

**“THE REGULATION OF VIRTUAL CURRENCIES IN KENYA”**

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**DECLARATION**

I, SAMORA MARSHEL, declare that this thesis is my own original work and that it has not been submitted for examination for the award of a degree at any other university.

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This thesis has been submitted for examination with my approval as university supervisor.

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## **ABSTRACT**

This study focussed on the application of virtual currencies in Kenya. It examined the attendant challenges to the application of virtual currencies in Kenya absent a regulatory framework that recognises and adopts the use of virtual currencies in Kenya. The research looks into the technical operations of virtual currencies within the globalized economy and the merits and demerits associated with their use. The study relied on desktop research to analyse both the local laws and foreign laws on payment systems. It found merit in the recognition and adoption of virtual currencies. It further demonstrated that one of the best practices that Kenya can adopt is with regards to aligning the regulatory framework so that it can support the recognition of virtual currencies instead of viewing virtual currencies as a replacement or alternative to fiat currencies; rather, virtual currencies can find duty in their use as payment systems or store of wealth. Ultimately, the legal recognition and adoption of virtual currencies aims at the facilitation of commercial transactions globally without negatively exposing the unsuspecting members of the public.

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## **LIST OF ABBREVIATIONS**

APTCP – Act on the Prevention of Transfer of Criminal Proceeds  
ASIC – Australian Securities and Investments Commission  
ATMs – Automated Teller Machines  
AUSTRAC – Australian Transaction Reports and Analysis Centre  
CBK – Central Bank of Kenya  
DHS – Department of Homeland Security  
DOJ – Department of Justice  
EU – European Union  
FATCA – Foreign Account Tax Compliance Act, 2010  
FATF - Financial Action Task Force  
FinCen – Financial Crimes Enforcement Network  
ICOs – Initial Coin Offerings  
IOCTA – Internet Organised Crime Threat Assessment  
IP – Internet Protocol  
IRS – Internal Revenue Service  
KEPSS – Kenya Electronic Payment and Settlement System  
POCAMLA – Proceeds of Crimes and Anti-Money Laundering Act  
RTGS – Real Time Gross Settlement  
TPA – Trade Practices Amendment  
USA – United States Dollars  
USD – United States Dollars



## **LIST OF STATUTES**

1. National Payments Systems Act, No. 39 of 2011
2. Banking Act, Cap 488
3. Central Bank of Kenya Act, Cap 491
4. Companies Act, No. 17 of 2015
5. Proceeds of Crimes and Anti-Money Laundering Act, No. 9 of 2009
6. Foreign Account Tax Compliance Act, 2010
7. Income Tax Assessment Act, 1936 of Australia
8. Goods and Services Tax Act, 1999 of Australia
9. Fringe Benefits Tax Assessment Act, 1986 of Australia
10. Australian Securities and Investment Commission Act, 2001 of Australia
11. Trade Practices Amendment (Australian Consumer Law) Act, No. 2 of 2010

## 1.0 CHAPTER ONE: INTRODUCTION AND BACKGROUND

### 1.0. Background

In today's world, the increasingly globalized village buoyed by innovations in information technology has resulted in the emergence of virtual or digital currencies. The global financial system is fast transforming with the rapid advancement of information technology leading to innumerable yet invaluable developments in fintech. This has led to the creation of digitised assets and innovative financial systems, instruments, and channels resulting in new paradigms in financial transactions. The definition of money now transcends the traditional fiat currencies and incorporates emerging innovations in peer-to-peer software and analogous technology supported currencies to include mobile payments, digital currencies and virtual goods.<sup>1</sup>

Virtual currencies are digital representations of monetary value, and function as medium of exchange, unit of account, and/or a store of value, but these currencies do not have legal tender status.<sup>2</sup> The absence of a legal tender has resulted in debates in which some scholars have described virtual currencies as a contemporary type of private money.<sup>3</sup> Studies confirm the existence of over 1500 virtual currencies albeit with a few prominent ones of significant market turnover and capitalization.<sup>4</sup> A reliable market analysis consulting firm observes that as at 20 July 2018, the top five virtual currencies going by market capitalization (indicated below in brackets) in USD were as follows: bitcoin (USD 127,694,896,434), ethereum (USD 46,542,390,090), ripple (USD 18,034,536,483), bitcoin cash (USD 13,682,831,990), and EOS (USD 8,186,324,143).<sup>5</sup> Most virtual currencies are based on different technological innovations such as game theory, cryptography, and peer-to-peer networking.<sup>6</sup> Bitcoin, in particular, embraces the distributed ledger technology, a technical concept explained by the anonymous bitcoin inventor Satoshi Nakamoto in a seminal paper titled *Bitcoin: A Peer-to-Peer Electronic Cash System*.<sup>7</sup> In

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<sup>1</sup>Villasenor, J., Monk, and Bronk, C., 'Shadowy Figures: Tracking Illicit Financial Transactions in the Murky World of Digital Currencies, Peer-to-peer Networks, and Mobile Device Payments.' Brookings Institution.

<sup>2</sup> Financial Action Task Force Report, 'Virtual Currencies Key Definitions and Potential AML/CFL Risks.'

<sup>3</sup> Marek Dabrowski and Lukasz Janikowski, "Virtual Currencies and Central Banks monetary policy: challenges ahead." Monetary Dialogue. Retrieved

<sup>4</sup> Ibid.

<sup>5</sup> See Top 100 cryptocurrencies by market capitalization.

<sup>6</sup> Quaterly Bulletin Bank of England, "Innovations in payment technologies and the emergence of digital currencies."

