

E-BANKING IN KENYA: TOWARDS A PRINCIPLE BASED REGULATION

FRANCIS NJIHIA KABURU

G62/76666/2009

Research Project submitted to the University of Nairobi in partial fulfillment for the award of the degree of Master of Laws (LLM), 2009/10 (under Public Finance and Financial Services thematic area)

Supervisor

Dean Ben Sihanya, JSD (Stanford)

Teacher, Author, Advocate, Patent (IP) Attorney, CPS (K), and Consultant

Dean Law, University of Nairobi Law School

October 2010

University of NAIROBI Library



0312597 8

TABLE OF CONTENTS

DECLARATION	iii
ACKNOWLEDGEMENT	iv
GLOSSARY OF ABBREVIATIONS AND ACRONYMS	vi
TABLE OF STATUTES	vii
RESEARCH PROPOSAL	viii
1 CHAPTER ONE: E-BANKING IN KENYA; AN INTRODUCTION	1
1.1.1 What is a bank?	2
1.1.2 Banking business	2
1.1.3 E-banking	3
1.2 E-banking in Kenya	4
1.3 Benefits of e-banking	7
1.4 Regulatory challenges facing internet-banking	9
1.5 Principle v rule based regulation in relation to e-banking	10
1.6 Justification for principle-based regulatory system	10
2 CHAPTER TWO: EXAMINATION OF E-BANKING REGULATION IN KENYA	12
2.1 Introduction	12
2.2 The Banking Act	12
2.2.1 Scope of regulation	12
2.2.2 Restrictions on carrying on banking business	14
2.2.3 Implications of the Acts' provisions in relation to e-banking regulation	14
2.3 The Central Bank of Kenya Act	16
2.3.1 CBK regulation of the payment system	16
2.3.2 CBK regulation of e-Money	17
2.4 The Kenya Communications (Amendment) Act of 2008	17
2.5 The Proceeds of Crime and Anti-money Laundering Act of 2009	18
2.6 The Bill of Exchange Act	19
2.6.1 Cheques and legal recognition of e-cheques	19
2.6.2 Cheque truncation	20
2.6.3 Confusion as to legal regulation of e-cheques	20
2.7 Central Bank of Kenya Prudential Guideline	21
2.7 Conclusion	22
3 CHAPTER THREE: RISKS POSED BY INADEQUATE E-BANKING REGULATION IN KENYA	23
3.1 Introduction	23
3.2 Strategic Risk	23

3.3	Business Risks	26
3.4	Transactional or Operational Risk	31
3.5	Compliance Risk	33
3.6	Reputational Risk	34
3.7	Security/ Systemic Risk	36
3.8	Conclusion	37

4 CHAPTER FOUR: ADDRESSING E-BANKING RISKS IN KENYA THROUGH A PRINCIPLE-BASED REGULATORY SYSTEM

4.1	Introduction	39
4.2	Principle Based Approach	40
4.3	Factors to be Considered in Formulating a Principle-based regulatory system for E-banking.	41
4.3.1	Risk assessment in e-banking	41
4.3.2	Risk Management in e-banking	41
4.4	Proposed regulatory principles for electronic banking in Kenya	42
4.4.1	Principle 1: Effective management oversight	42
4.4.2	Principle 2: Review and approval of the key aspects of the firm's security control process	43
4.4.3	Principle 3: Comprehensive due diligence and management oversight process for outsourcing relationships and other third-party dependencies	44
4.4.4	Principle 4: Authentication	46
4.4.5	Principle 5: Non-repudiation and data and transaction integrity	46
4.4.6	Principle 6: Data and transaction integrity	47
4.4.7	Principle 7: Segregation of duties	48
4.4.8	Principle 8: Authorization controls	48
4.4.9	Principle 9: Maintenance of e-banking audit trails in Kenya	49
4.4.10	Principle 10: Confidentiality of key bank information in Kenya	49
4.4.11	Principle 11: Appropriate disclosures for e-banking services	50
4.4.12	Principle 12: Privacy of customer information in kenya	51
4.4.13	Principle 13: Capacity, business continuity and contingency planning to ensure availability of e-banking systems and services.	51
4.4.14	Principle 14: Incident response planning	52
4.5	Conclusion	Error! Bookmark not defined.

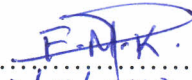
5 CHAPTER FIVE: SUMMARY AND CONCLUSION

5.1	Summary of findings	54
5.2	Summary of recommendations	58
5.3	Conclusion	61

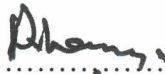
BIBLIOGRAPHY		63
--------------	--	----

DECLARATION

I, **Francis Njihia Kaburu**, do hereby declare that this research project is my original work and has not been submitted either in part or in whole and is not currently being submitted for a degree in any other university.

Signed..... .....
Date..... 12/11/2010.....
Francis Njihia Kaburu

This Research Project has been submitted for examination with my approval as University supervisor.

Signed..... .....
Date 22/11/10.....
Dr. Ben Sihanya, JSD (Stanford),
Dean Law, University of Nairobi & Teacher, Author, Advocate, Patent Attorney, CPS (K), and Consultant in Intellectual property Law, Constitutional Law and Education law.

ACKNOWLEDGEMENT

Many individuals have contributed positively and in different ways to the development of this entire project paper.

I acknowledge the support of Dr. Ben Sihanya, who has been a supervisor, friend and mentor. He not only supervised, but also patiently analyzed, challenged, contradicted and scrutinized my ideas, shaping and clarifying several issues in this research project. His advice and guidance led to successful completion of this work.

I am also grateful to friends and the Public Finance and Financial Services Law class of 2010, whose informed discussions and contributions in class helped shape my interest in this research topic.

I am also greatly indebted to Dr. Winnie Kamau and Dr. Kiarie Mwaura, for the “gracious” discussions and editorial work they did on my concept paper to assist me narrow down to this research topic. Their critique helped me tighten some loose ends in the final proposal.

To my parents Mr. David Kaburu and Mrs. Sally Kaburu, your faith in me gave me the confidence to further my studies. Thank you for fully supporting my studies financially for the whole course; which enabled me study without being sidetracked by fees challenges, thus finishing on time.

To my friend Vincent Juma, your gracious editorial work on the drafts, led to this “clean” production and is thus, greatly appreciated.

Above all, Glory and honour goes to God, for his strength and grace to finish this research project.

I take responsibility for the research project, but remain indebted to everyone for the wonderful intellectual experience.

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AEI	American Enterprise Institute
AFI	Alliance for Financial Inclusion
ATM	Automated Teller Machine
CBK	Central Bank of Kenya
CGAP	Consultative Group to Assist the Poor
EFT	Electronic Funds Transfer
EPZ	Export Processing Zone
FHI	Family Health International
FSA	Financial Services Authority
FSD	Financial Sector Deepening
ICT	Information and Communication Technology
KCB	Kenya Commercial Bank
KEPSS	Kenya Electronic Payment and Settlement System
OCC	Options Clearing Corporation
POS	Point Of Sale
PC	Personal Computer
RTGS	Real Time Gross and Settlement System
SMS	Short Message Service
TV	Television
UK	United Kingdom
FFIEC	Federal Financial Institutions Examination Council

TABLE OF STATUTES

Acts of Parliament

Banking Act, Chapter 488 of the Laws of Kenya

Bill of Exchange Act, chapter 27 of the Laws of Kenya

Central Bank of Kenya Act, Chapter 491 of the Laws of Kenya

Kenya Communications Act, 1998

The Kenya Communications (Amendment) Act, 2008

Proceeds of Crime and Anti-Money Laundering Act, 2008

Parliamentary Bills

Finance Bill, 2009

Anti-Terrorism Bill

Draft Bills

Draft Electronic Funds Transfer Bill

Draft National Payment System Bill

Subsidiary legislation

CBK Prudential Guidelines for Institutions Licensed under the Banking Act, 2006

E-BANKING: TOWARDS A PRINCIPLE BASED REGULATION

RESEARCH PROPOSAL

1.1 Background

In Kenya, the existing legal and regulatory framework including banking, payment systems, and telecommunications is not optimal for the development or long-term growth of branchless banking models.¹ Some forms of e-banking, for example e-money are totally un-regulated. The adoption of e-payment regulations, which would govern e-money issuers, is linked to the passage of the Draft National Payment System Bill², which would be the basis of their authority. However, the passage and the coming into effect of the Bill remains uncertain. The Central Bank of Kenya (CBK or ‘the regulator’) drafted the Bill with intention of moving towards risk-appropriate regulation of the nonbank e-money issuers. In the absence of a payment system law, CBK’s Payment Systems Division has the authority to ask for information from nonbank payment service providers, but it does not have the power to inspect them.³

In the absence of any legal framework, CBK’s current approach seems to depend on whether the activities involved in e-money issuance fall under the definition of banking business in the Banking Act or deposit taking microfinance business in the Microfinance Act. A nonbank can therefore avoid falling under the definition of banking business by not lending, investing, or otherwise placing at the risk of such non-bank institution the funds mobilized.⁴

¹The Consultative Group to Assist the Poor (CGAP) (2010), *Update on the Regulation of E-banking in Kenya*; p8, available at http://www.cgap.org/gm/document-1.9.42400/Updated_Notes_On_Regulating_Branchless_Banking_Kenya.pdf, (last accessed 15th August 2010).

² *Ibid.* A draft National Payment System Bill is expected to be finalized soon and forwarded to Parliament. Drafts have been circulating for several years. However, it is expected that the bill will enter the parliamentary process in 2010.

³ For more information, see CGAP *Supra* note 1, p. 8.

⁴ *Ibid* p. 6.

This leaves the customers exposed to grave danger. Banks will develop clausal terms and conditions to govern grey areas in the relationship between bank and customer in respect to electronic bank transfer. Such clauses will exempt the bank from liability from any fraud, error or malfunctions in the electronic payment systems.⁵ The existing banking laws, and especially cheque laws, are too inflexible and therefore call for a fundamental reconsideration of the model of legal regulation in the widespread electronic banking sector.

1.2 Problem Statement

E-banking is an emerging phenomenon in the banking sector. As such, it has ensured both the banking institutions and the non-bank institutions offer a wide range of banking services and products conveniently and expeditiously. However, due to the risks posed by inadequate regulation such as operational risks, security risks, reputational risks among others,⁶ regulation of the sector is absolutely necessary.

As observed above, the regulatory framework currently in place is far from adequate to address these risks. The current regulatory framework relating to the regulation of branchless banking in Kenya, which is entirely rule-based, does not deal with the regulation of e-banking directly. For example, in November 2009 Parliament amended the Banking Act to include provisions requiring financial institutions use of agents to provide banking services.⁷ This is just one form

⁵ See Kethi D. Kilonzo, “*An analysis of the legal challenges posed by electronic banking*”, p. 340; available at http://www.kenyalaw.org/Downloads_Other/kilonzo_electronic_banking.pdf, (last accessed on 16th August 2010). She however argues against an overhaul of the existing regulatory system and instead proposes a “discreet changes” to address “specific issues” in internet banking.

⁶ See detailed discussion in Chapter Three of this study.

⁷ See Finance Bill, 2009, Section 52.

of branchless banking that is regulated. E-banking is not directly regulated by any legislation. Recently, there have been efforts to try and regulate the sector through the formulation of the draft National Payment System Bill of 2007 whose passage through Parliament and scope is still uncertain.

It is therefore necessary that a more appropriate regulatory system outside the rule based regulatory system be formulated and adopted for the adequate regulation of the sector. A principle-based regulatory system offers the best solution due to its adaptability to future developments in the sector, the wide plane for formulation of rules by individual firms with respect to their internal structure and the almost *intoto* coverage of the aspects of the sector.

1.3 Research Objectives

Three objectives inform this study. First, the study seeks to establish if the e-banking sector is adequately regulated in Kenya. The study therefore examines the existing the current legal regime in the wider banking sector and establishes if the same regulates the e-banking sector. On the same note, the study examines the adequacy of the current regulatory framework.

Second, the study seeks to determine which regulatory approach is best suited for the regulation of e-banking in this country. The study therefore takes a comparative outlook on the two main approaches: rule based regulatory system and the principle based regulatory system. Thereafter, the study gives justification for the adoption of principle based approach other than rule based by examining the shortcomings of the latter and the would be successes of the former.

Third, the study proposes principles which may be adopted to mitigate the various risks posed by e-banking.

1.4 Research Questions

This study is aimed to answer the following questions:

1. What risks are posed by e-banking and what regulatory principles can adequately address them?
2. What, if any, is the current e-banking regulation in Kenya? Is the current regulatory frame-work on e-banking adequate?
3. Which regulatory approach between principle-based and rule-based is better suited for e-banking regulation in Kenya?

1.5 Research Hypotheses

The study proposes the following hypotheses:

1. There are several risks in e-banking and adequate regulatory principles can be developed to mitigate each.
2. The e-banking sector is inadequately regulated in Kenya.
3. A principle based regulatory approach is best suited for e-banking regulation as compared to the rule based regulatory approach.

1.6 Theoretical and Conceptual Framework

The continued technological innovation and competition among existing banking institutions and non-banking financial institutions has necessitated the provision of a myriad of banking products

and services. These products have been made accessible to consumers through an electronic distribution channel collectively referred to as e-banking. However, the sporadic development of e-banking possibilities carries with it as many risks as benefits. These risks have to be recognized, addressed and managed by banking institutions in a prudent manner according to the fundamental characteristics and challenges of e-banking services.⁸

The Basel Committee⁹ recognizes that the unprecedented speed of change related to technological and customer service innovation, the ubiquitous and global nature of open electronic networks while not creating inherently new risks, these characteristics increased and modified some of the traditional risks associated with banking activities, in particular strategic, operational, legal and reputational risks, thereby influencing the overall risk profile of the banking sector.

1.6.1 Why a principle-based approach?

Ronald Gould¹⁰ describes the principle-based regulation as firms managing conflicts of interest, both between itself and its customers and between a customer and another customer. This is to

⁸ Basel Committee on Banking supervision, *Risk Management Principles for Electronic Banking*, (2003), available at http://docs.google.com/viewer?a=v&q=cache:0kTtmhtEAJ4J:www.bis.org/publ/bcbs98.pdf+e-banking+risks&hl=en&gl=ke&pid=bl&srcid=ADGEESinWlzQTo00EXKVfP9823TalBssTDJQVF_sKpmJpootPjJYOSgpfVPBgTJHF_5_TXIgPpPkheargWzP91-xHZ8gLO2ue7yWF3-SE_AbqjEAGPxdzDw6TRV-5gQB1DNhSC9IlnD&sig=AHIEtbSk4HeeRMhGykWnKifRYrAMoSdC_Q, (last accessed on 16th August 2010).

⁹ The Basel Committee on Banking Supervision provides a forum for regular cooperation on banking supervisory matters. Its objective is to enhance understanding of key supervisory issues and improve the quality of banking supervision worldwide. It seeks to do so by exchanging information on national supervisory issues, approaches and techniques, with a view to promoting common understanding. At times, the Committee uses this common understanding to develop guidelines and supervisory standards in areas where they are considered desirable. In this regard, the Committee is best known for its international standards on capital adequacy; the Core Principles for Effective Banking Supervision; and the Concordat on cross-border banking supervision.

¹⁰ See Ronald Gould conference paper (2007), *Financial Regulation; Flattering Misconceptions*, AEI, available at www.aei.org/event1483/, (last accessed 20th September 2010).

ask the senior management of firms to adhere to a group of principles but not giving them prescriptive advice on how to do the same as they know their business better than anyone else.¹¹

In relation to e-banking the Basel Committee notes that setting detailed risk management requirements in the area of e-banking might be counter-productive. Such requirements soon obsolete due to the speed of change related to technological and customer service innovation in relation to e-banking. The committee insists that the principles should not attempt to set specific technical solutions or standards relating to e-banking. Technical solutions are to be addressed by institutions and standard-setting bodies as technology evolves.

The foregoing conceptual issues point to the necessity for an in depth discussion of e-banking regulation in Kenya. There are major risks prevalent in the e-banking sector if unregulated or under regulated. As a result, the most appropriate regulatory system that will ensure adequate coverage of the e-banking sector as a whole in Kenya is a principle-based regulatory system. This study applies the discussion above to examine how the risks that are associated with e-banking can be addressed by a principle-based regulatory approach.

