there a contract signed between Vodacom and Super Agents, and a contract signed by super agents and agents? What are the terms and conditions of each contract?</li> <li>• In your view do the agents fully understand the terms and conditions of the contracts?</li> <li>• What are the key determinants of agents’ commission structure? Have there been any adjustments made on the commission structure since M – PESA was introduced? If yes, why were adjustments made?</li> </ul> <p><b><u>Moral Hazard and Structural and Relationship Dynamics</u></b></p> <ul style="list-style-type: none"> <li>• What type of support is provided to agents – e.g. marketing, training, branding etc? How often is such support provided? Who provides such support?</li> <li>• Are there any registered M – PESA agents that are dormant or have not provided services at all? If yes, why? What measures has Vodacom take on such agents?</li> <li>• Does Vodacom directly communicate with all M – PESA agents? If yes, what are the communication channels used?</li> <li>• What are the major challenges and risks emanating from the agents? How does Vodacom address/manage the challenges and risks?</li> <li>• In general how would you describe the working relationship with all agents?</li> </ul> <p><b><u>Moral Hazard and Latent Networks</u></b></p> <ul style="list-style-type: none"> <li>• Are there any targets set for agents such as number of customers, transactions, number of agents per super – agent etc? If yes, why have such targets been set? What measures are taken if targets are not met?</li> <li>• How is agents’ performance monitored? What are the key elements assessed in monitoring?</li> <li>• How do you ensure that agents adhere to contract terms and conditions/performance standards?</li> <li>• What are the major challenges faced by agents in adhering to terms and conditions/performance standards/providing M – PESA services?</li> <li>• Which are the main/common transgressions by agents? What measures are taken to address such transgressions?</li> <li>• What are risks that M – PESA agents are exposed to and what role does Vodacom play to ensure that agents manage such risks?</li> <li>• Have there been instances where agents could not temporarily provide any M – PESA services? If yes, how frequent has this occurred and what were the reasons? What measures have been taken to ensure that such incidents do not occur?</li> <li>• Have there been instances where M – PESA agents have entirely stopped providing services? If yes, what were the reasons?</li> <li>• Which is the most common service provided by agents on the M – PESA platform? Which service is not being provided by agents as expected? If there is such, why?</li> <li>• What processes are followed in instances where an agent decides to cease providing M – PESA services?</li> </ul>
<p><b>Questions to Super Agents<sup>1</sup></b></p> <p><b><u>Adverse Selection and Goal Conflict</u></b></p> <ul style="list-style-type: none"> <li>• Is there a contract signed between you and agents? What are the terms and conditions of each contract?</li> <li>• In your view do the agents fully understand the terms and conditions of the contracts?</li> <li>• What type of support is provided to you by Vodacom? How often is such support provided?</li> </ul>

<sup>1</sup> Some questions included under the lower tier agents’ section also apply to the super agents and will be asked accordingly.

- What type of support do you provide to the agents under your management?
- Are there any registered agents under your management that are dormant or have not provided services at all? If yes, why? What measures have you taken on such agents?
- What are the major challenges and risks emanating from the agents? How do you address/manage the challenges and risks?
- In general how would you describe the working relationship with the agents under your management?

### **Questions to Lower Tier Agents**

#### **Adverse Selection and Goal Conflict**

- How long have you been an M – PESA agent?
- How did you know about M – PESA? What attracted/promoted you to join the M – PESA agent network?
- What were the requirements for joining the M – PESA network as an agent? What is your view on the requirements and processes to register as an agent?
- What was the Super Agent’s role in ensuring that you met all requirements?
- Which requirements were most difficult to adhere to? Why was it difficult to meet the requirements?
- How long did it take you to provide services after becoming an agent?
- What is your view of the M – PESA incentives/commissions structure? Are you satisfied with the revenue you are generating from M – PESA transactions? If yes, why? If not, why?

#### **Structural and relationship dynamics**

- What type of support/training did you receive initially when you became an M – PESA agent?
- Who provided the support or training? What are your views on the support/training provide?
- What type of support does the Super – Agent provide to your M – PESA business?
- What steps or actions does the Super – Agent take when you have not adhered to the performance standards/contract provisions?
- How does this support enhance your services? Which areas of support should be improved and why?
- In general how would you describe the working relationship with your Super – Agent?

#### **Moral Hazard and Latent Networks**

- How often does the Super – Agent undertake monitoring checks/visits?
- What are the main issues that the SP checks or assesses during visits?
- What are the performance standards you are expected to adhere to as an M – PESA agent?
- Which is the most difficult to adhere to and why? Given the opportunity which standard would you change and why?
- Have there been any adjustments made to the performance standards since you started providing services? If yes, what were the adjustments made and why were they made?
- What risks are you exposed to as an M – PESA agent and how do you manage them?
- Have there been instances when you could not provide any M – PESA services? How frequent has this occurred and what were the reasons?
- In your view has provision of M – PESA services had any (positive or negative) effects on your core business? If yes how?
- With the experience you have had in providing M – PESA services, would you have decided differently in joining? OR Would you recommend anyone to join?