<sup>7</sup> Satoshi Nakamoto, "Bitcoin: A peer to peer electronic case system."

this seminal paper, Satoshi presents bitcoin as a medium of exchange based on cryptographies and which is not regulated except by codes.<sup>8</sup> He introduces and describes bitcoin as an electronic payment system which is decentralized and operates without regulation by a government but relies on cryptographic proof and computational power. He further argues that it is practically impossible to disrupt or interfere with the bitcoin protocol because of the cryptographic proof of work.<sup>9</sup> The code used in governing the bitcoin network is open and accessible to anyone on the internet thus making the network a product of collaborations of millions of coders whose efforts collectively protect the integrity of the bitcoin technology.<sup>10</sup>

A brief history of cryptocurrencies in general and bitcoin, in particular, is warranted at this stage. Literature suggests that cryptocurrencies, as a type of private money, are informed and promoted by the lack of centralized control.<sup>11</sup> Cryptocurrencies by their nature are operated on a decentralized basis anchored on the decentralized ledger systems where different parties, the miners, have portions of control over the system.<sup>12</sup> It is still debatable whether all digital currencies qualify as cryptocurrencies and this study assumes the position that cryptocurrencies are just but one form of digital currencies, the latter comprised of other forms of currencies not based on cryptography. In a large part, cryptocurrencies, due to their decentralized nature, fall outside the province of state or similar regulatory control, possesses a global international character, and lack a legal tender status.<sup>13</sup> Bitcoin transactions are recorded in the format of a blockchain, which is a distributed/public database of all the recorded transactions, and is accessible to all the participants.<sup>14</sup> The majority of the people in the system verify all blockchain transactions through consensus.<sup>15</sup> Also, the system contains verifiable records of every transaction made through the system and the information can never be erased.<sup>16</sup> Bitcoin ranks top and has thereby attracted the most controversy among the virtual currencies system that uses the

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<sup>8</sup>Ibid.

<sup>9</sup> Ibid.

<sup>10</sup>Chowdhry, Amit, "Overstock.com Is Going To Accept Bitcoin in 2014." Forbes.

<sup>11</sup> Satoshi Nakamoto, "Bitcoin: A peer to peer electronic case system."

<sup>12</sup> Department of US Treasury, "Risks and vulnerabilities of virtual currency: cryptocurrency as a payment method."

See also Satoshi Nakamoto (n 9).

<sup>13</sup> FATF Report (n 2).

<sup>14</sup> Satoshi Nakamoto (n 11).

<sup>15</sup> Ibid.

<sup>16</sup>Blatchford, J., "Four ways Blockchain technology will change the world." 2015.

blockchain technology. Presently, it is estimated that bitcoin currency has resulted in a multi-billion market of anonymous transactions, but still lacks proper regulatory control.<sup>17</sup>

Bitcoin is among the first cryptocurrencies in the world, and it has attracted a quick adoption from consumers and speculators resulting in increased media attention. As a result, the price of bitcoin has been very volatile with \$1per bitcoin in 2011, \$1242 in 2013, and a fall to \$ 250 per bitcoin 2015. According to Coindesk despite the massive increase in adoption of bitcoin its market capitalisation is still relatively small compared to the United States Dollar (USD).<sup>18</sup> Other scholars, including Nobel laureate Paul Krugman, argue that bitcoin is an evil, gimmick and hype that cannot be successful.<sup>19</sup> On the other hand, other observers remain optimistic about bitcoin becoming a globally-acceptable currency. The division of thought suffices for countries as well; where some countries including Switzerland and Japan have embraced cryptocurrencies and are currently implementing regulatory measures to embed the use of cryptocurrencies in their economies.<sup>20</sup> Yet, other nations have taken a “wait-and-see” approach as their counterparts out rightly reject the use of cryptocurrencies with good reasons to be canvassed in this study.<sup>21</sup>

The development and uptake of cryptocurrencies is attributed to their related advantages namely, the decentralization, flexibility, transparency, low costs, and faster turn-around of transactions.<sup>22</sup> These features, currently absent in fiat currency, provide an impetus for the uptake and continued interest in cryptocurrencies. In addition, cryptocurrencies’ volatility is seen by some analysts, to make them a good candidate for investments for speculative purposes as investors make returns on investments when they buy and sell at appropriate time just like any other class of assets in the market.<sup>23</sup>

In Kenya, the Central Bank of Kenya (CBK) is a sole public institution mandated to regulate, issue, manage, and otherwise control currencies and analogous products within the Kenyan jurisdiction.<sup>24</sup> Presently, the CBK does not have and has not exercised any regulatory powers on

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<sup>17</sup> Ibid.

<sup>18</sup>Coindesk, “State of Bitcoin Q1 2015.”

<sup>19</sup>Krugman, Paul. “Bitcoin is evil,” 28 December 2013 New York Times.

<sup>20</sup> Marek Dabrowski and Lukasz Janikowski (n3).

<sup>21</sup> Ibid.

<sup>22</sup> David Chuen, Li Guo and Yu Wang, “Cryptocurrency: A New Investment Opportunity,” the Journal of Alternative Investments. (2017) Vol. 20(3) 16-40.

<sup>23</sup> Tu Keving and Meredith Michael, “Rethinking Virtual Currency Regulation in the Bitcoin Age,” Washington Law Review, (2015) 272-346.

<sup>24</sup> Central Bank of Kenya Act, Cap 491 Laws of Kenya. Sections 4 and 4A stipulate the objects of the Bank.

the use of virtual currencies in Kenya.<sup>25</sup> This study observes the need to address regulatory concerns surrounding the use of virtual currencies in Kenya especially after growing reports that Kenyan businesses are increasingly warming up to digital currencies especially the bitcoin albeit with concerns over its security and functionalities.<sup>26</sup>