Qualitative research has the ability to produce and analyze complex descriptions of how people perceive the research problem; bringing out the contradicting behaviour, opinions, emotions and relationships of individuals.¹² This helps address a research problem, taking in mind its social

¹¹See Ronald Gould, *supra*, note 10, p. 3.

¹² See Family Health International (FHI), *Qualitative Research Methods Overview*, available at <http://www.fhi.org/nr/rdonlyres/etl7vogszehu5s4stpzb3tyqlpp7rojv4waq37elpbyei3tgmc4ty6dunbccfzxtaj2rvbaubz mz4f/overview1.pdf> (last accessed 9/08/2010).

background. This study, which mainly analyses people's perceptions will apply this model of research.

1.7 Literature Review

Regulation is generally a response to the potential for market failure. E-banking and its regulation has attracted much concern and the interest of many scholars and active players in the industry, local and abroad. This can be ascertained from the literature that is available on the subject. Some of this literature deals with the development of e-banking, its impact on the banking sector, its benefit to the banking industry and the challenges posed by this new phenomenon. Some of them have gone ahead and even offered solutions; though not complete to the existing problems.

Locally, Kethi D. Kilonzo¹³ has delved into the subject comprehensively. Her paper points out the fact that e-banking and Internet banking are different. She concedes that there is no universally accepted legal definition of e-banking. She generally observes that the Internet is not regulated since it operates twenty-four hours a day, can be instantly accessed, is inexpensive and contains information that is downloadable for future reference.¹⁴

Further, Kilonzo's paper traces the development of e-banking from the 19th century and the impact of the same especially on courts' decisions. It then concludes by examining the legal framework governing the e-banking sector in Kenya, stating that there is a legal vacuum as far as the regulation of e-commerce and e-payments is concerned. Due to absence of a legal

¹³See Kethi D. Kilonzo, *supra*, note 5, p. 337.

¹⁴*Ibid* at p. 324.

framework, there is a high possibility of the banks exploiting their customers by constructing standard contracts in a manner to absolve them from liability in any circumstances.¹⁵ The paper however does not propose total overhaul of the current legal regime and instead proposes discreet legislative adjustments to remedy the situation.¹⁶

The paper is contradictory in the sense that after correctly pointing out that there is no regulatory regime addressing e-banking it only proposes discreet amendments to existing laws to address the vacuum. The paper further does not point out all the risks associated with e-banking. Amendments would not be enough to effectively regulate an evolving sector of this nature; neither would a set of detailed rules and regulations be adequate and thus; this study shall point out the main risks associated with e-banking and propose a principle based regulatory approach in place of rule based approach as the best way to regulate e-banking sector. This will address the inadequacy in this paper.

The Consultative Group to Assist the Poor (CGAP) report on the regulation of branchless banking is also resourceful.¹⁷ The report examines regulation of branchless banking in Kenya. It identifies legislation that regulates the wider branchless banking sector. These are the Banking Act¹⁸ and its amendment by the Finance Bill of 2009 in relation to the banks' use of agents¹⁹ and the Proceeds of Crime and Anti-Money Laundering Act²⁰ as far as combating money laundering in the wider financial sector but also has aspects that deal with branchless banking for example

¹⁵ See Kethi D. Kilonzo, *supra*, note 5, p. 341.

¹⁶ See discussion on Kilonzo's recommendations, *supra* note 5.

¹⁷ See CGAP, *supra* note 1, p. 13.

¹⁸ Cap. 488 of the Laws of Kenya.

¹⁹ See Finance Bill 2009, *supra* note 10.

²⁰ At the time of publication of the report, the Act had just been passed into law by parliament but not assented to and therefore the report referred to it as a bill. However, it was assented to and came into force on 28th June 2010.

non-bank institutions that offer branchless banking services including e-banking have been categorized as among the reporting institutions in the Act.²¹ The report then identifies that there is neither a statute nor any regulation on e-money or the e-payment systems. The report supposes that the draft National Payments Systems Bill of 2007 will offer the legal authority as far as the regulation of e-payments is concerned. It is in doubt though of the certainty of the scope of the Act and the time it would take to be passed if it will be at all passed.²² Nevertheless, it does not propose any way forward in terms of developing a regulatory framework, and neither does it point out the risks associated with the apparent lack of regulation. This study however, goes ahead to propose an alternative regulatory approach to the existing one as the best remedy to curb the risks associated with inadequate regulation of the e-banking sector, thus addressing the existing gap.

Stephen Mwaura Nduati²³ also examines the branchless banking sector especially with regard to the challenges facing the sector and the proposed legislative amendments in his slide presentation on banking regulation in Kenya. He admits that key areas in banking including e-commerce, mobile banking, and telecommunications are not regulated. He supports some legislative amendments that were proposed then²⁴ to regulate the sector including Kenya Information and Communications Bill, Proceeds of Crime and Anti-Money Laundering Bill,

²¹ Anti Money-Laundering Act, Section 2.

²² See discussion on the Bill, *supra* note 2 at p. 8.

²³ See Stephen Nduati Mwura, (2006), *Expanding Financial Services to the Poor: The Role of ICT and Regulatory Challenges*, available at http://docs.google.com/viewer?a=v&q=cache:guNWZslgaB8J:www.infodev.org/en/Document.77.pdf+regulation+of+e+banking+in+kenya.&hl=en&gl=ke&pid=bl&srcid=ADGEESgb_bSr9aoBWq2sqnUxtPGtoY4_QTRg8bqJt1ivtrfKZE-v8XFXt1ZmK6bIBVPmorePsLYturs8A023DWXmdp6LcpmxYRvGI10Xzpzjg-xH3YEk5WbBbljxQW5CXP5m48-42esj&sig=AHIEtbQNlzKPbD5ErTF_ZKqylvOhz9v5zA, (last accessed on 17th August 2010).

²⁴ Some of the Bills have since been enacted into law for example the Kenya Communications Act being amended by the The Kenya Communications Amendment Bill of 2007 and the passing into law of the Proceeds of Crime and anti Money Laundering act in 2009 and its subsequent enforcement in June 2010.

Anti-Terrorism Bill, Electronic Funds Transfer Bill and the draft National Systems Payments Bill. Nduati, however, notes that the bills for example do not address the existing legal vacuum in relation to the developments in the ICT sector citing the Kenya Information and Communication Bill not capturing the mobile banking and payment sector. He suggests fast tracking of the implementation of the bills to remedy the situation. This amounts to emphasis on rule based approach to regulate e-banking. However, this study proposes a consideration of an alternative regulatory framework to the existing rule based framework.

The Central Bank of Kenya's report on the payment system in Kenya²⁵ emphasizes the legal lacuna in the regulation of electronic payment systems in Kenya. The report observes that there are no laws in Kenya that explicitly and exclusively deal with payment systems. It however acknowledges the implicit powers that the Central Bank of Kenya has to oversee and regulate the payment systems.²⁶ The report also indicates that the CBK was then working on the enactment of the National Payment System Bill while the Government was working to reform the ICT Law in order to adequately realize the ultimate regulation of the payment systems. This amounts to a proposal for a rule-based approach to regulate e-banking. However, this study contends that rule-based regulation is not the most suitable approach to the regulation of the sector and therefore proposes a principle-based regulatory approach.

As far as e-banking risks are concerned, Macharia Kahuro²⁷ points out that security issues are a major source of concern for everyone both inside and outside the banking industry. He cites the

²⁵ See Central Bank of Kenya, (2003), *Payment Systems in Kenya*, available at <http://www.centralbank.go.ke/downloads/nps/nps%20old/psk.pdf>, (last accessed on 17th August 2010).

²⁶Section 4A, Central Bank of Kenya (CBK) Act as amended in 1996.

²⁷ Macharia Kahuro, (2010), *Technology brings security risks*, Business Daily, Nairobi, 9th February 2010, available at <http://allafrica.com/stories/201002081750.html>, (last accessed on 17th August 2010).

exposure of isolated systems to risky environment being a grave danger to the sector. He quotes the figures in amount lost by the banking industry as stated by CBK's Banking Fraud Investigation Department to be Sh456.3 million through fraud and Sh186.7 million in attempts. He categorizes security breaches into three main categories; those with serious criminal intentions and usually well planned and executed; those by casual hackers; those due to weaknesses of systems.

Kahuro's paper observes that all of these threats have potentially grave financial, legal and reputational implications. It therefore proposes a strategic approach be adopted, the building of best practice security controls into systems and networks as they are developed and the continuous active testing of system security controls. This study goes further to propose a regulatory framework within which the above proposals can be implemented. In addition, it points out other risks associated with e-banking beyond security risks and proposes proper regulatory framework to address the risks.

Carole Sergeant's address on e-banking risks and responses is also informative.²⁸ She is fundamentally concerned with risks to banks and building societies, whether new or old, and how these banks should respond to the risks in light of the developments in e-banking. She explains five major risks which are strategic, business, security, reputational and operational risks. She concludes her speech by emphasizing that regulators have no problem in principle with mitigating and managing the risks both for new entrants and existing players. Sergeant also insists that regulators need to ensure that their approaches are adequate to deal with the risks

²⁸ See Carole Sergeant, (2000), *E-banking: Risks and Responses*, Financial Services Authority, available at <http://www.fsa.gov.uk/Pages/Library/Communication/Speeches/2000/sp46.shtml>, (last accessed on 17th August 2010).

without getting in the way of the innovations and benefits that e-banking brings to firms and consumers. She insists on the consultative approach as far as coming up with rules and guidelines in the regulation of the e-banking sector. Sergeant, nevertheless, falls short of proposing a proper regulatory regime. This study goes ahead to identify that a principle based approach is most appropriate for the regulators to embrace as it is more flexible as far as adopting new innovations while at the same time limiting the risks associated with the same.

The Basel Committee report²⁹ is probably the best resource on the subject as it captures a global outlook and suggests some principles to be adopted by regulators as far as governing the sector is concerned. The report begins with a general outlook on risk management challenges and principles. It then focuses on the development of the risk management principles on e-banking attaching the principles to specific challenges. The report addresses the principle based regulatory approach on a global plane. These principles are however broad and of universal application. They do not take into account the uniqueness of the Kenyan market. This study goes further to focus on the suitability of the approach in Kenya.

With regard to principle-based regulation, there has been a comprehensive literature on the subject especially in the United Kingdom (UK), which is ongoing. The concept in the UK is still in its formative stages but has already generated much literature in form circulars, papers from the Financial Services Authority (FSA) and articles from professional bodies and experts in the area. However, it is noteworthy that the following articles only focused on the general aspects of principle-based regulation in the broad financial sector in the UK. This study will contextualize those aspects examine the application of the principle based regulation on e-banking in Kenya.

²⁹ See Basel Committee, *supra* note 8, p. 12.

First, the FSA published a report³⁰ defining principle-based regulation as placing greater reliance on principles and outcome focused, high-level rules as a means to drive at the regulatory aims to be achieved and less reliance on the prescriptive rules. The paper goes ahead to give a ten point summary on the subject. It states, *inter alia*, that this approach will sustain the current rigorous regulatory environment for the UK financial services but with a better and more effective outcome. It further states that the approach is enshrined on outcome focused rules rather than prescriptive ones. Flexibility on the part of firms in how they deliver the outcomes is underscored as the other benefit of this type of approach.

In addition, the FSA report states that the consumers will benefit more because a principle-based approach fosters a more innovative and competitive financial services industry. The paper finally justifies the approach on the fact that the prescriptive rules are unable to prevent misconduct. It appreciates that the rules have become a burden to the FSA itself and the industry resources. This study goes further than that, to propose the application of such principles in the Kenyan e-banking sector.

Second, Freshfields Bruckhaus Derringer's article³¹ focuses on the effects of the principle-based approach. It identifies two major effects which are firm based: handling of the new responsibilities and adapting to a new FSA approach. This would then mean that firms would have the discretion of making internal rules and ensuring that in exercising these rules they do

³⁰ See, Financial Services Authority (FSA), (2007), *Principle Based Regulation: Focusing on Outcomes That Matter*, available at www.fsa.gov.uk/pubs/other/principles.pdf, (last accessed 20th September 2010).

³¹ See Freshfields Bruckhaus Derringer, (2007), *FSA Principle based regulation: What should Firms be doing Differently?* Available at <http://www.freshfields.com/publications/pdfs/2007/17593.pdf>, (last accessed 25th September 2010).

not violate the principles established by the FSA. This responsibility lies with the superior management of the firms. The adaptation relates to the generality of the principles due to the unspecified and unacknowledged factors such as the general cultural climate, reputation of the firm and industry, consumer focused media programme and other external pressures.

Third, Herbert Smith's article³² deals with the subject in detail. Smith defines principle-based regulation as moving away from reliance on detailed prescriptive rules and relying more on high level "principles" to set the standards by which the regulated firms should conduct business. He suggests two elements of this approach: broad based regulations and outcome based regulations. He also observes that this approach will enhance compliance because it embraces dialogue. This study will go further to propose the principles to be applied to e-banking in Kenya.

A look at the above literature reveals some contradictions and existing gaps in relation to e-banking in Kenya. These gaps justify the need for this study so as to effectively address them.

1.8 Methodology

This study has relied on primary data such as statutes and bills; which will form the basic resources for this research. In addition, secondary sources such as, journal papers, working papers of various organizations, policy papers of various bodies and newspaper articles have also been considered. The study has further relied on perceptions of individuals working in the banking sector.

³² See Herbert Smith, (2007), *Principle based regulation- In principle and in practice*, available at <http://www.herbertsmith.com/NR/rdonlyres/1EA2E1A0-B64C-4F20-8719-7DA072C0AE28/3731/5924PBRBrochureD3.pdf>, (last accessed 10th October 2010).

On data sources, primary data i.e. statutes and bills have been sourced from the government printer. The secondary data has been downloaded from the internet. The perceptions have been sourced through interviews with the relevant personalities in the banking industry which were aimed at assessing how the local banks address the risk management challenges and their views on a rule-based approach.

Qualitative methods have been used to analyze the data. This is because that it's the only method that can effectively capture perspectives and perceptions of individuals within a specific perspective.

1.9 Chapter Summary

1.9.1 Chapter one: Methodology and Background to the Research

This chapter introduces the study. It examines the following: definition of the terms bank, banking business and e-banking, differentiates between rule-based and principle-based regulation and offers justification why rule based regulation is most appropriate for e-banking regulation.

1.9.2 Chapter Two: Examination of E-banking Regulation in Kenya

Chapter Two examines the existing of e-banking regulation in Kenya. An examination of the Acts of Parliament and bills awaiting passage and adoption is undertaken. The chapter concludes by assessing the effectiveness or otherwise of the current legal framework.

1.9.3 Chapter Three: Risks Posed by Inadequate E-banking Regulation

Chapter Three examines the risks that are posed by un regulated or under regulated e-banking sector. A risk to risk outlook will has been undertaken.

1.9.4 Chapter Four: Addressing the Risks Through A Principle Based Regulatory System

Chapter Five deals with the addressing of the above risks. It first justifies why the principle based approach is most suitable and then examines how the principles will be formulated and end with an outline of the proposed principles.

1.9.5 Chapter five: Conclusion and Recommendations.

The final chapter is the conclusion and recommendations of the study. A summary of the preceding chapters is done and recommendations based on the result of the research constructed.

1 CHAPTER ONE

E-BANKING IN KENYA: AN INTRODUCTION

1.1. Background

The development of Information and Communication Technology (ICT) has had major impacts on the banking sector. New trends in the provision of services by banks and other players in the sector have evolved ever since the onset of Internet technology and mobile phone services. This led to the emergence of electronic banking (e-banking) in which banks offer their products and services through electronic means which are faster, more convenient and cheaper.³³ This can be attributed to the fact that it is not necessary for the customer to visit the physical premises of the banks before they can access these services and products. It therefore effectively replaced the brick and mortar form of banking.³⁴

However, the technological development in banking sector in Kenya has not been consonant with enactment of legislation specifically governing the new forms e-banking thus leading to the exposure of the banking sector to the risks associated with un-regulated or under-regulated banking. Enactment of new legislation and amendment to the existing ones will not offer the requisite solution due to the snail speed of the process.³⁵ This is mainly because of technicalities of procedure, on one hand, and the unprecedented fast technological development in the sector, on the other hand. The regulatory approach currently in place is entirely rule-based. It consists of legislation and prescriptive rules. The rule-based approach should be reconsidered due to its

³³ For more discussion on this advantage of e-banking, see Mehrdad Alipour, (2010), *E-Banking in emerging economy; Empirical Evidence of Iran*, p3, available at <http://www.ccsenet.org/journal/index.php/ijef/article/viewFile/4957/4122>, (last accessed on 27th September 2010).