Attendant to any market, competition has been known to foster the development of a wide variety of quality goods for consumers to choose from.<sup>27</sup> The relative success of bitcoin in the cryptocurrency economy has not been without competition. However, bitcoin still has a strong hold on the virtual economy as we know it. Currently, evidence points to the existence of more than 1500 “alternatives to bitcoins” also known as altcoins.<sup>28</sup> These have been developed to fill the gap left by bitcoins or to cure the inadequacies of bitcoins despite being modelled on the blockchain and cryptography technology as bitcoin.<sup>29</sup> These include the introduction of regulations such as the minimum spending and the different mining alternatives such proof of work and proof of stake. For instance, altcoins have introduced different monetary policies to curb against the hoarding of cryptocurrency such as the interest rates on hoarding cryptocurrencies.<sup>30</sup> Ethereum which is one of the most prominent of the altcoins is designed primarily for smart contracts and does not serve as a peer-to-peer currency like bitcoin.<sup>31</sup> This is despite the fact that it is also built on the blockchain technology. Litecoin, which is another prominent altcoin, is also developed on the same technology as bitcoin but only designed to process and clear out transactions faster than bitcoin.<sup>32</sup>

The valuation of altcoins, just like bitcoins, is based on altcoins’ ability to provide solutions to problems. Problem-solving altcoins gain high demand and funding from investors. Altcoins,

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<sup>25</sup> Banking Circular No. 14 of 2015 issued by the Central Bank of Kenya to all chief executives of commercial banks, mortgage finance companies and microfinance banks on 18 December 2015.

<sup>26</sup> Google, “Kenya’s Bitpesa : the next Bitcoin revolution for remittance?” July 2015.

<sup>27</sup> Hanna Halaburda and Neil Gandal, “Competition In The Cryptocurrency Market” [2014] SSRN Electronic Journal.

<sup>28</sup> Matthias Tarasiewicz and Andrew Newman, “Cryptocurrencies As Distributed Community Experiments” [2015] Handbook of Digital Currency.

<sup>29</sup> Ibid.

<sup>30</sup> Joseph Bonneau and others, “Sok: Research Perspectives And Challenges For Bitcoin And Cryptocurrencies” [2015] 2015 IEEE Symposium on Security and Privacy.

<sup>31</sup> Stavros Stavroyiannis, “Volatility Modeling And Risk Assessment Of The Major Digital Currencies” [2017] SSRN Electronic Journal.

<sup>32</sup> Ibid.

therefore, provide an avenue for innovators to develop software that can attract investors who will receive returns on their investments.<sup>33</sup>

“Bitpesa” is the first Kenyan virtual currency, and refers to an electronic payment service designed for the diaspora community to remit money to Kenya. In this case, the sender from the diaspora converts bitcoins into Kenya shillings and forwards the amount via mobile money services to the recipients.<sup>34</sup> Similarly, “kipochi” is another digital payment platform launched in collaboration with M-PESA to facilitate bitcoin transactions in Kenya.<sup>35</sup> Despite the virtual currencies gradually gaining traction and entering mainstream consumption in Kenya, there is lack of sufficient legal, regulatory and policy framework to create an enabling environment for its assured use and growth. Though some laws exist that are relevant for the regulation and licensing of payment systems, they have not been responsive to the challenges posed by the technological advancement in the fintech space generally and virtual currencies in particular in Kenya.

### **1.1 Statement of the Problem**

The CBK is the institution mandated to regulate virtual currencies in Kenya through monetary and fiscal policies.<sup>36</sup> The CBK does not virtual currencies legal tenders citing lack of regulations and authorised entities to offer money remittance services and products in the country through available platforms.<sup>37</sup> Furthermore, despite being the regulator and institution responsible for facilitating customer satisfaction in money transfer services by delivering secure and efficient services, the CBK has paid less attention to the economic and social contexts under which the virtual currencies operate.

It is evident that virtual currencies have gained widespread usage in Kenya especially with the proliferation of online transactions making it necessary to have regulatory and policy solutions to the challenges it poses. It is noteworthy that because of the decentralised and transnational nature of virtual currencies, some countries have made steps towards the municipal regulation of virtual currencies despite the latter’s international character. However, the CBK still lacks the regulatory

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<sup>33</sup> Xin Li and Chong Alex Wang, “The Technology And Economic Determinants Of Cryptocurrency Exchange Rates: The Case Of Bitcoin” (2017) 95 Decision Support Systems.

<sup>34</sup> Ibid.

<sup>35</sup> Braendgaard, P., “Kipochi launches first Bitcoin wallet in Africa with M-PESA integration.” July 2013.

<sup>36</sup> Central Bank of Kenya Act.

<sup>37</sup> Central Bank of Kenya Circular No. 14 of 2015.

powers on the use of virtual currencies in Kenya. This leaves a gap in the regulation of virtual currencies in Kenya, and the current study seeks to fill the gap by proffering proposals on reforms on virtual currencies' legal, regulatory and policy frameworks in Kenya. The study focuses on the need for a regulatory framework for the promotion and use of virtual currencies in Kenya in a manner that promotes financial inclusion, and consumer safety yet incorporating the information technology innovations developed globally within the fintech space.

## **1.2 Justification of the Study**

A regulatory framework for virtual currencies remains an alien concept in Kenya. The CBK and related agencies do exercise some form of regulatory control albeit outside a properly defined legal framework. Literature focusing on virtual currencies use in Kenya remains scarce. This is despite the considerable need for adequate regulatory control. This study explores the area of virtual currencies use in Kenya and in doing so, contributes to the literature gap in the Kenyan context. The study would hopefully be useful in the formulation of policy informing virtual currencies regulatory control in Kenya.

## **1.3 Statement of Objectives**

This study seeks to examine the need for the recognition of virtual currencies in Kenya and its attendant regulatory control in order to ensure protection of the Kenyan citizenry. The study also examines the usefulness of recognized virtual currencies towards promotion of financial inclusion in the Kenyan context. In addition, the study also identifies the gap that exists in the regulation of virtual currencies and highlights the best practices used by other countries.

## **1.4 Research Questions**

The research questions answered by the study include the following;

- a) Do Virtual Currencies qualify as alternative payment systems in Kenya?
- b) What challenges does Kenya face in efforts to regulate virtual currencies?
- c) What are the relevant international concepts and principles that Kenya can be adopted for its virtual currency regulatory framework?
- d) What legislative, policy and regulatory reforms are necessary to address the challenges faced by Kenya concerning virtual currencies?

## 1.5 Theoretical Framework

The study is anchored on one strand of economic regulation theory, that is, the public interest theory of regulation. According to Richard Posner, the government imposes regulation to satisfy public's demand for the eradication of inefficient and inequitable market prices.<sup>38</sup> In the ordinary business world, people have the tendency of exploiting the less informed, by taking advantage of information asymmetries, and hence this theory advocates the need for the protection of the public from market failures and abuses. The government represents the interest of the consumers or the general public as opposed to the private interests of the stakeholders.<sup>39</sup>

The public interest theory of regulation best fits this study by dint of the study's underlying public protection objective. The lack of legal regulatory and policy frameworks undergirding the use of virtual currencies poses significant challenges to their usage in Kenya. The absence of a proper regulatory framework subjects the users or traders of virtual currencies to operational, credit and liquidity risks coupled with the finality and irrevocability of virtual currencies transactions. Ultimately, regulation of virtual currencies will boost public confidence in their use, expand the tax base, support similar and related innovations in fintech, and possibly place Kenya in the map of global financial transactions.

The study is also in line with the free trade economy theory and the broad concept of regulation. This is to the effect that unregulated trade in most of the cases results in market failure and is considered harmful to the general public interest. It has been argued that to simultaneously achieve sustainable business and minimize market failures, meaningful levels of regulation are critical. Further, regulation is necessary to ensure that the market behaves in a manner that is protective of public interest.<sup>40</sup> According to proponents of this theory, correction of market failures provides the yardstick for assessing regulatory outcomes. As a result, these theorists advocate regulatory reforms rather than deregulation to facilitate efficient functioning of economies by ameliorating market failures.<sup>41</sup> Therefore this study applies the free trade economy theory to the extent that it examines the need for a regulatory framework that remains protective

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<sup>38</sup>Richard Posner, "Theories of Economic Regulation," *The Bell Journal of Economics and Management Science* (1974) 5 (2) 334-339.

<sup>39</sup>Arrow Kenneth, "The Potentials and Limits of the Market in Resource Allocation," in Feiwel, G.R. (ed.), *Issues in Contemporary Microeconomics and Welfare*. (1985) 107-124.

<sup>40</sup>Baldwin Robert, and Martin Cave, "Understanding Regulation: Theory, Strategy, and Practice," (1985) Oxford University Press.

<sup>41</sup>Steven Croley, "Theories of Regulation: Incorporating the Administrative Process," *Columbia Law Review*. (1998) 98 (1) 1-168, 70.



of the market participants with the regulator's main concern being the safety of the unsuspecting, consuming public.

The study also bears linkage to the diffusion of innovations theory; and takes the view that new ideas and technologies spread through cultures depending on the level of adopters. Adopters fall into the categories of innovators, early adopters, early majorities, late majorities, and laggards. The position is that technology spreads in different ways in various cultures and fields depending on the adopters identified above.<sup>42</sup> For instance, since its launch in 2009, bitcoin has increasingly garnered attention across the world and is touted as the future of international payment systems; and yet others observe that it is a powerful tool for money laundering, pyramid schemes, and store of illegal funds from law enforcement agencies. Some argue that it is impossible to regulate bitcoin since its invention was to have a peer to peer network facilitating payment without government interference. This study takes the position that Kenya should be an early adopter so as to assist the country to leverage its position as an international financial hub in the globalized economy.

To this end, to facilitate the use of virtual currencies, the formulation of enabling regulatory and policy framework remains critical, hence, the public interest theory ought to be the core guiding and anchoring theory. Under this theory, the CBK should be empowered with a proper regulatory framework whose implementation will occasion the protection of the general public interest and mitigate market failures.

## **1.6 Research Methodology**

This study mainly adopts secondary methods of data collection. It primarily focuses on textbooks, online/electronic articles, dissertations, peer-reviewed journals, online libraries, magazines, newspapers, reports from the internet, and other texts by authors on the regulation of virtual currencies in other jurisdictions. Secondly, the study assumes a doctrinal approach in the sense that it analyses legal principles, general legislative provisions and case law in understanding the adoption of virtual currencies in Kenya.

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<sup>42</sup>Mwangi Edwin, "Adoption of Bitcoin in Kenya, A Case Study of Bitpesa." (2014).

## 1.7 Literature Review

The regulation of virtual currencies in Kenya has not received much attention by various scholars. Granted, virtual currencies are a recent phenomenal and interest in the area is just picking up.<sup>43</sup> To this end, this research has reviewed literature on regulation of virtual currencies, the blockchain technology, and the underlying cryptographic protocols such as bitcoin from an international perspective. The review relies on research gathered from textbooks, online journals, newspapers, magazines and internet.

Bohme and others<sup>44</sup> observe that by March 2015, bitcoin had served circa 62.5 million transactions for approximately 109 million accounts. They note that the bitcoin rules were designed by engineers without the input of lawyers and regulators, thereby placing their operations outside the province of regulatory control and bureaucracies.<sup>45</sup> They point out the clear advantages of bitcoins to include the reward of honest participations, the enrichment of early adopters, and the guarding against concentrations of power through its unique decentralization system. However, they regret bitcoin's lack of a governance structure arguing that its difficulty in obtaining identities potentially exposes the system to violations of global anti-money laundering laws. Additionally, they decry the failure by bitcoin to prohibit its use as a payment system for otherwise globally prohibited substances thereby availing its use for illegal transactions.<sup>46</sup> This study observes that potential regulation of virtual currencies could bridge the gap brought forth by Bohme et al.

Chuen et al<sup>47</sup> discuss the emerging variants of bitcoins, collectively called altcoins. They observe that the proliferation of altcoins is informed by the identified disadvantages of bitcoins including the high usage of energy causes by bitcoin's proof of work and the price volatility that continues to characterize bitcoins. They observe that the greatest advantages of cryptocurrencies lies in their discharge of the high transaction fees and associated long settlement periods common to

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<sup>43</sup>Simon Barber, Xavier Boyen, Elaine Shi, and ErsinUzun "Bitter to Better — How to Make Bitcoin a Better Currency."