³⁴ *Ibid*, p. 4.

³⁵ Refer to the critique of Kethi Kionzo's proposal for legislative amendments, *supra* note 5.

incapacity to regulate the emerging trends in the sector. The alternative is the principle-based regulatory framework that consists of few but broad principles. It would be more effective.

In order to appreciate the importance of this subject, it is vital to consider the wider context within which it exists. It is therefore important to understand the following concepts: what a bank is; banking business; e-banking; e-banking regulation; and principle based vs. rule based regulation of e-banking

1.1.1 What is a bank?

A bank is a financial intermediary that accepts deposits and channels those deposits into lending activities.³⁶ A bank has been defined by the current legislation as a company which carries on, or proposes to carry on, banking business in Kenya but does not include the Central Bank.³⁷

1.1.2 Banking business

Banking business in the above definition has been given the meaning and characteristics of,

- (a) accepting from members of the public money on deposit repayable on demand or at the expiry of a fixed period or after notice;
- (b) accepting from members of the public money on current account and payment on and acceptance of cheques; and
- (c) employing money held on deposit or on current account, or any part of the money, by lending, investment or in any other manner for the account and at the risk of the person so employing the money.³⁸

³⁶ The Finance and Investment Terms Dictionary, available at <http://www.allbusiness.com/glossaries/bank/4953676-1.html>, (last accessed 24th August 2010).

³⁷Section 2 of the Banking Act of Kenya, Cap 488 of the Laws of Kenya.

Banks are therefore active players in the financial markets. They connect those who have capital (depositors) and those who seek capital (borrowers). Banks are therefore active players in the financial markets. They connect those who have capital (depositors) and those who seek capital (borrowers).

1.1.3 E-banking

E-banking is a form of branchless banking.³⁹ The term e-banking has been given scores of definitions by different scholars some of which we will consider. Generally, it is defined as the automated delivery of banking products and services, new and traditional, directly to customers through electronic and interactive channels. This has been made possible through the developments that have enabled financial institutions, businesses and individuals to access accounts, transact business and also obtain information on financial products through a public or private network.⁴⁰

The *Finance and Investment Terms Dictionary*⁴¹ defines e-banking as a form of banking where funds are transferred through an exchange of electronic signals between financial institutions, rather than an exchange of cash, cheques, or other negotiable instruments.

³⁸ *Ibid.*

³⁹ Branchless banking is essentially the distribution channels used for delivering financial services without relying on bank branches.

⁴⁰ See Federal Financial Institutions Examination Council (FFIEC), (2003), *E-Banking: a Booklet*, p1, available at: http://www.ffiec.gov/ffiecinfobase/booklets/e_banking/ebanking_00_intro_def.html, (last accessed on 16th August, 2010).

⁴¹ The Finance and Investment Terms Dictionary, available at <http://www.allbusiness.com/glossaries/electronic-banking/4953676-1.html>, (last accessed 24th August 2010).

Isaac Awuondo gives it the meaning of being an umbrella term for the process by which a customer performs banking transactions without visiting a mortar or brick building. He further explains that it is the use of electronic means to deliver banking services mainly through the Internet. He also points out that the term may be used to refer to automated teller machines (ATMs), telephone banking, use of plastic money, mobile phone banking and the electronic money transfer.⁴² Noticeable forms of e-banking includes Mobile or Short Message Service (SMS) banking, automated teller machines (ATMs), electronic funds transfer, POS banking (credit and debit cards), self service (personal computer banking), Interactive TV, Intranet and e-cheques.

1.2 E-banking in Kenya

The Kenyan banking industry has been expanding branch networking amid the introduction of branchless banking system,⁴³ which include the use of Electronic Funds Transfers (EFTs), ATM cards, SMS banking etc. Despite this small growth, the report still notes that many Kenyans are left un-banked throughout the country's eight provinces, as banks have customer bases concentrating in major cities. The slow growth of Branches can be attributed to the rapid rise of

⁴²See Isaac Awuondo; *E-banking in Kenya: Practical Lessons to be Drawn*, Strathmore University, Seminar Paper, Nairobi. 9th September 2006. Available at http://webcache.googleusercontent.com/search?q=cache:z79Yv98yH5UJ:www.strathmore.edu/pdf/ict06/ebanking_in_kenya.ppt+forms+of+e-banking&cd=1&, (last accessed on 24th August 2010).

⁴³ The annual reports of CBK clearly indicate that, branch network has been slowly expanding. since 2002. By the end of December 2006, Kenya had a total branch network of 575, as compared to 486 branches in the period ended December 2002. Further it is indicated that Nairobi province has a large number of branch network while North Eastern province has never added any branch since the year 2000. It has maintained 4 branches in the whole province.

alternatives, which include electronic financial product through mobile phones and Personal computers.⁴⁴

Kenyan banks have exponentially embraced the use of information and communication technologies in their service provision. They have invested huge amounts of money in implementing the self and virtual banking services with the objective of improving the quality of customer service. Some of the ICT-based products and services include the introduction of SMS banking, ATMs, Anywhere banking software's, Core banking solution, Electronic clearing systems and direct debit and most recently mobile banking. In mid 2005, Kenya's banking Industry moved a milestone by introducing Real Time Gross and Settlement system (RTGS) which was renamed Kenya Electronic Payment and Settlement System (KEPSS). This has facilitated the inter-bank Financial data transfer. The development of e-banking services is expected to decongest banking halls and reduce the incidences of long queues in banking halls. Digital-based financial services have made a significant contribution in covering the cost of offering financial services.⁴⁵

In addition, customers have, over time, increased demands that they be given value for their hard-earned deposits. This has created urgent need for banks to improve in differentiating banking products, increased choices, security and accessibility. The ability of financial Institution to deliver products and services in the most efficient and effective manner, has

⁴⁴ Banks find e-banking a cheaper model of attracting and retaining many customers, thus prefer this than expanding branch networks.

⁴⁵ This is according to Richard Nyangosi, *E-Banking: An Integration Technology in Kenya*, p. 2, available at <http://www.africanexecutive.com/modules/magazine/articles.php?article=3296>, (last accessed on 13th October 2010).

therefore grown to be the key factor determining performance and relevance in the banking industry.⁴⁶

In Kenya, majority of banks have introduced internet banking, mobile banking and other e-banking facilities, to enhance delivery channels to their customers. While Internet banking is fast and convenient mode of conducting banking transactions, this is yet to gain acceptance among banking consumers, due to fears of apprehension in this mode of banking. Like many other developing countries, e-banking in Kenya is at its nascent stages. Not many banks have embraced e-banking but majority have at least one or two technology based delivery channels. The slow adoption of e-banking by banks has been attributed to impaired non-availability of infrastructure and legislation to support e-banking.⁴⁷

The major indicator of e-banking is ATM banking. According to a recent survey, the Kenyan banking sector has expanded exponentially in terms of access to ATM's.⁴⁸ A part from individual bank ATMs, Kenyan Banks who are members of two organizations, which provide e-banking outsourcing partnership, will access up to 272 ATMs. The two organizations include, Pesapoint limited and Kenya switch (Kenswitch). Customers of Banks which are members of Pesapoint can access 120 Pesapoint ATMs⁴⁹ and those banks which are members

⁴⁶ *Ibid*, p. 3.

⁴⁷ Lack of legislation support is the major emphasis of this study and is discussed in detail in chapter two.

⁴⁸ The survey conducted by financial sector deepening Kenya in association with Central Bank of Kenya indicated that Kenya had a total number of 968 by the end of December 2007. Further, indication was that, an increase of 31.3 percent from 2006 was experienced, when the industry had 737 ATMs.

⁴⁹ This is according to Pesa Point website, <http://www.pesapoint.co.ke/information.asp?cntid=41>, (last accessed on 13th October 2010).

of Kenya switch can access 152 ATMs.⁵⁰ Banks who are members of both thus have their customers access to a minimum of 272 ATMs.

Among the innovative banks in Kenya is Equity Bank which had more ATMs (232) as at December 2007. Research reveals that the dominant banking service operators; Equity, KCB, Co-operative, Barclays, Standard Chartered, PesaPoint and Kenswitch together account for 81% of the ATMs deployed in Kenya.⁵¹ All information and communication technology developments may be attributed to the realization of the advantages of technology integration in the banking industry.

1.3 Benefits of e-banking

E-banking serves several benefits to its users. From the banks' view point, the first benefits for the banks offering e-banking services is better branding and better responsiveness to the market. Those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, they would enjoy a better brand image. The other benefits are possible to measure in monetary terms. The main goal of every company is to maximize profits for its owners and banks are not any exception.

⁵⁰ See Kenswitch website <http://www.kenswitch.com/partners.html> (last accessed on 13th October 2010). Kenswitch in total has 762 ATMs spread across Kenya, Uganda, Tanzania and South Sudan, with numbers expected to cross the 1,000 mark in 2011.

⁵¹ See Financial Sector Deepening (FSD) Kenya (2007), *Kenya's Payment Market: Identifying an Enabling Environment for Government to Person Transfers Through the Banking Sector*, p6, available at http://www.fsdkenya.org/pdf_documents/opportunities/G2P_Report_Final.pdf, (last accessed 13th October 2010).

According to a survey, automated e-banking services offer a perfect opportunity for maximizing profits.⁵²

The main benefit from the bank customers' point of view is significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money. Corporate customers enjoy several benefits.⁵³ First, there are reduced costs in accessing and using the banking services. Second, they have increased comfort and timesaving since transactions can be made 24 hours a day, without requiring the physical interaction with the bank. Third, they have quick and continuous access to information, as they can check on multiple accounts at the click of a button. Finally, they enjoy better cash management emanating from speeded up cash cycle which increases efficiency of business processes due to the large variety of cash management instruments is available on Internet sites of banks.

For private customers, they also reap benefits from e-banking⁵⁴. First, they get reduced costs in terms of the cost of availing and using the various banking products and services. Second, there is also convenience since all transactions can be performed from the comfort of the home or office or from the place a customer wants to. Third, there is also speed because the response of the medium is very fast. Customers thus have the luxury of waiting till the last minute before

⁵² See L. Nathan, (1998) *Community Banks are going online*, available at econpapers.repec.org/.../y_3a1999_3ai_3afall_3ap_3a2-8.htm, (last accessed 12th September 2010). An estimated cost providing the routine business of a full service branch in USA was \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM (Automatic Teller Machine) banking and 1.5 cents for Internet banking.

⁵³ For a detailed discussion on these, see Catalin, (2002), *E-banking in Transition Economies: the Case of Romania*, available at www.palgrave-journals.com/fsm/ (last accessed 12th June 2010).

⁵⁴ For an expose on these benefits, see Aladwani, Adel, (2001), *Online Banking: A Field Study of Drivers, Development Challenges, and Expectations*, *International Journal of Information Management*, pp 213–225, available at linkinghub.elsevier.com/retrieve/pii/S0268401201000111 (last accessed 10th August 2010).

concluding a fund transfer. Fourth, there is better funds management since customers can download their history of different accounts and do a “what-if” analysis on their own before affecting any further transactions.

1.4 Regulatory challenges facing internet-banking

The Electronic Banking Group examined this issue and had the following as the challenges facing internet-banking management⁵⁵. First is the unprecedented speed of change relating to technological and customer service innovation in the wider e-banking sector. The group credits this to the competitive pressure on banks to roll out new business applications in compressed time frames. This therefore results in the management being incapable to ensure the conduct of strategic assessment, risk analysis and security reviews prior to the implementation of new e-banking applications.

Second, because e-banking increases dependence on information technology, there have been increased technical complexities of operational and security issues leading to the formation of alliances between banks and third-parties such as Internet service providers who are unregulated.

Third, the Internet is ubiquitous and global in nature. Being an open network it is accessible from anywhere in the world by unknown parties, with routing of messages through unknown locations and via fast evolving wireless devices. Therefore, it significantly magnifies the importance of security controls, customer authentication techniques, data protection, audit trail procedures, and customer privacy standards.

⁵⁵ For more detailed discussion, See Bank of International Settlements (BIS), *Electronic Banking Group Initiatives and White Papers* (2000), available at <http://www.bis.org>, (last accessed on 16th August 2010).

1.5 Principle v rule based regulation in relation to e-banking

It therefore follows that a proper regulatory system should be adopted. The purpose should be to help propel the developments in the sector without placing unnecessary impediments and to mitigate the aforementioned risks the sector is exposed to if under-regulated or un-regulated. There are two major approaches to be considered in this respect: the rule-based approach as opposed to the principle-based approach.

The current regulatory system is fundamentally rule-based. This means that the regulatory mechanism governing the sector is essentially prescriptive and is characterized by Acts of Parliament that are supposed to cover all the aspects of the sector. A principle-based regulatory approach, in contrast, insists on a regulatory approach that will provide for a few but broad principles that will govern the sector. The regulator will have the responsibility to formulate these rules while the management of the institutions offering these services will be charged with the responsibility of ensuring that the principles are complied with.

1.6 Justification for principle-based regulatory system

This study has proposed the principle-based regulatory system as the most appropriate approach for the following reasons⁵⁶. First, principle based regulation will ensure that almost all aspects if not all aspects of e-banking are regulated. This is so because it is relatively easy and expeditious for the financial regulator to develop principles that will provide redress for the major risks that

⁵⁶ For more detailed discussion on advantages of principle based regulation, see *Financial Services Authority (FSA) (2007), Principle Based Regulation; Focusing on the Outcomes that Matter*; p6, available at <http://www.fsa.gov.uk/pubs/other/principles.pdf>. (last accessed 13th October 2010).

are associated with inadequate regulation of the e-banking sector. This is not so in the case of legislation which before passage and implementation a considerable time would have passed. The passing of the same is also not guaranteed.

Second, principle based regulation provides for a large plane easily adaptable to future unforeseeable developments in the sector. On the other hand, a rule-based regulation is not as adaptable to unforeseeable developments, which were not anticipated with the passage of the legislation. This is attributed to the formalities before the passage of amendment bills and new Acts of Parliament.

Third, e-banking services offered are not necessarily similar among the institutions offering the same. It is therefore prudent to allow the management of those institutions to formulate rules that are peculiar to them as far as the nature of the e-banking services offered are concerned provided they are within the ambit of the principles governing the sector.

2 CHAPTER TWO: EXAMINATION OF E-BANKING REGULATION IN KENYA

2.1 Introduction

As much as there are arrays of laws regulating the banking sector, there is no Act of Parliament regulating e-banking in the country. The existing Acts attempt, albeit indirectly, to regulate the sector. They do not address the various forms of e-banking explicitly and this has led to the coming up of bills to try and address this situation some of which have been passed by Parliament and consequently taken effect. This chapter will therefore examine the various Acts of Parliament that currently regulate the banking sector and especially with regard to the branchless banking sector.

2.2 The Banking Act⁵⁷

The Banking Act of Kenya is the principle legislation for the regulation of the banking sector in Kenya. We will now study the Act's scope of regulation, its definition of key concepts, its restrictions on carrying out business and finally, its implications in relation to e-banking.

2.2.1 Scope of regulation

In its preamble, it states that it is an Act of Parliament to regulate the business of banking and for matters incidental thereto and matters connected therewith. The Act therefore regulates the following institutions:

1. Banks.
2. Financial Institutions.

⁵⁷ The Act is Chapter 488 of the Laws of Kenya.