<sup>44</sup> Rainer Bohme and others, "Bitcoin: Economics, Technology, and Governance," *Journal of Economic Perspectives*. (2015) Vol. 29 No. 2 213-238).

<sup>45</sup> Edmund Mokhtarian and Alexander Lindgren, 'Rise of the Crypto Hedge Fund: Operational Issues and Best Practices for Emergent Investment Industry' (Social Science Research Network 2017) SSRN Scholarly Paper ID 3055979.

<sup>46</sup> Gareth William Peters, Efstathios Panayi and Ariane Chapelle, 'Trends In Crypto-Currencies And Blockchain Technologies: A Monetary Theory And Regulation Perspective' [2015] SSRN Electronic Journal.

<sup>47</sup> David Chuen, Li Guo and Yu Wang, "Cryptocurrency: A New Investment Opportunity," *the Journal of Alternative Investments*. (2017) Vol. 20(3) 16-40.

traditional fiat currency payments systems.<sup>48</sup> They laud bitcoin's approach of a peer-to-peer system that is devoid of centralized verification systems that would traditionally take the "power" away from the peers into a third party organ thereby attracting huge transaction fees.<sup>49</sup> They conclude by summarizing the advantages attendant to cryptocurrencies to include the decentralization, flexibility, transparency, low costs, and faster turn-around of transactions.<sup>50</sup>

Tu and Meredith<sup>51</sup> note the increased adoption of bitcoins citing the related service providers whose trade is anchored on the use of exchanges, banks, ATMs, wallets, and payment gateways to aid trade in bitcoins. They further note the additional use of bitcoins as an investment commodity for speculative investments due to bitcoin's potential to deliver a return on investments. They argue that in the USA, bitcoins fall outside the regulatory purview of the traditional payments systems regulatory framework instead urging for the application of a creative, non-traditional and more effective regulatory framework that captures the imperatives in the application of virtual currencies.<sup>52</sup>

Olga<sup>53</sup> notes the diversity in definition of virtual currencies among countries worldwide also noting the lack of legislative basis for the regulation of virtual currencies. She identifies the lack of responsible entity issuing bitcoins and its anonymity as sticking points for examination before embracing bitcoins.<sup>54</sup> She concludes by observing that bitcoins meet the economic definition of money but fails on the legal definition.<sup>55</sup> Her approach bears forth the explicit need for regulators to embrace bitcoins so as to give it the legal basis as a form of currency.

Niels<sup>56</sup> argues that the rise of mobile payments has led to increased use of virtual currencies among private market players and automated decentralized systems which create the need for consumer protection laws. He further argues that at the European Union level, the Payment

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<sup>48</sup> Christie Smith and Aaron Kumar, 'Crypto-Currencies - An Introduction to Not-So-Funny Moneys' [2018] Journal of Economic Surveys.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid.

<sup>51</sup> Kevin Tu and Michael Meredith (n 23).

<sup>52</sup> Ibid.

<sup>53</sup> Olga Belomyttseva, "Conceptual Framework for the Definition and Regulation of Virtual Currencies: International and Russian practices," Our Economy (2015) Vol. 61 No. 5.

<sup>54</sup> Gareth William Peters, Efstathios Panayi and Ariane Chapelle, 'Trends In Crypto-Currencies And Blockchain Technologies: A Monetary Theory And Regulation Perspective' [2015] SSRN Electronic Journal.

<sup>55</sup> Ibid.

<sup>56</sup> Niels Vandezande, "Between Bitcoins and mobile payments: will the European Commission's new proposal provide more legal certainty?" (2014) Volume 22, Issue 3, 295–310 International Journal of Law and Information Technology.

Services Directive<sup>57</sup> and E-money Directive<sup>58</sup> a legal regulatory framework for protecting consumers in mobile payments. However, the unclear scope of applicability usually leads to legal uncertainty. The Payment Services Directive provides the legal foundation for the integration of the internal market for electronic payments within the EU in turn providing comprehensive rules for payment services within the internal market. Also, the E-money Directive is instrumental to the extent that it outlines the rules on the running and supervision of electronic money institutions leading to the consolidation of e-money regulation within the European Union. He highlights various problems of regulation and attempts in formulating rules and policies on virtual currencies in Europe. He argues that the two directives do not make provision for financial market evolutions such as bitcoin in turn occasioning the European Commission's review of its regulatory framework so as to invite certainty on the use of virtual currencies.

Middlebrook and Hughes<sup>59</sup> discuss the developments relating to virtual currencies; and efforts taken by regulators and law enforcement agencies on alternative payment systems. They argue that the efforts towards regulation of virtual currencies were likely influenced by their growing usage, especially bitcoin; and that while the FinCEN Guidance (FinCen refers to the Financial Crimes Enforcement Network – an agency under the department of the treasury of the United States. The FinCEN Guidance addresses regulatory questions and queries arising out of the FinCEN regulations 31 of the USA<sup>60</sup>), does not specifically reference bitcoin, the applicable rules have attracted criticisms from bitcoin proponents. They argue that guidance was followed by two significant law enforcement actions. First, the Department of Homeland Security ("DHS") seized the funds owned by Mt. Gox, a major bitcoin exchange and, thereafter, the Department of Justice ("DOJ") indicted Liberty Reserve and its principals on charges of money laundering.<sup>61</sup>

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<sup>57</sup> Directive (EU) 2015/2366 of the European Parliament and the Council of 25 November 2015 on payment services in the internal market.

<sup>58</sup> Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

<sup>59</sup> Steven Middlebrook and Sarah Hughes, "Regulating Cryptocurrencies in the United States: Current Issues and Future Directions," *William Mitchell Law Review*. (2014). Vol. 40 Issue 2.

<sup>60</sup> FinCEN Guidance.

<sup>61</sup> *Ibid* (n 53).

Miller<sup>62</sup> argues that bitcoin is the most accepted and largest of the virtual currencies in the world and highlights some issues concerning its regulation embraces the European Central Bank's definition of a virtual currency as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community." He also cites the definition of a virtual currency from United States Department of Treasury as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency."<sup>63</sup> To this end, he concludes that the whole idea of creating bitcoin is to have a payment system that is not regulated; and for which its users adhere to peer-to-peer rules. However, he acknowledges the need to have some regulations due to the potential risks associated with bitcoin in addition to boosting public confidence.<sup>64</sup> There is need to strike a balance between the desire for privacy by bitcoin users; and the state's need for transparency and regulation.

According to Mario Giovanoli<sup>65</sup> though some laws exist that are relevant in the regulation of virtual currencies, those regulations have not been responsive to the challenges posed by technological advancement. He notes that no specific law or policy is addressing the use of virtual currencies. He argues that the classical international monetary system has been superseded by a fully-integrated global financial market and one effect of 'deregulation' has effectively been the dismantling of many of the barriers between different national financial markets, and also between the various segments of these markets.<sup>66</sup> He further argues that the law has not fully kept pace with this evolution, which is by no means complete, yet the concept of money and the relevant laws are still anchored largely on notions such as cash, exchange rate parities, and national monetary systems.

Turpin<sup>67</sup> analyzes the legal implications of virtual currencies and the reasons for state regulation. He argues that virtual currencies possess significant economic upside over traditional currencies and that governments should study these advantages and entertains necessary regulation. He proffers several reasons why governments should take notice of unregulated, virtual, and

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<sup>62</sup> Miller, M., "The Ultimate Guide to Bitcoin." (2015) Indiana: Pearson Education.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Giovanoli Mario, "Virtual Money and the Global Financial Market: Challenges for Lawyers", (1996) 1 Y.B. Int'l Fin. & Econ. L. 3.

<sup>66</sup> Ibid.

<sup>67</sup> Turpin, Jonathan B., "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." Indiana Journal of Global Legal Studies. (2014) Vol. 21: Issue 1, Article 13.

anonymous currencies which goes beyond the risk that unsuspecting members of the public and businesses may become victims of scammers and Ponzi schemes. Turpin goes further to argue that banks trading in conventional currencies are regulated throughout the world and, therefore, there is need for governments to regulated transactions conducted with virtual currencies.

Seetharaman et al<sup>68</sup> begin by appreciating the strong role the USD continues to play as the leading international fiat currency. However, they note the increasing competition posed by the Chinese Renminbi and the Euro to the USD's leading position. They proceed to observe that the challenges facing the international monetary policies seem to advantage the USD to maintaining its international hegemony.<sup>69</sup> They then venture to suggest that bitcoin has the potential to upstage the USD in the international playground because of among others, bitcoin's independence from the traditional monetary policies. They conclude that if bitcoin receives global regulatory acceptance then it would pose a real threat to the USD's leading position as the singular international currency.<sup>70</sup>

Boxerman and Schwerin<sup>71</sup> advocate the use of bitcoins and virtual currencies in general albeit within the applicable global regulatory framework. They observe that virtual currencies, subjected to misuse, could aid and facilitate illegalities due to the lack of transparency and ease of use in the darker world. They point to the Silk Road market that aided transactions in illegal drugs and other forms of money launderings using bitcoins. However, they conclude that used within the legal frameworks virtual currencies play a useful role even noting that some USA based law firms currently use bitcoins as an alternative payment system.<sup>72</sup> Their discussion builds on the usefulness and applicability of virtual currencies in the global financial system subject to proper regulation.

In Kenya, some literature on various aspects of regulation and licensing of domestic and international money transfer services is available. The lack of legal, regulatory and policy framework relating to virtual currencies pose challenges to the use of bitcoin in Kenya.

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<sup>68</sup> A Seetharaman, A Saravanan, N Patwa and J Mehta, "Impact of Bitcoin as a World Currency," *Accounting and Finance Research*. (2017) Vol. 6 No. 2.

<sup>69</sup> *Ibid*.

<sup>70</sup> David Christopher Vitt, 'Does Fiat-To-Bitcoin Exchange Activity Lead To Increased User-To-User Bitcoin Transaction Activity?' [2017] *SSRN Electronic Journal*.

<sup>71</sup> S Boxerman and M Schwerin, "Its bark is worse than its bit(e): Regulatory and Criminal Law Implications of Virtual Currency," *Criminal Justice*. (2017) Vol. 31 No. 4.

<sup>72</sup> *Ibid*.

According to Mwangi,<sup>73</sup> more people are increasingly using virtual currencies, but the volume of virtual currency transactions remains dwarfed by traditional electronic transactions and monetary currencies. He highlights the concerns of the use of bitcoins in illegal money transfers; and need for the protection of consumers and investors. He brings to the fore Kenya's first digital money service, bitpesa. Also, he gives some insights into kipochi which is basically a bitcoin wallet with M-PESA mobile money integration. Mwangi concludes that bitcoin is unregulated in Kenya with no regulation. He also outlines bitcoins may be handled to leverage on its advantages including the reduced costs of international funds transfers.<sup>74</sup>

The CBK has taken a cautious approach to the uptake of cryptocurrencies in Kenya. In a Banking Circular No. 14 of 2015, the CBK clarified that cryptocurrencies including bitcoin lacked a legal tender status in Kenya; and that no protection whatsoever would be availed by the government to any user of the cryptocurrencies.<sup>75</sup> On the other, the Ministry of Information, Communications and Technology has adopted an explorative approach to the use of distributed ledger technologies. In a gazette notice no. 2095 published on 9 March 2018, the Cabinet Secretary established a taskforce for the exploration and analysis of upcoming digital technologies whose terms of reference included the critical review of distributed ledgers and artificial intelligence technologies and the contextualization of the application of the said distributed ledgers and artificial intelligence technologies so as to facilitate among others single digital economy, financial inclusion and the sharing economy.<sup>76</sup> The taskforce is yet to table its report which would likely inform the ongoing debate on the use of the cryptographic technologies including cryptocurrencies, the position of the CBK notwithstanding.