3. Mortgage Finance Companies.

Their definitions are given as follows:

(a) Definition of a Bank

The Act defines a bank to be a company which carries on, or proposes to carry on, banking business in Kenya but does not include the Central Bank.⁵⁸ The Act goes ahead and defines banking business as:

- (a) Accepting from members of the public money on deposit repayable on demand or at the expiry of a fixed period or after notice;
- (b) Accepting from members of the public money on current account and payment on and acceptance of cheques; and
- (c) Employing of money held on deposit or on current account, or any part of the money, by lending, investment or in any other manner for the account and at the risk of the person so employing the money.⁵⁹

(b) Definition of a Financial Institution

The Act also defines a financial institution as a company, other than a bank that conducts or proposes to conduct financial business. Financial business is defined as:

- (a) The accepting from members of the public of money on deposit repayable on demand or at the expiry of a fixed period or after notice; and

⁵⁸ See Banking Act, *supra* note 57, Section 2.

⁵⁹ *Ibid.*

(b) The employing of money held on deposit or any part of the money, by lending, investment or in any other manner for the account and at the risk of the person so employing the money.⁶⁰

(c) Definition of Mortgage Finance Institution

A mortgage finance institution has been defined as a company (other than a financial institution) which accepts, from members of the public, money on deposit repayable on demand or at the expiry of a fixed period or after notice and is established for the purpose of employing such money in accordance with section 15,⁶¹ In summary, the Act provides that the word “institution” as used in the Act denotes a bank, a financial institution or mortgage finance company.

2.2.2 Restrictions on carrying on banking business

The Act provides that no person shall purport to carry on business as a bank, finance institution or a mortgage finance company unless without a valid license. The use of the words “bank” “finance institution” or “mortgage finance institution” have expressly been forbidden unless the person(s) using them have a valid license. The contravention of the above attracts a fine of not more than one hundred thousand or imprisonment not exceeding three years.

2.2.3 Implications of the Acts’ provisions in relation to e-banking regulation

From the above definitions, it is clear that firms that strictly offer e-banking services are not regulated by the Act. The Act only refers to cash and cheque payment systems in the definition of banking business. It gives no definition nor does it make any reference to electronic banking. Mobile phone service providers, for example, cannot be deemed to be among the institutions the

⁶⁰ See Banking Act, *supra* note 58, Section 2.

⁶¹ *Ibid.*

Act regulates. In contrast, the mobile phone service providers have evolved to be key players in mobile banking, a form of e-banking. It therefore follows that these firms can engage in provision of services that cannot be deemed banking or financial business under the Act and thereby avoiding the Act's regulatory arm. A good example is the Mpesa service offered by Safaricom, Zap service offered by Zain and YU cash service offered by YU.

The Act also provides that a bank may transact banking business either at its head office or branch or place of business neither of which can be opened, closed or moved without the prior approval of the Central Bank of Kenya.⁶² These provisions reflect the traditional considerations, based on the situation in Kenya where banks have transacted mainly using the mortar and bricks method of establishing physical branches. These traditional considerations that have influenced branching policy in the past are;

- *Prudential risk management:* In the days in which branches were the only channel for banking business, the viability of branches had a major effect on the prudential risk of banks, especially since the unit capital cost of new branch establishment is high;
- *Public policy objectives regarding access:* The desire to ensure an appropriate distribution of banking services has often featured to a greater or lesser extent in branching policy.⁶³

It can therefore be correctly argued that e-banking, for example internet banking or mobile banking cannot be deemed to be anticipated for regulation by the Act as these forms do not

⁶² The Banking Act defines a "branch" to be any premises that a bank conducts banking business other than the head office. Place of business is not defined in the Act.

⁶³ See FSD Kenya, *Regulation and Supervision of Branch Channels, Policy Options for Kenya*, (2010), available at http://www.fsdkenya.org/pdf_documents/10-02-05_Regulation_supervision_of_bank_channels.pdf, (last accessed on 26th August 2010).

depend on already established business premises that are licensed for the same before dispensing with the services they offer.

2.3 The Central Bank of Kenya Act⁶⁴

The Act provides in section 4A (c) and (d) as part of its objectives to license and supervise authorized dealers and to formulate and implement such policies as best promote the establishment, regulation and supervision of efficient and effective payment, clearing and settlement systems. This Act therefore confers to the Central Bank of Kenya (CBK) the regulatory responsibility of the whole financial sector.

However, the limits of this responsibility over non-banks offering e-banking services, especially mobile phone service providers, has not been tested enough.⁶⁵ The fact that, up to date, CBK has not developed legislation and rules to govern mobile money transfer services is enough evidence of this.

2.3.1 CBK regulation of the payment system

There is no law in Kenya expressly governing the payment system. The CBK is yet to issue policies for the payment systems in Kenya though in 2004 it issued a framework and strategic document on the payment systems in Kenya.⁶⁶ The absence of a payment system law leaves the

⁶⁴ This Act is Chapter 491 of the Laws of Kenya.

⁶⁵ See Alliance for Financial Inclusion (AFI), *Enabling mobile money transfer; The Central Bank of Kenya's treatment of M-Pesa*, p5, available at www.afi-global.org/en/phoca-publications-case-studies?download...2, (last accessed 13th October 2010).

⁶⁶ See CBK (2004), *Kenya Payment System: Framework and strategy*, available at http://www2.centralbank.go.ke/downloads/nps/nps_framework.pdf, (last accessed on 13th October 2010).

CBK'S Payment Systems Division with only the authority to ask for information from non-bank payment service providers. It however does not have the power to inspect them.⁶⁷

2.3.2 CBK regulation of e-Money

From the foregoing discussion, there is a clear vacuum in Kenya as far as legal regulation of e-money is concerned. The regulatory approach currently adopted by the CBK is whether or not the e-money issuer is a licensed financial institution or not. If it is, the CBK has no qualms. However, with regard to non-banks, the CBK will first have to determine if the activities of the particular institution falls within the definition of "banking business" in the Banking Act or "deposit-taking microfinance business" in the Microfinance Act.⁶⁸ The danger here is that a non-bank institution can avoid falling under the definition of banking business by not lending, investing, or otherwise placing at the risk of such nonbank institution the funds mobilized (in this case the e-money proceeds).⁶⁹

2.4 The Kenya Communications (Amendment) Act of 2008⁷⁰

This Act came into effect in January 2009. One of its objectives is to promote e-government and e-commerce by increasing public confidence in electronic transactions. The Act had three major impacts as far as the regulation of electronic development is concerned: first it gave legal recognition to the use of electronic records and electronic (digital) signatures. Second, it created

⁶⁷ See CGAP, *supra*, note 1, p11.

⁶⁸ This Act became operational with effect from 2nd May 2008. It empowers the CBK to regulate the establishment, business and operations of microfinance institutions in Kenya through licensing and supervision. It further facilitates Deposit Taking Microfinance Institutions licensed by the CBK to mobilize savings from the general public, thus promoting competition, efficiency and access.

⁶⁹ *Ibid.*

⁷⁰ This Act was passed by the 10th Kenyan Parliament and signed into law by President Mwai Kibaki on January 2, 2009.

new offences with respect to electronic records. Third, it sought to remove perceived legal uncertainties about the admissibility of electronic records as evidence in court proceedings.

The Act, however, excludes its application to the legal recognition of electronic documents and transaction involving some documents among which are negotiable instruments.⁷¹ This in effect means that the scope of the Act does not cover the regulation of e-banking business.

2.5 The Proceeds of Crime and Anti-money Laundering Act of 2009 ⁷²

The Act's main objective is to provide for the offence of money laundering and to introduce measures for combating the offence, to provide for the identification, tracing, freezing, seizure and confiscation of the proceeds of crime, and for connected purposes.⁷³ The Act creates the reporting institutions which are obligated to ensure that all activities that appear suspicious and are likely to be related to money laundering activities are reported to the Financial Reporting Centre.⁷⁴ The precise obligations of the reporting institution include: monitoring and reporting suspected money laundering activity, verifying customer identity, establishing and maintaining customer records and establishing and maintaining internal reporting procedures.⁷⁵

According to the Act, the Reporting Centre is a financial institution and designated non-financial business and profession. Of utmost importance is that the Act defines a financial institution to include an institution issuing and managing means of payment (such as credit and

⁷¹ See Section 31 of the Act.

⁷² The Act was signed into law on December 2009 and came into effect on June 28 2010.

⁷³ See the Preamble to the Act.

⁷⁴ Financial Reporting Centre is established under Part III of the Act, Sections 19 and 20.

⁷⁵ Part IV of the Act, Sections 42-45.

debit cards, cheques, travellers' cheques, money orders and bankers' drafts, and electronic money).⁷⁶ In effect, this means that the provisions of the Act cover the institutions that offer e-banking services and products. However, as far as regulating the e-banking sector the provisions of the Act are not sufficient as far as transactions that make it impossible to identify the actors until the end of the same. Internet banking is a good example.

2.6 The Bill of Exchange Act⁷⁷

The Act relates to bills of exchange, promissory notes, and cheques.⁷⁸ Section 2 of the Act provides that the only institutions regulated by the Act in relation to the above instruments are banks as defined in section 2 of the Banking Act.⁷⁹ Under the Act a bill of exchange is an unconditional order in writing, addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand or at a fixed or determinable future time a sum certain in money to or to the order of a specified person or to bearer.⁸⁰

2.6.1 Cheques and legal recognition of e-cheques

Section 73 of the Act defines a cheque as a bill of exchange drawn on a banker payable on demand. The Act acknowledges presentment of cheques by electronic means. Section 74A provides that "A banker to whom a cheque is first presented by the holder (hereinafter referred to as "the presenting banker") may present the cheque for payment by transmitting, through

⁷⁶See section 2 of the Act.

⁷⁷This Act is Chapter. 27 of the Laws of Kenya.

⁷⁸See the Preamble to the Act.

⁷⁹*Ibid.*

⁸⁰*Ibid*, Section 3 (1).

electronic means, an image and the payment information thereof to the banker on whom it is drawn.”⁸¹

2.6.2 Cheque truncation

Through an amendment by the Kenya Finance Bill 2009, the Bill of Exchange Act was amended and the phrase cheque truncation given the meaning of a system of cheque clearing and settlement between banks based on electronic data or images or both electronic data and images, without the conventional physical exchange of instruments.⁸² This in turn has led to the recognition of paperless cheques.

2.6.3 Confusion as to legal regulation of e-cheques

While the banking industry seems eager to make paperless cheque clearing an industry practice, the Kenya Information and Communications Act, 1998 through an amendment introduced in January 2009,⁸³ expressly excludes negotiable instruments⁸⁴ from the class of documents that can legally exist in paperless mode. There is then an apparent contradiction between this Act with the Bill of Exchange Act which recognizes that negotiable instruments can be paperless. Therefore confusion if paperless cheques are recognized and regulated in Kenya arises, and has remained unresolved so far in legislation.

⁸¹ *Ibid.*

⁸² See Bills of Exchange Act; *supra* note 71, section 2.

⁸³ See Section 31 of the Kenya Communications (Amendment) Act of 2008.

⁸⁴ Negotiable instruments in this case include cheques, promissory notes and bills of exchange.

Despite this confusion, paperless cheque clearance has slowly developed to be a market practice for banks, based on the amendment by Finance Bill 2009 to the Bills of Exchange Act.⁸⁵ Legislation thus needs reform to reflect the realities on the ground.

2.7 Central Bank of Kenya Prudential Guideline⁸⁶

The purpose of this Guideline is to provide information and guidance to those seeking to secure a licence to conduct business of a bank, financial institution or mortgage finance company in Kenya in compliance with sections 3, 4 and 5 of the Banking Act. This Guideline provides the conditions one must fulfil to be granted a license to conduct banking, financial or mortgage business in Kenya. It is the responsibility of the promoters proposing to conduct any such business to comply with this guideline.⁸⁷ Therefore, this guideline will not apply to those institutions that offer e-banking services but have avoided falling within the definition of banking business under the Banking Act.

Such entities include mobile money transfer services, whose activities are not categorized as banking business, yet have all aspects of e-banking. M-Pesa, ZAP and YU cash are not banking business as defined by the Banking Act, due to three important facts: First, cash exchanged for electronic value is not repaid on terms and remains in control of the customer at all times. To offer Money transfer services the agent must deposit a float of cash upfront in an M-Pesa, Zap or Yu account, held by a local bank. As such, there is no credit risk to either the customer or mobile

⁸⁵ See Michael. M. Murungi, (2009), *Electronic Cash; Time for a Paradigm Shift in E-commerce Legislation*, p6, seminar paper, available at <http://www.strathmore.edu/pdf/ict09/e-cash.pdf>, (last accessed 13th October 2010).

⁸⁶ These were set by the Central Bank of Kenya in 2006.

⁸⁷ Central Bank of Kenya Prudential Guidelines for Institutions Licensed under the Banking Act, Part II, Statement Policy, 2.1, 2.2, 2.3. Available at <http://www2.centralbank.go.ke/downloads/publications/guides/pguides/prud-guidelines.pdf>. Last accessed on 2nd September 2010.

phone service providers. Second, customer funds are not lent in the pursuit of other business or interest income. All funds are maintained in a pooled trust account at a reputable bank, and cannot not be accessed by mobile phone service providers to fund its business. Hence, there is no intermediation, which was a key part of the deposit taking definition. Third, there is no interest paid on customer deposits, or received by mobile phone service providers on the float—this indicates that the e-value created is not in fact a deposit.⁸⁸

2.7 Conclusion

From the above discourse it can be noted that there is no specific law in Kenya that regulates e-banking. Most of these Acts merely appreciate the existence of e-banking forms that are currently used. Almost all forms and aspects of e-banking in Kenya are not regulated. For example there are no Acts in Kenya that specifically regulate mobile banking, internet banking, electronic money transfer, e-money, Self Service banking, Personal Computer (PC) Banking, Point of Sale (POS) Banking (credit and debit cards), ATMs, Interactive TV and Intranet. This exposes the banking sector to the risks that associated with un-regulated and under-regulated banking sector. These risks are the concern of the next chapter.

⁸⁸ For a detailed discussion on this see Alliance for Financial Inclusion (AFI), *supra* note 59, p6.

3 CHAPTER THREE: RISKS POSED BY INADEQUATE E-BANKING REGULATION IN KENYA

3.1 Introduction

As observed in the preceding chapter, e-banking is not sufficiently regulated in this country. The most many Acts have done is to recognize the existence of some e-banking products and services. Some aspects of e-banking for example electronic payment systems are totally unregulated. This exposes the banking industry to grave danger. This danger is not only limited to the consumers of these products but also the providers. This chapter therefore examines in detail these risks. Briefly, these risks include.

- strategic
- business
- operational or transactional
- reputational
- compliance
- security.

An in-depth look at these risks is undertaken in the preceding paragraphs.

3.2 Strategic Risk

Ideally, an e-banking service should be consistent with the bank's overall financial strategy. This therefore calls for the planning and decision making process that is focused on how specific business needs are met or enhanced by the e-banking product, rather than focusing on the

product as an independent business objective.⁸⁹ If this is not the case then there is a probable danger of a strategic risk arising. The Comptroller's Handbook⁹⁰ describes strategic risk as the current and prospective impact on earnings or capital arising from adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes. It is attributed to the compatibility of an organization's strategic goals, the business strategies developed to achieve those goals, the resources deployed against these goals and the quality of implementation.⁹¹ Strategic risk results when a firm; which is not able to keep up with technology; takes decisions and commits missteps in planning and implementing strategy.⁹²

Concisely, poor e-banking planning and investment decisions can increase a financial institution's strategic risk. Therefore, it is important for a firm to ask itself the following questions before embarking on the provision of e-banking services and products.⁹³ First, will it invest in the wrong technology? Second, should it be an innovator or a follower? Third, how should it cope with competition from low cost entrants? Fourth, what should it do with the existing branch network? Fifth, how does it retain customers as their power to "shop around" is increased? And sixth, How can it build and exploit its brand name?

⁸⁹ Carole Sergeant, *E-banking: Risks and Responses*, Financial Services Authority, available at <http://www.fsa.gov.uk/Pages/Library/Communication/Speeches/2000/sp46.shtml>, (last accessed on 17th August 2010.)

⁹⁰ See the Options Clearing Corporation (OCC), (1999), *Internet Banking; Comptroller's Handbook*, available at <http://www.occ.treas.gov/handbook/intbank.pdf>, (last accessed 14th October 2010).

⁹¹ *Ibid.*

⁹² See Paul H, Ziad R Project Report, (2001), *Internet Banking: Disruptive or Sustaining Technology?* Harvard Business School, Boston, MA, p15, available at <http://www.ziadrphael.com/ebanking>, (last accessed on 12th October 2010).

⁹³ See David Carse's speech, (1999), *The Regulatory Framework of E-Banking*, Hong Kong Monetary Authority, available at www.info.gov.hk/hkma/eng/.../speech_081099ba.pp, p11, (last accessed on 11th October 2010).

It is noteworthy that it is of utmost important for a firm to decide whether it is an innovator or a follower in the service or product. As early adopters of new e-banking services, the firm establishes itself as an innovator who anticipates the needs of their customers. However, it may do so by incurring higher costs and increased complexity in their operations. Conversely, late adopters may be able to avoid the higher expense and added complexity, but do so at the risk of not meeting customer demand for additional products and services.

Kenyan banks have exponentially embraced the use of information and communication technologies in their service provision. They have invested huge amounts of money in implementing the self and virtual banking services with the objective of improving the quality of customer service.⁹⁴ I further opine that others are motivated by playing catch-up to other market leaders who have adapted similar e-banking models.⁹⁵

Such exponential uptake of e-banking without any guidelines due to lack of any regulations on the same, leaves Kenyan banks highly exposed to strategic risk.

Strategic risk has the following effects: First, e-banking services and products provision become expensive and firms fail to recoup their cost. Second, these firms are often positioned as loss leaders in order to capture market share but face the danger of not attracting the types of customers that firms want or expect. Third, strategic risk may have unexpected implications on existing business lines.⁹⁶

⁹⁴ See Nyangosi, *supra*, note 45, p. 2.

⁹⁵ A good example of this is the recent launch of *M-Kesho*, a mobile banking facility by Equity Bank. It triggered a series of launches of products with similar features by other banks, so as not to be left behind.

⁹⁶ See OCC, *supra*, note 90, p. 13.

3.3 Business Risks

Business risks are also significant. These are old risks, with which banks and supervisors have considerable experience but caution ought to be taken as old risks can visit in new guises. In particular, risk models and even processes designed for traditional banking may not be appropriate.

Due to the more savvy nature of the e-banking consumer, traditional banking risk, such as credit risks, interest rate risk, liquidity risk, and foreign exchange risk are elevated.⁹⁷ Given the newness of e-banking, nobody knows much about whether e-banking customers will have different characteristics from the traditional banking customers. This could render the existing score card models inappropriate, thus resulting in either higher rejection rates or inappropriate pricing to cover the risk. Furthermore, banks may not be able to assess credit quality at a distance as effectively as they do in face-to-face circumstances as in the traditional models of banking as it could be more difficult to assess the nature and quality of collateral offered at a distance, especially if it is in an unfamiliar location to the bank.

Funding and investment-related risks could increase with an institution's e-banking initiatives depending on the volatility and pricing of the acquired deposits. The prediction of customer volumes and the stickiness of e-deposits i.e. things which could lead either to rapid flows in or out of the bank could be difficult to assess making it very difficult to manage liquidity.⁹⁸

⁹⁷See Central Bank of Bahamas, (2006), *Guidelines for Electronic Banking*, available at www.centralbankbahamas.com/download/E-Banking.pdf (last accessed 6th October, 2010).

⁹⁸ *Ibid*, p. 1.

We therefore examine specific business risks including credit risk, interest rate risk, liquidity risk, price risk and foreign exchange risk.

Credit risk: Credit risk is the risk to earnings or capital that arises when a customer or any other obligor fails to meet the terms of any contract with the bank or otherwise to perform as agreed. It depends on counterparty,⁹⁹ issuer,¹⁰⁰ or borrower performance. E-banking and especially Internet banking provides the opportunity for banks to expand their geographic range. It is possible for customers to reach a given institution from literally anywhere in the world. Verification of their customers and other necessary documents is challenging for institutions due to the absence of personal contacts. Furthermore, verifying collateral and perfecting security agreements also can be challenging with distant borrowers. If not well managed it would lead to concentration of distant credits or credits in one industry.

In Kenya, many financial institutions that have collapsed since 1986 failed due to non-performing loans.¹⁰¹ These non-performing loans were largely blamed on national economic downturn, customers' failure to disclose vital information during the loan application process and lack of an aggressive debt collection policy.

⁹⁹ Counterparty is a party to any legal contract.

¹⁰⁰ An issuer is a party offering securities for sale to investors.

¹⁰¹ See Nelson M. Waweru's & Victor M Kalani's article, (2009), *Commercial Banking Crises in Kenya, Causes and Remedies*, African Journal of Accounting, Economics, Finance and Banking Research Vol. 4. No. 4. 2009, p2, available at http://globip.com/pdf_pages/african-vol4-article2.pdf, (last accessed 14th October 2010).

With e-banking opening new opportunities for Kenyan banks to sell their loan products using technologically advanced methods, the lack of clear guidelines on credit transactions using these methods leaves the banks more exposed to credit risk.

Interest Rate Risk: This risk is associated with earnings or capital arising from fluctuation of interest rates. It arises from the following: differences between the timing of rate changes and the timing of cash flows; changing rate relationships among different yield curves affecting bank activities; from changing rate relationships across the spectrum of maturities; and from interest-related options embedded in bank products. E-banking can attract deposits, loans, and other relationships from a larger pool of possible customers than the traditional forms of banking. This leads to greater access to customers who primarily seek the best interest rate or terms, leading to the elevation of interest rate risk. This would then call for firms to maintain appropriate asset and liability management systems, including the ability to react quickly to changing market conditions.¹⁰²

With intake of e-banking by Kenyan banks, deposits have increased to beyond a Trillion shillings.¹⁰³ With the subsequent licensing of Credit Reference Bureau (CRB) Africa¹⁰⁴, there is bound to be greater access to loans to e-banking customers. These customers will hold out for the best interest rates, and due to lack of proper regulation on interest rates in relation to e-banking customers, the banks will be more exposed to interest rate risk.

¹⁰² See OCC, *supra*, note 90, p. 8.

¹⁰³ See Business Daily, (2009), *Deposits hit Sh. 1 Trillion at Kenyan Banks*, available at <http://www.nation.co.ke/business/news/-/1006/814072/-/hfs1m9z/-/index.html>, (last accessed 12th October 2010). Total deposits rose to Sh1 trillion as at the end of September 2009.

¹⁰⁴ *Ibid*, p. 2.

Liquidity risk: This is the risk to earnings or capital arising from a bank's inability to meet its obligations when they come due, without incurring unacceptable losses. It is normally attributed to failure to manage unplanned changes in funding resources. It also arises from the failure to address changes in market conditions affecting the ability of the bank to liquidate assets quickly and with minimal loss in value. E-banking, increases deposit volatility from customers who maintain accounts solely on the basis of rate or terms. Firms ought to increase monitoring liquidity and changes in deposits and loans depending on the volume and nature of Internet account activities.¹⁰⁵

Despite the introduction of e-banking, bank assets grew by 11 per cent in the year ended September 30 2009, to Sh. 1.31 trillion.¹⁰⁶ These assets are mainly fixed, thus cannot be easily liquidated with minimal loss. E-banking in Kenya characterized by volatile customers, in search for value and will easily withdraw their deposits, should they lack value.¹⁰⁷ Therefore, the lack of a regulatory regime on liquidity for firms engaged in e-banking leaves such firms exposed to liquidity risk, when customers would demand all their monies at once.

Price risk: Due to expanded deposit brokering, loan sales or securitization programmes as a result of e-banking, banks and other firms offering e-banking services are exposed to price risk.¹⁰⁸ This is the risk to earnings or capital arising from changes in the value of traded

¹⁰⁵ See OCC, *supra*, note 90, p. 8.

¹⁰⁶ See Business Daily, *supra*, note 103, p. 1.

¹⁰⁷ See Murungi, *supra*, note 85, p. 4.

¹⁰⁸ See OCC, *opcit*, p. 9.

portfolios of financial instruments. It arises from market making, dealing, and position taking in interest rate, foreign exchange, equity, and commodities markets.¹⁰⁹

In the Kenyan situation, the increased levels of deposits brought about by e-banking may encourage banks to apply these deposits more on loans, deposit brokering and securitization programmes, which will ultimately expose the banking industry to price risk.

Foreign exchange risk: This risk occurs when a loan or portfolio of loans is denominated in a foreign currency or is funded by borrowings in another currency.¹¹⁰ Banks and other firms may be exposed to foreign exchange risk if they accept deposits from non-Kenyan residents or create accounts denominated in currencies other than Kenyan shillings. E-banking increases this risk as banks will enter into multi-currency credit commitments that permit borrowers to select the currency they prefer to use in each roll-over period. The situation can worsen if one of the currencies involved becomes subject to stringent exchange controls or is subject to wide exchange-rate fluctuations.

In Kenya, enterprises operating in Export Promotion Zones (EPZ), are permitted to hold foreign currency accounts with authorized local banks.¹¹¹ Further, according to CBK Guidelines on Foreign Exchange,¹¹² foreign currency accounts may be opened and operated by Kenyan

¹⁰⁹ *Ibid.*

¹¹⁰ See OCC, *supra*, note 90, p. 9.

¹¹¹ See Peter J. Quirk, (1995), *Issues in International Exchange and Payments Systems*, IMF, p70, available at http://books.google.co.ke/books?id=fcUjRujvzt4C&pg=PA64&lpg=PA64&dq=foreign+currency+accounts+in+banks+in+Kenya&source=bl&ots=cZk00GSnF-&sig=39eXmYJ3sz7jXK39kAls49uMJ98&hl=en&ei=1MC3TLftJ4Sh4QbZ19z9CQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CBsQ6AEwAA#v=onepage&q=foreign%20currency%20accounts%20in%20banks%20in%20Kenya&f=false, (last accessed 12th October 2010).

¹¹² These are available at http://www.centralbank.go.ke/downloads/acts_regulations/foreignexchangeguidelines.pdf, (last accessed 12th October 2010).

residents and non-residents and the accounts may be allowed to overdraw in accordance with banking practice.¹¹³ These would be common in an e-banking environment

Though the Kenyan shilling is the most stable and strongest currency in east Africa, it still suffers from instability and keeps changing value in comparison with foreign currencies.¹¹⁴ The fluctuations in exchange rates for the Kenyan shilling put banks at risk of making huge losses in foreign currency accounts. Loss may also be incurred in the form of fraud in currency conversions in transfers among various accounts.¹¹⁵ It is thus arguable that lack of proper e-banking regulation covering foreign currency accounts makes Kenyan banks susceptible to foreign currency risk.

3.4 Transactional or Operational Risk

This risk involves all risks that originate directly in business operations.¹¹⁶ The Comptrollers Handbook¹¹⁷ defines it as risk to the current and prospective earnings and capital arising from fraud, error, and the inability to deliver products or services, maintain a competitive position, and manage information.¹¹⁸ This risk arises from fraud, processing errors, system disruptions, or other unanticipated events, which hamper the institution's ability to deliver products or services.

¹¹³ *Ibid*, p. 8.

¹¹⁴ See The Standard Newspaper, (5th February, 2008), *Impact of Declining Exchange Rate On the Economy*, available at <http://allafrica.com/stories/200802050400.html>, (last accessed 10th October 2010).

¹¹⁵ See The Standard online edition, (7th September 2010), *By Mere Change of Currency Symbol, He Became a Millionaire*, available at <http://www.standardmedia.co.ke/InsidePage.php?id=2000017898&cid=4>, (last accessed 10th October 2010). Here, one Boniface Mwangi fraudulently transferred Ksh. 388,400 from Co-operative bank Kimathi Street, but it reached his foreign currency KCB Moi Avenue account as \$ 388,400.

¹¹⁶ See Deutsche Bundesbank's December 2000 monthly report, *Electronic Banking From A Prudential Supervisory Perspective*, p. 10 available at http://www.bundesbank.de/download/volkswirtschaft/mba/2000/200012mba_art03_ebanking.pdf, (last accessed 13th October 2010).

¹¹⁷ See OCC, *supra*, note 90, p9.

¹¹⁸ *ibid*.

This risk exists in each product and service offered. The structure of the institution's processing environment, including the types of services offered and the complexity of the processes and supporting technology determines the level of transaction risk. E-banking has the potential of increasing the complexity of the institution's activities which would be synonymous with the quantity of its transaction or operations risk especially if the institution is offering un-standardized innovative services. Attacks or intrusion attempts (which are mostly rather internal than external due to the knowledge of the systems) on banks' computer and network systems are a major concern especially in Internet banking.¹¹⁹

In 2010, there was a wave of cybercrime in Kenya targeting e-banking products.¹²⁰ The fraudsters used a malicious computer programme that hides on home computers to steal confidential passwords and account details from at least 3,000 people. The CBK March 2010 supervision report¹²¹ indicated that commercial banks are losing an average of KSh. 100 million to fraudsters every month. Further, incidence of banking fraud rose to three per cent of total financial transactions in 2009, from 0.5 per cent five years ago. This is mainly attributed to increased bandwidth that came with fibre connectivity and increased use of technology by banks.

The above developments; coupled with lack of proper e-banking regulation against cybercrime leaves e-banking service providers in Kenya exposed to high transactional/operational risks. In

¹¹⁹ See OCC, *supra*, note 90, p. 9.

¹²⁰ See Business Daily (19th August, 2010), *Banks Upgrade Systems to Stop Cyber Criminals*, available at <http://allafrica.com/stories/201008180972.html>, (last accessed on 9th October 2010).

¹²¹ See Business Daily, (2nd March, 2010), *Banks Fight to Secure Customer Deposits from Cyber Criminals*, available at <http://www.businessdailyafrica.com/Company%20Industry/-/539550/871390/-/t2touoz/-/index.html>, (last accessed on 15th October 2010).

the past two years, the Kenyan banks have invested more than Sh. 20 billion in security solutions meant to safeguard their clients from cyber attacks, mainly targeting new product lines such as online banking, card businesses and e-commerce channels.¹²² There is still further investment needed on security features, with global e-banking service providers moving from the usual two mode security.¹²³ Most service providers are adopting three pronged security features by adopting the biometric method; which requires personal transactions and use of body parts, for instance thumbs, so as to authenticate transaction details.¹²⁴

Such features will lead to increased operational costs, exposing e-banking service providers to higher operational/transactional costs.

3.5 Compliance Risk

It is also referred to as the legal risk. This is the risk to earnings or capital arising from violations of, or nonconformance with, laws, rules, regulations, prescribed practices, or ethical standards.¹²⁵ It is prevalent in e-banking due to the rapid growth in the usage of e-banking and the differences between electronic and paper-based processes. Being a new delivery channel, the laws and rules governing the electronic delivery of certain products or services of financial institution may be ambiguous, untested or still evolving.¹²⁶

¹²² *Ibid.*

¹²³ This mode only involves the use of passwords and Personal Identification Numbers (PIN).

¹²⁴ For a more detailed discussion on biometric method, see Business Daily, *supra*, note 120, p. 1.

¹²⁵ See OCC, *supra*, note 119, p. 11.

¹²⁶ This study has in fact established that such laws and rules are ambiguous in Kenya.

Firms that offer e-banking services and product are highly exposed to compliance risk because of the changing nature of the technology, the speed at which errors can be replicated, and the frequency of regulatory changes to address e-banking issues. Compliance risk exposes institutions to the dangers of fines, civil money penalties, payment of damages, and the voiding of contracts. It can also lead to diminished reputation, reduced franchise value, limited business opportunities, reduced expansion potential, and lack of contract enforceability.¹²⁷

In Kenya, the only aspect of e-banking that is currently regulated is agency banking.¹²⁸ However, since Finance Act 2009 ammended the Banking Act to allow for agency banking in January this year (2010), this system has not kicked off yet. This is because agency banking is a new concept and players seem to fear compliance risks associated with it. Further, the guidelines set rigorous procedures for approval to be an agent and this is again for only one year renewable basis.¹²⁹

E-banking, in general, is also at the nascent stages in Kenya and has not fully picked and thus any service providers willing to engage in it are breaking ‘virgin territory’ where they remain largely exposed to compliance risk.