In conclusion, the literature demonstrates the significant role virtual currencies play in the economies. Virtual currencies are an inevitable development with far reaching consequences for society. In that regard, acceptance and consequential regulation by the states would go deep in promoting innovative solutions to challenges present in the current economies.

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<sup>73</sup> Ibid.

<sup>74</sup> Ibid.

<sup>75</sup> Banking Circular No. 14 of 2015 issued by the Central Bank of Kenya to all chief executives of commercial banks, mortgage finance companies and microfinance banks on 18 December 2015.

<sup>76</sup> Kenya Gazette, Gazette Notice No. 2095 published on 9 March 2018.

## **1.8 Hypothesis**

The study's hypothesis is that there is greater need to have legal, regulatory and policy framework governing virtual currencies in Kenya. The CBK should be empowered with the regulatory tools anchored on a solid legal policy framework so as to promote the safe use of virtual currencies in Kenya. In that regard, the study advances the regulation of the use virtual currencies so as to boost public confidence and embed a functioning of virtual currencies system into the payments system architecture in Kenya and beyond.

## **1.9 Chapter Breakdown**

This study is organised into five chapters whose contents are briefly described as follows. Chapter one is the adapted research proposal, and it introduces the study by outlining the problem statement, research questions, hypotheses, justification of the study and the objectives that this research paper aspires to meet. In addition, it lays down the theoretical framework, the limitations of the study, the methodology employed and review of the available literature on the subject of the study.

Chapter two provides a detailed overview of how virtual currencies work, the blockchain technology and the underlying cryptographic protocols. It also discusses fundamental legal issues and challenges surrounding virtual currencies. These problems range from price volatility, authentication of transactions, privacy and confidentiality, security, taxation, enforcement and liability.

Chapter three identifies and analyses the relevant laws and legal provisions on regulation of alternative payment systems in Kenya. It also examines the challenges virtual currencies pose to the current legal and regulatory framework and makes use of case law and practical examples to illustrate these challenges. Further, it examines the regulatory mandate of the CBK and addresses the challenges posed by lack of laws on virtual currencies identified in the previous chapters.

Chapter Four reviews several case studies on the regulation of virtual currencies by drawing lessons from other jurisdictions around the world with the aim of affording a benchmarking framework on examining the effectiveness and adequacy of proposed regulations in addressing the identified challenges. It shall discuss international standards in addressing the challenges posed by virtual currencies and the role Kenya is expected to play.



Chapter Five gives conclusions and makes suggestions for the way forward in so far as regulation and the creation of an enabling legal environment for virtual currencies is concerned. In short, the legal and regulatory framework for virtual currencies in Kenya is found to be lacking and require urgent reforms.

## **2.0 CHAPTER TWO: VIRTUAL CURRENCIES**

### **2.1 Introduction**

Chapter one introduced the study generally with a specific discussion on the study's approach. Also, the literature review section in Chapter One broadly introduced virtual currencies and their roles in the global economy. Chapter one also broached the study's aim which is to make a case for the recognition of virtual currencies and the establishment of regulatory framework for the usage of virtual currencies in Kenya.

Chapter two delves deeper into an analysis of virtual currencies. It provides a technical analysis of virtual currencies looking at its cryptographic and blockchain technology application and the attendant legal challenges that, collectively, justify the need to regulate virtual currencies. The chapter examines the questions around price volatility, authentication of transactions, privacy and confidentiality, security, enforcement and liability.

Chapter two is structured into five main sections. Section 2.1 introduces the chapter by broadly summarizing chapter one's content and outlining chapter two's approach. Section 2.2 offers in-depth explanation of how virtual currencies function. It majorly focuses on bitcoins as the representative virtual currency. Section 2.3 then discusses the concept of decentralization and the underlying imperatives of the decentralized virtual currencies. Section 2.4 then embarks on a discussion of the technical challenges prevalent on virtual currencies. It covers price volatility, security, money laundering and privacy. Finally, section 2.5 concludes by summarizing the key issues discussed in chapter two.

### **2.2 Virtual Currencies Explained**

There exists no single, satisfying definition of the term, "virtual currency." However, scholars and researchers of virtual currencies have made attempts at a definition. These definitions all share a common thread running through them, that is, virtual currencies are a medium of exchange over a cyber-network with no government backing as there is no government that has formally recognized virtual currencies as a form of legal tender.<sup>1</sup> The European Directive on Money Laundering defines a virtual currency as a digital representation of value though one that

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<sup>1</sup> Kevin Tu and Michael Meredith, 'Rethinking Virtual Currency Regulation in the Bitcoin Age' 2015 Washington Law Review 272.

is not issued or guaranteed by any central bank or public authority. Furthermore, cryptocurrencies do not have legal status of a currency or money because they are not attached to any legally established currency. However, natural and legal persons are increasingly using cryptocurrencies as a medium of exchange, and they transfer, store, and trade them through internet mediated networks.<sup>2</sup> The European Union definition is useful in different respects as it captures the general and specific elements that characterize virtual currencies and their attendant challenges. Firstly, no government or central bank regulates virtual currencies and, therefore, they are not recognized as legal tender the world over.<sup>3</sup> However, nations such as Switzerland and Venezuela are developing legal frameworks that will most likely recognize virtual currencies as a form of legal tenders.<sup>4</sup> Secondly, EU definition recognizes virtual currencies as digital representations with monetary value and, therefore, currently being accepted as a medium of exchange, unit of account, and store of value.<sup>5</sup> The last portion of the definition is critically essential as it brings forth the acceptance by natural and legal persons of virtual currencies as a means of exchange. In essence, despite lacking legal tender, cryptocurrencies have received the reception and usability among juristic and natural persons.<sup>6</sup> In essence virtual currencies are a form of digital money that relies on cryptography to maintain its high and sophisticated system to guarantee anonymity and confidentiality of transactions.