3.6 Reputational Risk

This is the current and prospective impact on earnings and capital arising from negative public opinion.¹³⁰ A firm’s decision to offer e-banking services, especially the more complex

¹²⁷ See FFIEC, *supra*, note 40, p. 18.

¹²⁸ This is regulated by *CBK guidelines on Agent banking*, available at <http://www.centralbank.go.ke/downloads/bsd/GUIDELINE%20ON%20AGENT%20BANKING-CBK%20PG%2015.pdf>, (last accessed 10th October 2010).

¹²⁹ *Ibid*, Section 2.6.

¹³⁰ See OCC, *supra*, note 90, p. 13.

transactional services, significantly increases its level of reputation risk. It affects the firm's ability to establish new relationships or services or continue servicing existing relationships.

E-banking influences a firm's reputation risk in the following ways: loss of trust due to unauthorized activity on customer accounts; disclosure or theft of confidential customer information to unauthorized parties; failure to deliver on marketing claims; failure to provide reliable service due to the frequency or duration of service disruptions; customer complaints about the difficulty in using e-banking services and the inability of the institution's help desk to resolve problems; and confusion between services provided by the financial institution and services provided by other businesses that are linked with the website.

This risk is related to customer's fluctuations in confidence. Trust by the customer in any e-banking service or product is necessary to perform any banking transactions. This trust can, however, be quickly lost if the e-banking service or product cannot provide a secure, trouble free e-banking experience.¹³¹ A firm's reputation can be tainted by e-banking services that are poorly executed or otherwise alienate customers and the public.¹³²

This risk is largely increased for banks using the Internet. The Internet allows for the rapid dissemination of information which means that any incident, either good or bad, will be known within a short space of time. The response by banks and regulators to such incidents would not be adequate due to the speed of the Internet.¹³³

¹³¹See OCC, *supra*, note 90, p. 13.

¹³²*ibid.*

¹³³See Deutsche Bundesbank, *supra*, note 116, p. 13.

Of utmost consideration is the fact that one firm's problem can translate to the whole industry in the sense that it affects the confidence of the customers in the whole sector.

In Kenya, e-banking has suffered attacks on its reputation due to the security breaches witnessed in the sector. One paper even reports that e-banking has, "increased security risks two-fold, at times exposing hitherto isolated systems to open and risky environments."¹³⁴ Such alarming reports without much re-assurance from the regulatory body, that is CBK, have painted e-banking as a sector with bad reputation; with many depositors shying away from adapting the method in Kenya.

If the situation is left to continue unabated; without legal measures to address security breaches and restore confidence in this noble idea; the entire e-banking sector continues to be susceptible to high reputation risks.

3.7 Security/ Systemic Risk

These types of risks are defined as the macro prudential implications of e-banking.¹³⁵ Adoption of e-banking increases incidences of security risks, by exposing isolated systems to open and risky environments. Security breaches are generally categorized into three groups: First, breaches with serious criminal intent including fraud, theft of commercially sensitive or financial information; second breaches by casual hackers including defacement of web sites or denial of

¹³⁴ See Business Daily, (9th February 2010), *Technology Brings Security Risks*, available at <http://allafrica.com/stories/201002081750.html>, (last accessed 10th October 2010). The article further alleges that in the first half of 2009, the banking industry lost an estimated Sh456.3 million through fraud and Sh186.7 million in attempts.

¹³⁵ See OCC, *supra*, note 90, p. 13.

service that cause web sites to crash; and third, flaws in systems design and set up leading to security breaches including genuine users accessing or being able to transact on other users' accounts.¹³⁶

Regardless of the category, these breaches may lead to serious financial, legal and reputational implications.

This study has highlighted in earlier sections on the prevalence of security breaches and the amounts of money lost by banks as incidence of such breaches.¹³⁷ Therefore, should these risks not be addressed by developing a proper regulatory framework to tackle them, they it will leave the entire e-banking sector exposed to high security risks which may turn to be systemic at some point.

3.8 Conclusion

The risks discussed above pose a danger to the whole banking sector. The firms that offer e-banking services and their customers are the most affected. The firms may be sued for any breaches or lose their reputation as far as the public is concerned. Customers may lose their money in case of any breaches.

Though the uptake and incorporation of e-banking has been slow, it is now picking up with the introduction of M-kesho. In addition, there is still a large population of unbanked people in the

¹³⁶ See Business Daily, *supra*, note 134, p. 2.

¹³⁷ *Ibid.* Also see Business Daily, *supra*, note 120.

rural areas, which implies that there is still potential for increased uptake of e-banking. This creates an urgent need for developing an appropriate regulatory system for e-banking.

This study therefore calls for optimum regulation of the industry bearing in mind the technological complexity of the sector and the fact that it is prone to unforeseen developments. Legislation in the form of prescriptive rules will not be adequate in regulating the sector due to unforeseen developments. An alternative principle-based regulation would be more adequate for e-banking regulation in Kenya. The next chapter therefore delves into how principles ought to be formulated and suggest the principles that should be adopted.

4 CHAPTER FOUR: ADDRESSING E-BANKING RISKS IN KENYA THROUGH A PRINCIPLE BASED REGULATORY SYSTEM

4.1 Introduction

Technological innovation in banking has made a wide variety of banking products and services become available to customers through an electronic distribution channel that is collectively referred to as e-banking. However, the rapid development of e-banking capabilities carries risks as well as benefits as observed in Chapter Three. Such risks ought to be recognized, addressed and managed by banking institutions in a prudent manner according to the peculiarities of challenges posed by e-banking services and the products they offer.¹³⁸

This chapter proposes the most adequate way of addressing these risks. As observed in chapter two above, the current legal framework is largely inadequate as far as addressing all the aspects of the e-banking services and products offered is concerned exposing the whole of the banking sector to the risks discussed in Chapter Three.

In Kenya, the current rule-based approach is inappropriate to, fully and adequately; regulate the e-banking sector due to unique characteristics of the sector. These characteristics include: the unprecedented speed of change related to technological and customer service innovation; the ubiquitous and global nature of open electronic networks; the integration of e-banking

¹³⁸ See Basel Committee on Banking supervision and Risk Management (July 2003), *Principles for Electronic Banking*, p. 11, available at http://docs.google.com/viewer?a=v&q=cache:0kTtmhtEAJ4J:www.bis.org/publ/bcbs98.pdf+e-banking+risks&hl=en&gl=ke&pid=bl&srcid=ADGEESinWlzQTo00EXKVfP9823TalBssTDJQVF_sKpmJpootPjJYOSgpfVPBgTJHF_5_TXIgPpPkheargWzP91-xHZ8gLO2ue7yWF3-SE_AbqjEAGPxdzDw6TRV-5gQB1DNhSC9IInD&sig=AHIEtbSk4HeeRMhGykWnKIfRYrAMoSdC_Q

applications with legacy computer systems; and the increasing dependence of banks on third parties that provide the necessary information technology¹³⁹

The Basel Committee¹⁴⁰ notes that setting detailed risk management requirements in the area of e-banking might be counter-productive. This is because there is a likelihood of the rules being obsolete due to the speed of change related to technological and customer service innovation. The Committee emphasizes that the rules; which attempt to set specific technical solutions or standards relating to e-banking; are not appropriate for e-banking regulation at all. Technical solutions are to be addressed by institutions and standard-setting bodies as technology evolves. A more appropriate approach to regulating this sector would therefore be a principle-based regulatory approach.

4.2 Principle Based Approach

Principle-based regulation is the placing of greater reliance on principles. It is also the emphasis on outcome focused, high-level rules and less reliance on the prescriptive rules.¹⁴¹ It is the shifting from the reliance on detailed prescriptive rules and relying more on high level “principles” to set the standards by which the regulated firms should conduct business.¹⁴² It is focused on broad based regulations and outcome based regulations.

Therefore in relation to e-banking, it means asking the senior management of firms to adhere to a group of principles but not giving them prescriptive advice on how to do the same as they know

¹³⁹ See Deutsche Bundesbank, *supra*, note 116, p. 9.

¹⁴⁰ See Basel Committee, *supra*, note 9.

¹⁴¹ See FSA, *Supra*, note 30, p. 16.

¹⁴² See Herbert Smith, *supra*, note 32, p. 8.

their business better than anyone.¹⁴³ The regulator would be tasked with the duty of formulating principles and ensuring that they are observed.

4.3 Factors to be Considered in Formulating a Principle-based regulatory system for E-banking.

This section will focus on how the regulator is to formulate or what is to be considered when coming up with the principles to govern the e-banking sector. There are two fundamental considerations:

4.3.1 Risk assessment in e-banking

The regulator should formulate principles that will ensure that the management of e-banking offering institutions takes risk assessment of e-banking as an integral part of the firm's risk management systems. These principles ought to ensure that the risk management policies and processes, the relevant internal controls and audits as required in the firm's risk management system are enforced and carried out appropriately in relation to the institution's e-banking services and products. In addition, these principles should ensure that the firm's risk management controls and systems are modified and enhanced to cope with the ever-changing risk management issues associated with e-banking.¹⁴⁴

4.3.2 Risk Management in e-banking

The regulator should formulate policies that will ensure e-banking institutions have a technology risk management process to enable them to identify, measure, monitor, and control their

¹⁴³ See Ronald Gould, *supra*, note 10, p. 5.

¹⁴⁴ See Central Bank of Bahamas, *supra*, note 97, p. 1.

technology risk exposure. The regulator's objective is to determine whether a firm is operating its e-banking business in a safe manner.

Risk management of new technologies has three essential elements: first, the planning process for the use of the technology; second, implementation of the technology; and third, the means to measure and monitor risk¹⁴⁵

4.4 Proposed regulatory principles for electronic banking in Kenya

In consideration of the above factors, the following section will propose some principles that could form guidelines for the regulator to come up with more effective principles for the regulation of e-banking activities.

4.4.1 Principle 1: Effective management oversight

As a result of the unique characteristics of e-banking, new e-banking projects may have a significant impact on the bank's risk profile. This therefore calls for a review of strategy. The management should take an appropriate strategic cost reward analysis. The management of the institutions should therefore develop effective management oversight on the risks associated with e-banking activities including policies and controls to manage these risks.

The management should ensure that the firm does not enter into new e-banking businesses or adopt new technologies unless it has the necessary expertise to provide competent risk management oversight. In other words, the management and staff expertise should be

¹⁴⁵See OCC, *supra*, note 90, p. 15.

commensurate with the technical nature and complexity of the bank's e-banking applications and underlying technologies. An evaluation of the firm's existing risk management policies and processes should be done to adjust them to cover the new risks posed by current or planned e-banking activities. This can be more effective if the risk management processes for its e-banking activities are integrated into the overall risk management approach of the firm.¹⁴⁶

4.4.2 Principle 2: Review and approval of the key aspects of the firm's security control process

The management should ensure development and continued maintenance of a security control infrastructure that properly safeguards e-banking systems and data from both internal and external threats. This is a daunting task due to the unprecedented continuous change of e-banking environment. Complex security risks associated with operating over the public Internet network and use of other innovative technologies are responsible for these changes. To counter this, the management ought to assign explicit staff the responsibility of overseeing the establishment and maintenance of corporate security policies. It should ensure sufficient physical controls to prevent unauthorized physical access to the computing environment.

In Kenya, most of the existing e-banking service providers have resorted to use of multiple access codes for identification and verification purposes. These codes are kept secret by the customer, which should not disclose to anyone; including the service providers' staff. The service providers only intervene to deactivate the codes if notified of a security breach alert.¹⁴⁷

¹⁴⁶See OCC, *supra*, note 90, p. 15.

¹⁴⁷ For a detailed example, see Equity Bank, *Rules and Regulations of Internet Banking*, available at <https://ebanking.equitybank.co.ke/corp/web/L001/corporate/jsp/common/terms.htm> (last accessed 14th October 2010).

However, the principle may be developed further to incorporate Biometric devices, which are an advanced and more accurate form of authentication.¹⁴⁸ Further, firewalls¹⁴⁹ should be recommended to protect internal systems of e-banking from unauthorized external interference.

In summary, sufficient logical controls and monitoring processes should be put in place to prevent unauthorized internal and external access to e-banking applications, databases and ensure regular review and testing of security measures and controls.¹⁵⁰

4.4.3 Principle 3: Comprehensive due diligence and management oversight process for outsourcing relationships and other third-party dependencies

Increased reliance upon partners and third party service providers' such as mobile phone service providers to perform critical e-banking functions lessens bank management's direct control. This leads to an increase of the risks associated with outsourcing and other third-party dependencies.

Therefore, the management of e-banking service providers should be tasked with developing a comprehensive process for managing the risks associated with third-party activities of partners and service providers. These activities include the sub-contracting of outsourced activities that may have a material impact on the bank. The management oversight of outsourcing relationships and third-party dependencies should specifically focus on ensuring that the bank fully understands the risks associated with entering into an outsourcing or partnership arrangement for its e-banking systems or applications.

¹⁴⁸ Authentication devices under this mode may take the form of a retina scan, finger or thumb print scan, facial scan, or voice print scan.

¹⁴⁹ These are a combination of hardware and software, placed between two networks through which all traffic must pass, regardless of the direction of flow. They provide a gateway to guard against unauthorized individuals gaining access to the bank's network.

¹⁵⁰ *Ibid.*

At present, e-banking service providers outsource some of the functions as they develop their products. An example is the recently launched M KESHO savings account by Equity Bank. Though M KESHO accounts are held in a server owned, hosted and operated by Equity Bank, Safaricom and Equity jointly own the logo and have developed a joint marketing strategy with joint funding.¹⁵¹ Due to the ease of availability of mobile phones, which provides a vast grassroots network in the rural unbanked areas, many e-banking service providers are outsourcing some components of their services to mobile phone service providers. Another example is agreements between banks and Kenswitch and Pesapoint ATM service providers. There is thus need to address risks related to outsourcing.

This principle should be couched in a way that ensures that appropriate due diligence review of the competency and financial viability of any third-party service provider or partner is conducted prior to entering into any contract for e-banking services. There should also be contractual accountability from all parties in the outsourcing or partnership relationship. It is also important that all outsourced e-banking systems and operations are subject to risk management, security and privacy policies that meet the bank's own standards. Finally, appropriate contingency plans for outsourced e-banking activities should be put in place.¹⁵²

¹⁵¹ For a more detailed discussion, see *Mobile Money for the Unbanked, MKESO In Kenya*, available at <http://mmublog.org/africa-east/m-kesho-in-kenya/>, (last accessed 13th October 2010).

¹⁵² See Basel Committee on Banking Supervision, (2001), *Risk Management Principles for Electronic Banking*, available at <http://www.bis.org/publ/bcbs82.pdf>, (last accessed on 13th October 2010).

4.4.4 Principle 4: Authentication¹⁵³

As far as Internet banking is concerned, banks ought to confirm that a particular communication, transaction or access request is legitimate. This calls for banks to respond appropriately and authenticate the identity and authorization¹⁵⁴ of customers with whom it conducts business over the Internet. Reliable methods for verification of the identity and authorization of both new and established customers seeking to initiate electronic transactions should be used. Banks should have formal policies and procedures identifying appropriate methodology that will ensure that the bank properly authenticates the identity and authorization of an individual, agent or system by means that are unique and, as far as practical, exclude unauthorized individuals or systems.

4.4.5 Principle 5: Non-repudiation and data and transaction integrity

This is proving the origin or delivery of electronic information to protect the sender against false denial by the recipient that the data has been received or to protect the recipient against false denial by the sender that the data has been sent.¹⁵⁵ These firms should therefore use transaction authentication methods that promote non-repudiation and establish accountability for e-banking transactions. Accordingly, firms should ensure that e-banking systems are designed to reduce the likelihood that authorized users will initiate unintended transactions and that customers fully understand the risks associated with any transactions they initiate. All parties to the transaction should be positively authenticated and adequate control is maintained over the authenticated

¹⁵³ *Authentication* refers to the techniques, procedures and processes used to verify the identity and authorization of prospective and established customers. Also refer to discussion on Authentication devices, *Supra*, footnote 148.

¹⁵⁴ *Authorization* refers to the procedures, techniques and processes used to determine that a customer or an employee has legitimate access to the bank account or the authority to conduct associated transactions on that account.

¹⁵⁵ Also see Murungi (2008), *Legal Recognition of Electronic Evidence; A Guide to Bank it Managers*, available at http://michaelmurungi.blogspot.com/2008/04/legal-recognition-of-electronic_21.html, (last accessed 13th October 2010).

channel. financial transaction data should be protected from alteration and any alteration should be detectable.¹⁵⁶

4.4.6 Principle 6: Data and transaction integrity

This principle provides that information that is in-transit or in storage should not be altered without authorization of the customer. Banks should ensure that appropriate measures are in place to protect the data integrity of e-banking transactions, records and information. E-banking transactions should therefore be conducted in a manner that makes them highly resistant to tampering throughout the entire process. E-banking records should be stored, accessed and modified in a manner that makes them highly resistant to tampering. E-banking transaction and record-keeping processes should be designed in a manner as to make it virtually impossible to circumvent detection of unauthorized changes.

This can be achieved in the Kenyan System through recommending firewalls for e-banking networks and also having proper back-up systems to assist in trailing transactions.

There should be adequate change control policies, including monitoring and testing procedures for protection against any e-banking system changes that may erroneously or unintentionally compromise controls or data reliability. Any tampering with e-banking transactions or records should be detected by transaction processing, monitoring and record keeping functions.¹⁵⁷

¹⁵⁶See Basel Committee, *supra*, note 154, p. 13.

¹⁵⁷ *Ibid.*

4.4.7 Principle 7: Segregation of duties

This is separation of duties such that no one individual or department completes on transaction in entirety. This is a basic internal control measure designed to reduce the risk of fraud in operational processes and systems and ensure that transactions and company assets are properly authorized, recorded and safeguarded. Banks should ensure that appropriate measures are in place to promote adequate segregation of duties within e-banking systems, databases and applications. Segregation ensures accuracy and integrity of data and prevents the perpetration of fraud by an individual. Banks should modify the ways in which segregation of duties are established when dealing with e-banking services because transactions take place over electronic systems where identities can be more readily masked or faked.

Banks should therefore ensure that transaction processes and systems should be designed to ensure that no single employee or outsourced service provider could enter, authorize and complete a transaction. Segregation should be maintained between those initiating statistic data and those responsible for verifying its integrity. E-banking systems should be tested to ensure that segregation of duties cannot be bypassed and segregation should be maintained between those developing and those administrating e-banking systems.¹⁵⁸

4.4.8 Principle 8: Authorization controls

Strict control authorization and access privileges by banks should be done in order to maintain segregation of duties. Proper authorization controls and access privileges should be put in place for e-banking systems, databases and applications. Failure to do this could allow individuals to

¹⁵⁸ *Ibid.*

alter their authority, circumvent segregation and gain access to e-banking systems, databases or applications to which they are not privileged. Authorization and access rights can be established in either a centralized or distributed manner within a bank and are generally stored in databases. Protection of those databases from tampering or corruption is therefore essential for effective authorization control.¹⁵⁹

4.4.9 Principle 9: Maintenance of e-banking audit trails in Kenya

Enforcing internal controls and maintaining clear audit trails should be central focus of those firms offering e-banking services especially Internet banking as it is difficult due to the delivery channels used. These firms should therefore ensure that clear audit trails exist for all e-banking transactions. Firms should not only ensure that effective internal control can be provided in highly automated environments, but also that the control can be independently audited, particularly for all critical e-banking events and applications. If these trails are not well maintained the internal control is set to suffer because most of these records are electronically kept. Specifically, clear audit trails should be maintained the following types of e-banking transactions: opening, modification or closing of a customer's account, transactions with financial consequences, authorization allowing a customer to exceed a limit and granting, modification or revocation of systems access rights or privileges.¹⁶⁰

4.4.10 Principle 10: Confidentiality of key bank information in Kenya

Confidentiality can be said to be the assurance that key information remains private to the bank and is not viewed or used by those unauthorized to do so. Measures have to be taken that are

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

commensurate with the sensitivity of the information being transmitted and/or stored in databases to preserve the confidentiality of bank information. A bank can be exposed to both reputation and legal risk in case of misuse, abuse or unauthorized disclosure of data.

E-banking increases the exposure of information transmitted over the public network or stored in databases. This is because the information may be accessible by unauthorized or inappropriate parties or used in ways the customer providing the information did not intend. E-banking has also led to increased use of service providers who may expose key bank data to other parties.

Banks therefore need to ensure that all confidential bank data and records are only accessible by duly authorized and authenticated individuals, agents or systems. All confidential bank data are maintained in a secure manner and protected from unauthorized viewing or modification during transmission over public, private or internal networks, the bank's standards and controls for data use and protection must be met when third parties have access to the data through outsourcing relationships. Finally, the access to restricted data be logged and appropriate efforts are made to ensure that access logs are resistant to tampering.¹⁶¹

4.4.11 Principle 11: Appropriate disclosures for e-banking services

Kenyan banks should ensure that adequate information is provided in their websites to allow customers to make informed conclusions about the identity and regulatory status of the bank before they enter into e-banking transactions. This will help the bank to avoid the legal and reputational risks. The necessary information to be provided includes: name of the bank and the location of its head, modalities of how customers can contact the bank's customer service centre

¹⁶¹ *Ibid.*

regarding service problems, complaints, suspected misuse of accounts, among others, accessibility and the applicability of Ombudsman or consumer complaint scheme and accessibility to information on applicable national compensation or deposit insurance coverage and the level of protection that they afford or links to websites that provide such information.¹⁶²

4.4.12 Principle 12: Privacy of customer information in Kenya

This is a key responsibility for Kenyan banks. In case of breach, it exposes a bank to both legal and reputation risk. Banks, in light of the advent of e-banking, should therefore ensure that bank's customer privacy policies and standards take account of and comply with all privacy regulations and laws applicable to the jurisdictions to which it is providing e-banking products and services. They should also ensure that customers are made aware of the bank's privacy policies and relevant privacy issues concerning the use of e-banking products and services. The customers should also be given the opportunity to prevent the bank from sharing with a third party for cross-marketing purposes any information about the customer's personal needs, interests, financial position or banking activity. Finally, the bank should ensure that customer data are not used for purposes beyond which they are specifically allowed or for purposes beyond which customers have authorized.¹⁶³

4.4.13 Principle 13: Capacity, business continuity and contingency planning to ensure availability of e-banking systems and services.

This principle is aimed to protect banks against business, legal and reputation risks. E-banking services must be delivered on a consistent and timely basis in accordance with customer expectations. Accordingly, banks must have the ability to deliver e-banking services to

¹⁶² *Ibid.*

¹⁶³ *Ibid.*

customers from either primary or secondary sources.¹⁶⁴ It is difficult to maintain continued availability of e-banking services as its systems and applications can be considerable given the potential for high transaction demand, especially during peak time periods.

Banks should therefore ensure that the current e-banking system capacity and future scalability are analyzed in light of the overall market dynamics for e-commerce and the projected rate of customer acceptance of e-banking products and services. E-banking transaction processing capacity estimates should be established, stress tested and periodically reviewed. Of importance is that appropriate business continuity and contingency plans for critical e-banking processing and delivery systems are in place and regularly tested.¹⁶⁵

4.4.14 Principle 14: Incident response planning

This is critical in order to minimize operational, legal and reputational risks arising from unexpected events such as internal and external attacks that may affect the provision of e-banking systems and services. Appropriate incident response plans, including communication strategies that ensure business continuity, control reputation risk and limit liability associated with disruptions in their e-banking services, including those originating from outsourced systems and operations should be developed. The response plans should have the ability to address recovery of e-banking systems and services under various scenarios, businesses and geographic locations. Mechanisms that would identify an incident or crisis as soon as it occurs, assess its materiality, and control the reputation risk associated with any disruption in service should be developed.

¹⁶⁴*Primary sources* include internal bank systems and applications while *secondary sources* include systems and applications of service providers.

¹⁶⁵*Ibid* note 21.

There should also be a clear process for alerting the appropriate regulatory authorities in the event of material security breaches or disruptive incidents occur. Incident response teams having the authority to act in an emergency should be sufficiently trained in analyzing the incident detection or response systems and interpreting the significance of related output. There should be a clear chain of command, encompassing both internal as well as outsourced operations, to ensure that prompt action is taken appropriate for the significance of the incident. A process to ensure all relevant external parties, including bank customers, counterparties and the media, are informed in a timely and appropriate manner of material e-banking disruptions and business developments should also be put in place.

Finally, there should be a process for collecting and preserving forensic evidence to facilitate appropriate reviews of any e-banking incidents as well as to assist in the prosecution of attackers.

5 CHAPTER FIVE: SUMMARY AND CONCLUSION

5.1 Summary of findings

The banking sector in Kenya has been transformed by the technological advancement in the ICT sector. The delivery of products and services by banks and other financial institutions in Kenya has been revolutionized. This has been made possible by the advent of electronic banking. Delivery of services and products by these institutions has been made faster, convenient and cheaper. Financial institutions, businesses and individuals are able to access accounts, transact business and also obtain information on financial products through a public or private network.¹⁶⁶ It became unnecessary for a customer to visit the actual business premises to access its services and products. It therefore effectively replaced the brick and mortar form of banking.

These developments ought to be adequately regulated by the state. The state should ensure that the potential customers and other stakeholders in the sector are protected. This is necessary because many of these services and products are novel in the Kenyan market. Many potential customers and investors would be exposed to risks that may end up with them losing their deposits and investments. The banks offering these services are also not spared as they also face risks of being sued and loss of reputation that will have significant impact on their current and potential customer base.

In Kenya, e-banking is not adequately regulated. The laws currently in place regulating banking do not adequately cover the regulation of e-banking. These laws include: the Banking Act,¹⁶⁷ the

¹⁶⁶See FFIEC, *supra*, note 40, p. 10.

¹⁶⁷Cap 488 of the Laws of Kenya.

Central Bank of Kenya Act,¹⁶⁸ the Bills of Exchange Act,¹⁶⁹ the Kenya Communications (amendment) Act of 1988, and the Proceeds of Crime and Anti-money Laundering Act of 2009. The definition of bank and banking business¹⁷⁰ in the Banking Act does not include any aspect of e-banking as it only relates to the traditional mode of banking. The Bill of Exchange Act recognizes paperless negotiable instruments¹⁷¹ a position that is contradicted by the Kenya Communications (amendment) Act of 1988.¹⁷² The Proceeds of Crime and Anti-money Laundering Act of 2009 defines a financial institution to include an institution issuing and managing means of payment (such as credit and debit cards, cheques, travellers cheques, money orders and bankers drafts, and electronic money).¹⁷³ In effect, this means that the provisions of the Act cover the institutions that offer e-banking services and products. However, as far as regulating the e-banking sector the provisions of the Act are not sufficient as far as transactions that make it impossible to identify the actors until the end of the same. Internet banking is a good example. It is clear that there is no specific law in Kenya that regulates e-banking.

This has led to the exposure of the banking sector to the risks associated with un-regulated or under-regulated banking. These risks are strategic risk, business risk, operational or transactional risk, reputational risk and compliance security. Strategic risk is the current and prospective impact on earnings or capital arising from adverse business decisions, improper implementation

¹⁶⁸Cap 491 of the Laws of Kenya.

¹⁶⁹Cap 27 of the Laws of Kenya.

¹⁷⁰Section 2.

¹⁷¹Through an amendment by the Kenya Finance Bill 2009, the Bill of Exchange Act was amended and the phrase cheque truncation given the meaning of a system of cheque clearing and settlement between banks based on electronic data or images or both electronic data and images, without the conventional physical exchange of instruments. This in turn has led to the recognition of paperless cheques.

¹⁷²Kenya Information and Communications Act, 1998 through an amendment introduced in January 2009, expressly excludes negotiable instruments from the class of documents that can legally exist in paper.

¹⁷³Section 2.

of decisions, or lack of responsiveness to industry changes.¹⁷⁴ Poor e-banking planning and investment decisions can increase a financial institution's strategic risk.

Business risks are old risks with which banks and supervisors have considerable experience. As far as e-banking is concerned caution ought to be taken as old risks can visit in new guises. Business risks include credit risk, interest rate risk, liquidity risk, price risk and foreign exchange risk. Given the newness of e-banking, nobody knows much about whether e-banking customers will have different characteristics from the traditional banking customers. This could render the existing score card models inappropriate, thus resulting in either higher rejection rates or inappropriate pricing to cover the risk.

Operational or transactional risk involves all risks that originate directly in business operation.¹⁷⁵ It is the risk to the current and prospective earnings and capital arising from fraud, error, and the inability to deliver products or services, maintain a competitive position, and manage information. E-banking has the potential of increasing the complexity of the institution's activities which would be synonymous with the quantity of its transaction or operations risk especially if the institution is offering un-standardized innovative services. Attacks or intrusion attempts (which are mostly rather internal than external due to the knowledge of the systems) on banks' computer and network systems are a major concern especially in Internet banking.

Compliance risk is the risk to earnings or capital arising from violations of, or nonconformance with, laws, rules, regulations, prescribed practices, or ethical standards. It also referred to as legal

¹⁷⁴See *supra* 105.

¹⁷⁵Electronic Banking From A Prudential Supervisory Perspective, Deutsche Bundesbank Monthly report December 2000.

risk. Firms that offer e-banking services and products are highly exposed to compliance risk because of the changing nature of the technology, the speed at which errors can be replicated, and the frequency of regulatory changes to address e-banking issues.

Reputational risk is the current and prospective impact on earnings and capital arising from negative public opinion. E-banking can influence a firm's reputation risk in the following ways: loss of trust due to unauthorized activity on customer accounts; disclosure or theft of confidential customer information to unauthorized parties; failure to deliver on marketing claims; failure to provide reliable service due to the frequency or duration of service disruptions; customer complaints about the difficulty in using e-banking services and the inability of the institution's help desk to resolve problems; and confusion between services provided by the financial institution and services provided by other businesses that are linked with the website.

Security risk is the macro prudential implications of e-banking.¹⁷⁶ E-banking increases security risks by exposing isolated systems to open and risky environments. This risk can expose the bank to serious financial, legal and reputational implications.

Therefore a proper regulatory approach has to be devised to regulate e-banking in Kenya in order to curb these risks. There are two major regulatory approaches: rule-based approach and principle-based approach. The regulatory approach in Kenya currently is entirely rule based. It consists of legislation and prescriptive rules. This study however does not approve this approach as most effective in regulating e-banking. This is because enactment of new legislation and amendment to the existing ones will not offer the requisite solution due to the snail speed of the

¹⁷⁶See Central Bank of Bahamas, *supra*, note 97, p1.

process. This is because of technicalities of procedure, on the one hand, and the unprecedented fast technological development in the sector, on the other hand.

5.2 Summary of recommendations

The study therefore proposes a principle-based approach. In relation to e-banking in Kenya, principle based approach is the formulation by the regulator-the Central Bank of Kenya- of a few principles that will govern the sector. The regulator is then to ensure that these principles are not violated. This approach is more adequate because it will ensure that almost all aspects if not all aspects of e-banking are regulated. Principle-based regulation ensures a large plane easily adaptable to future unforeseeable developments in the sector.

The study therefore proposes the following principles as guidelines for regulating the sector. The first is *effective management oversight*. It obligates the management of the institutions to develop effective management oversight on the risks associated with e-banking activities including policies and controls to manage these risks.

The second is *review and approval of the key aspects of the firm's security control process*. The management should ensure development and continued maintenance of a security control infrastructure that properly safeguards e-banking systems and data from both internal and external threats.

The third is *comprehensive due diligence and management oversight process for outsourcing relationships and other third-party dependencies*. This essentially tasks the management with

comprehensive process for managing the risks associated with outsourcing encompassing third-party activities of partners and service providers, including the sub-contracting of outsourced activities that may have a material impact on the bank is necessary.

The fourth is *authentication* where the management is expected to take appropriate measures to authenticate the identity and authorization of customers with whom it conducts business over the Internet.

The fifth is *non-repudiation and data and transaction integrity*. This is essentially proving the origin or delivery of electronic information to protect the sender against false denial by the recipient that the data has been received or to protect the recipient against false denial by the sender that the data has been sent.

The sixth is *data and transaction integrity*. This means information that is in-transit or in storage should not be altered without authorization of the customer. Banks should ensure that appropriate measures are in place to protect the data integrity of e-banking transactions, records and information. E-banking transactions should therefore be conducted in a manner that makes them highly resistant to tampering throughout the entire process.

The seventh is *segregation of duties*. This is separation of duties such that no one individual or department completes on transaction in entirety. This is a basic internal control measure designed to reduce the risk of fraud in operational processes and systems and ensure that transactions and company assets are properly authorized, recorded and safeguarded. Banks should ensure that

appropriate measures are in place to promote adequate segregation of duties within e-banking systems, databases and applications.

The eighth is *authorization controls*. Strict control authorization and access privileges by banks should be done in order to maintain segregation of duties. Proper authorization controls and access privileges should be put in place for e-banking systems, databases and applications.

The ninth is *maintenance of e-banking audit trails in Kenya*. Enforcing internal controls and maintaining clear audit trails should be central focus of those firms offering e-banking services especially Internet banking as it is difficult due to the delivery channels used. These firms should therefore ensure that clear audit trails exist for all e-banking transactions.

The tenth is *confidentiality of key bank information*. Measures have to be taken that are commensurate with the sensitivity of the information being transmitted and/or stored in databases to preserve the confidentiality of bank information.

The eleventh is *appropriate disclosures for e-banking services*. Banks should ensure that adequate information is provided in their websites to allow customers to make informed conclusions about the identity and regulatory status of the bank before they enter into e-banking transactions.

The twelfth is *privacy of customer information in Kenya*. Banks, in light of the advent of e-banking, should therefore ensure that bank's customer privacy policies and standards take

account of and comply with all privacy regulations and laws applicable to the jurisdictions to which it is providing e-banking products and services.

The thirteenth is *capacity, business continuity and contingency planning to ensure availability of e-banking systems and services*. E-banking services must be delivered on a consistent and timely basis in accordance with customer expectations. Accordingly, banks must have the ability to deliver e-banking services to customers from either primary or secondary sources.

The fourteenth is *incident response planning*. Appropriate incident response plans, including communication strategies that ensure business continuity, control reputation risk and limit liability associated with disruptions in their e-banking services, including those originating from outsourced systems and operations should be developed. The response plans should have the ability to address recovery of e-banking systems and services under various scenarios, businesses and geographic locations.

5.3 Conclusion

Electronic banking is fast becoming popular in the banking industry because transactions can be carried out faster and in a safe and secure manner. Furthermore, advanced technologies provide banks with valuable help because traditional legacy systems have hindered the prompt delivery of banking services and the integration of customer information. The number of commercial banks providing electronic banking services stood at 33 out of the 44 banks as at December 31,

2009.¹⁷⁷ In addition, 19 banks out of the 33 banks, offer electronic overseas money transfer services in collaboration with various international money transfer agents.¹⁷⁸

The study, thus, recommends adoption of a principle-based regulatory system, which will effectively cover all the major aspects of e-banking sector. This adoption will facilitate smooth adoption and uptake of e-banking in Kenya.

¹⁷⁷ See CBK, (2009), *Bank Supervision report*, available at www.centralbank.go.ke/downloads/bsd/.../bsd2009.pdf, (last accessed 13th October 2010).

¹⁷⁸ *Ibid.*

BIBLIOGRAPHY

PRIMARY SOURCES

Acts of Parliament

Banking Act, Chapter 488 of the Laws of Kenya

Bill of Exchange Act, chapter 27 of the Laws of Kenya

Central Bank of Kenya Act, Chapter 491 of the Laws of Kenya

Kenya Communications Act, 1998

The Kenya Communications (Amendment) Act, 2008

Proceeds of Crime and Anti-Money Laundering Act, 2008

Parliamentary Bills

Finance Bill, 2009

Anti-Terrorism Bill

Draft Bills

Draft Electronic Funds Transfer Bill

Draft National Payment System Bill

Subsidiary legislation

CBK Prudential Guidelines for Institutions Licensed under the Banking Act, 2006

SECONDARY SOURCES

Reports and Articles

Adel Aladwani, (2001), *Online Banking: A Field Study of Drivers, Development Challenges, and Expectations*, *International Journal of Information Management*, available at linkinghub.elsevier.com/retrieve/pii/S0268401201000111 (last accessed 10th August 2010).

Alliance for Financial Inclusion (AFI), *Enabling mobile money transfer; The Central Bank of Kenya's treatment of M-Pesa*, available at www.afi-global.org/en/phoca-publications-case-studies?download...2, (last accessed 13th October 2010).

Bank of International Settlements (BIS), *Electronic Banking Group Initiatives and White Papers* (2000), available at <http://www.bis.org>.(last accessed on 16th August 2010).

Basel Committee on Banking supervision, *Risk Management Principles for Electronic Banking*, (2003), available at http://docs.google.com/viewer?a=v&q=cache:0kTtmhtEAJ4J:www.bis.org/publ/bcbs98.pdf+e-banking+risks&hl=en&gl=ke&pid=bl&srcid=ADGEESinWlzQTo00EXKVfPf9823TalBssTDJQVF_sKpmJpootPjJYOSgpfVPBgTJHF_5_TXIgPpPkheargWzP91-xHZ8gLO2ue7yWF3-SE_AbqjEAGPxdzDw6TRV-5gQB1DNhSC9lInD&sig=AHIEtbSk4HeeRMhGykWnKIfRYrAMoSdC_Q, (last accessed on 16th August 2010).

Sergeant Carole, (2000), *E-banking: Risks and Responses*, Financial Services Authority, available at <http://www.fsa.gov.uk/Pages/Library/Communication/Speeches/2000/sp46.shtml>, (last accessed on 17th August 2010).

Catalin, (2002), *E-banking in Transition Economies: the Case of Romania*, available at www.palgrave-journals.com/fsm/ (last accessed 12th June 2010).

Central Bank of Bahamas, (2006), *Guidelines for Electronic Banking*, available at <http://www.centralbankbahamas.com/download/E-Banking.pdf> (last accessed 6th October, 2010).

Central Bank of Kenya, *Prudential Guidelines for Institutions Licensed under the Banking Act*, Available at <http://www2.centralbank.go.ke/downloads/publications/guides/pguides/prud-guidelines.pdf>. Last accessed on 2nd September 2010.

CBK, (2004), *Kenya Payment System; Framework and strategy*, available at http://www2.centralbank.go.ke/downloads/nps/nps_framework.pdf, (last accessed on 13th October 2010).

Central Bank of Kenya, (2003), *Payment Systems in Kenya*, available at <http://www.centralbank.go.ke/downloads/nps/nps%20old/psk.pdf>, (last accessed on 17th August 2010).

Consultative Group to Assist the Poor (CGAP) (2010), *Update on the Regulation of E-banking in Kenya*; available at http://www.cgap.org/gm/document-1.9.42400/Updated_Notes_On_Regulating_Branchless_Banking_Kenya.pdf, (last accessed 15th August 2010).

Carse David, (1999), *The Regulatory Framework of E-Banking*, Hong Kong Monetary Authority, available at www.info.gov.hk/hkma/eng/.../speech_081099ba.pp, p11, (last accessed on 11th October 2010).

Family Health International (FHI), *Qualitative Research Methods Overview*, available at <http://www.fhi.org/nr/rdonlyres/etl7vogszehu5s4stpzb3tyqlpp7rojv4waq37elpbyei3tgmc4ty6dunbccfzxtaj2rvbaubzmq4f/overview1.pdf> (last accessed 9/08/2010).

Financial Sector Deepening (FSD) Kenya (2007), *Kenya's Payment Market: Identifying an Enabling Environment for Government to Person Transfers Through the Banking Sector*, available at http://www.fsdkenya.org/pdf_documents/opportunities/G2P_Report_Final.pdf, (last accessed 13th October 2010).

Financial Services Authority (FSA), (2007), *Principle Based Regulation: Focusing on Outcomes That Matter*, available at www.fsa.gov.uk/pubs/other/principles.pdf, (last accessed 20th September 2010).

Derringer Freshfields Bruckhaus, (2007), *FSA Principle based regulation; What should Firms be doing Differently?* Available at <http://www.freshfields.com/publications/pdfs/2007/17593.pdf>, (last accessed 25th September 2010).

Smith Herbert, (2007), *Principle based regulation- In principle and in practice*, available at <http://www.herbertsmith.com/NR/rdonlyres/1EA2E1A0-B64C-4F20-8719-7DA072C0AE28/3731/5924PBRBrochureD3.pdf>, (last accessed 10th October 2010).

Awuondo Isaac, (2006); *E-banking in Kenya: Practical Lessons to be Drawn*, Strathmore University, Nairobi. 9th September 2006. Seminar Paper, Available at http://webcache.googleusercontent.com/search?q=cache:z79Yv98yH5UJ:www.strathmore.edu/pdf/ict06/ebanking_in_kenya.ppt+forms+of+e-banking&cd=1&, (last accessed on 24th August 2010).

Kilonzo Kethi D, "*An analysis of the legal challenges posed by electronic banking*"; available at http://www.kenyalaw.org/Downloads_Other/kilonzo_electronic_banking.pdf, (last accessed on 16th August 2010).

Macharia Kahuro, (2010), *Technology brings security risks*, Business Daily, Nairobi, 9th February 2010, available at <http://allafrica.com/stories/201002081750.html>, (last accessed on 17th August 2010).

Michael M Murungi seminar paper, (2009), *Electronic Cash; Time for a Paradigm Shift in E-commerce Legislation*, available at <http://www.strathmore.edu/pdf/ict09/e-cash.pdf>, (last accessed 13th October 2010).

Nathan L, (1998), *Community Banks are going online*, available at econpapers.repec.org/.../y_3a1999_3ai_3afall_3ap_3a2-8.htm, (last accessed 12th September 2010). An estimated cost providing the routine business of a full service branch in USA was \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM (Automatic Teller Machine) banking and 1.5 cents for Internet banking.

Nelson M. Waweru's & Victor M Kalani's article, (2009), *Commercial Banking Crises in Kenya, Causes and Remedies*, African Journal of Accounting, Economics, Finance and Banking Research Vol. 4. No. 4. 2009, available at http://globip.com/pdf_pages/african-vol4-article2.pdf, (last accessed 14th October 2010).

Options Clearing Corporation (OCC), (1999), *Internet Banking; Comptroller's Handbook*, available at <http://www.occ.treas.gov/handbook/intbank.pdf>, (last accessed 14th October 2010).

Paul H, Ziad R Project Report, (2001), *Internet Banking: Disruptive or Sustaining Technology?* Harvard Business School, Boston, MA, p15, available at <http://www.ziadrphael.com/ebanking>, (last accessed on 12th October 2010).

Peter J. Quirk, (1995), *Issues in International Exchange and Payments Systems*, IMF, p70, available at http://books.google.co.ke/books?id=fcUjRujvzt4C&pg=PA64&lpg=PA64&dq=foreign+currency+accounts+in+banks+in+Kenya&source=bl&ots=cZk00GSnF-&sig=39eXmYJ3sz7jXK39kAls49uMJ98&hl=en&ei=1MC3TLftJ4Sh4QbZ19z9CQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CBsQ6AEwAA#v=onepage&q=foreign%20currency%20accounts%20in%20banks%20in%20Kenya&f=false, (last accessed 12th October 2010).

Richard Nyangosi, *E-Banking: An Integration Technology in Kenya*, available at <http://www.africanexecutive.com/modules/magazine/articles.php?article=3296>, (last accessed on 13th October 2010).

Ronald Gould conference paper (2007), *Financial Regulation; Flattering Misconceptions*, AEI, available at www.aei.org/event1483/, (last accessed 20th September 2010).

Stephen NduatiMwura, (2006), *Expanding Financial Services to the Poor: The Role of ICT and Regulatory Challenges*, available at http://docs.google.com/viewer?a=v&q=cache:guNWZslgaB8J:www.infodev.org/en/Document.77.pdf+regulation+of+e+banking+in+kenya.&hl=en&gl=ke&pid=bl&srcid=ADGEESgb_bSr9aoBWq2sqnUxtPGtoY4_QTRg8bqJt1ivtrfKZE-v8XFXt1ZmK6bIBVPMOREPsLYturs8A023DWXmdp6LcpmxYRvGI10Xzpzjg-xH3YEK5WbBbIjxQW5CXP5m48-42esj&sig=AHIEtbQNlzKPbD5ErTF_ZKqy1vOhz9v5zA, (last accessed on 17th August 2010).

Newspaper Articles

The Standard Newspaper, (5th February, 2008), *Impact of Declining Exchange Rate On the Economy*, available at <http://allafrica.com/stories/200802050400.html>, (last accessed 10th October 2010).

Business Daily, (2009), *Deposits hit Sh. 1 Trillion at Kenyan Banks*, available at <http://www.nation.co.ke/business/news/-/1006/814072/-/hfs1m9z/-/index.html>, (last accessed 12th October 2010). Total deposits rose to Sh1 trillion as at the end of September 2009.

Business Daily, (19th August, 2010), *Banks Upgrade Systems to Stop Cyber Criminals*, available at <http://allafrica.com/stories/201008180972.html>, (last accessed on 9th October 2010).

Business Daily, (2nd March, 2010), *Banks Fight to Secure Customer Deposits from Cyber Criminals*, available at <http://www.businessdailyafrica.com/Company%20Industry/-/539550/871390/-/t2touoz/-/index.html>, (last accessed on 15th October 2010).

Business Daily, (9th February 2010), *Technology Brings Security Risks*, available at <http://allafrica.com/stories/201002081750.html>, (last accessed 10th October 2010).

Websites

<http://www.businessdailyafrica.com/Company%20Industry/-/539550/871390/-/t2touoz/-/index.html>

http://www.kenyalaw.org/Downloads_Other/kilonzo_electronic_banking.pdf,

www.aei.org/event1483/

<http://www.fhi.org/nr/rdonlyres/etl7vogszehu5s4stpzb3tyqlpp7rojv4waq37elpyei3tgmc4ty6dunbccfzxtaj2rvbaubzmz4f/overview1.pdf>

http://webcache.googleusercontent.com/search?q=cache:z79Yv98yH5UJ:www.strathmore.edu/pdf/ict06/ebanking_in_kenya.ppt+forms+of+e-banking&cd=1&

<http://www.africanexecutive.com/modules/magazine/articles.php?article=3296>

<http://allafrica.com/stories/201008180972.html>

<http://www.standardmedia.co.ke/InsidePage.php?id=2000017898&cid=4>

<http://allafrica.com/stories/200802050400.html>

<http://www.nation.co.ke/business/news/-/1006/814072/-/hfs1m9z/-/index.html>

http://globip.com/pdf_pages/african-vol4-article2.pdf

<http://www.centralbankbahamas.com/download/E-Banking.pdf>

[http://www.info.gov.hk/hkma/eng/.../speech_081099ba.](http://www.info.gov.hk/hkma/eng/.../speech_081099ba)

<http://www.ziadrphael.com/ebanking>

<http://www.occ.treas.gov/handbook/intbank.pdf>

<http://www2.centralbank.go.ke/downloads/publications/guides/pguides/prud-guidelines.pdf>

<http://www.strathmore.edu/pdf/ict09/e-cash.pdf>

http://www2.centralbank.go.ke/downloads/nps/nps_framework.pdf

www.afi-global.org/en/phoca-publications-case-studies?download...2

[http://www.fsa.gov.uk/pubs/other/principles.pdf,](http://www.fsa.gov.uk/pubs/other/principles.pdf)

[http://www.bis.org.](http://www.bis.org)

www.palgrave-journals.com/fsm/

[http://www.econpapers.repec.org/.../y_3a1999_3ai_3afall_3ap_3a2-8.htm,](http://www.econpapers.repec.org/.../y_3a1999_3ai_3afall_3ap_3a2-8.htm)