This study seeks to establish how cryptocurrencies work by explaining some of the concepts around the technology. The study explains the blockchain technology on which cryptocurrencies are built. It also explains some of the concepts around cryptocurrencies such as the proof-of-work system and finishes by highlighting some of the advantages and disadvantages of cryptocurrencies.

The efficient functioning of any cryptocurrency is based on a public register of transactions called the blockchain. It is founded on the proof-of-work system to award cryptocurrencies to those who are able to find solutions to some of the mathematical problems posed by the system.

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<sup>2</sup> See Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU.

<sup>3</sup> Matthew Kien-Meng Ly, "Coining Bitcoin's Legal-Bits: Examining the Regulatory Framework for Bitcoin and Virtual Currencies" (2013) 27 *Harvard Journal of Law & Technology* 587.

<sup>4</sup> Marek Dabrowski and Lukasz Janikowski, "Virtual Currencies and Central Banks monetary policy: challenges ahead." *Monetary Dialogue*.

<sup>5</sup> Ly (n 3).

<sup>6</sup> Nicholas Plassaras, "Regulating Digital Currencies: Bringing Bitcoin within the Reach of IMF" (2013) 14 *Chicago Journal of International Law* 377.

It is the successful incorporation of the resolved problem onto the blockchain and the encryption algorithm that among, other things, updates the blockchain.<sup>7</sup> Due to the absence of a central government or bank to govern its operations, decentralized systems are responsible for creating virtual currencies by using the blockchain technology and the currencies are borderless. It is through cryptography that verification of transactions, processing of payment and the supply of cryptocurrencies is made possible.

Virtual currencies are founded on libertarian theories that view government intervention in the regulation of financial matters as a limitation of financial freedom and inclusion and as such should be eliminated from the system altogether.<sup>8</sup> This imputes that the holders of virtual currencies are the owners and the custodians and creators of cryptocurrencies.<sup>9</sup>

The need to eliminate the intermediary was also created as a solution to the double-spending dilemma. Virtual currencies and bitcoins creators, in particular, noted with concern the possibility of the existence of unscrupulous intermediaries in online transactions. Unlike fiat currency which cannot be duplicated and the parties to any transaction can verify the authenticity of the physical currencies, digital currency can be duplicated as it only requires the intermediary to replicate the digital currency, send out the fake currency to the other party and retain the original. Bitcoins, through its cryptography and blockchain technology, has successfully managed to circumvent these problems. These have been instrumental in ensuring that transactions and payments are thoroughly verified before any single one transaction can be authenticated and completed. It is now almost impossible for the same virtual currency to be presented to two different persons to perform two different yet valid transactions.<sup>10</sup>

The technical mechanisms governing the operations of virtual currencies are best captured in Satoshi's seminal article.<sup>11</sup> The need to create bitcoins was born out of what seemed to be a failure on the part of the fiat currencies.<sup>12</sup> The reliance on financial institutions to issue fiat

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<sup>7</sup> Pedro Franco, "*Understanding Bitcoin: Cryptography, Engineering and Economics*" (John Wiley & Sons 2014).

<sup>8</sup> These include libertarian capitalist theories that reject the idea that for money to be legitimate it must be approved by governmental authorities. Ideally, libertarian capitalist theories articulate for the complete absence or non-interference from governments if free markets are to operate at their optimum level.

<sup>9</sup> Rainer Böhme and others, 'Bitcoin: Economics, Technology, and Governance' (2015) 29 *Journal of Economic Perspectives* 213.

<sup>10</sup> Ghassan O Karame, Elli Androulaki and Srdjan Capkun, 'Double-Spending Fast Payments in Bitcoin', *Proceedings of the 2012 ACM Conference on Computer and Communications Security* (ACM 2012).

<sup>11</sup> Satoshi (n 7).

<sup>12</sup> Aleksander Berentsen and Fabian Schar, 'A Short Introduction to the World of Cryptocurrencies' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3105283.

currencies and regulate their operations has been faulted quite a number of times. Firstly, it is a widely accepted fact that the involvement of an intermediary increases the overall cost of a transaction. The involvement of banks and central governments in transactions in the fiat system proved to unnecessarily increase the overall cost of transactions.<sup>13</sup> The intermediaries in commercial transactions have powers to limit the number and size of transactions a person can engage in. Additionally, these intermediaries often charge a certain percentage of the total cost of the transaction as their fee. This obviously increases the cost of transactions. Furthermore, the intermediaries make it close to impossible to make non-reversible payments for services and intangible products.<sup>14</sup>

The existence of even the slightest of possibilities of reversing payments for non-reversible services or intangible products makes the fiat currency system susceptible to fraud. This is because it requires a certain degree of trust for a person to offer a service and expect to receive payment. It is possible to circumvent these problems by receiving the payment in person. However, in this modern age and time, transactions are transboundary in nature. This makes it nearly impossible to travel across continents to make or receive payments. This has always necessitated and even justified the existence of a third party in commercial transactions. Therefore, the development of cryptocurrencies is a useful measure in solving the problem of potentially fraudulent traders and the desire to lower the cost of commercial transactions.<sup>15</sup>

In addition, the bitcoin mechanism cuts off the reversibility character of transactions ensuring that a bitcoin transaction, once accepted in the system, does not suffer any form of reversibility. The technical mechanism entails an electronic payment system based on cryptographic proof that aids direct transactions between two willing parties.<sup>16</sup> Attendant to the cryptographic proof of work is known as mining – a process whereby newly minted bitcoins are awarded to users who successfully solve mathematical puzzles based on the pre-existing contents of the block.<sup>17</sup> The mining process assists in keeping an anonymized transaction record operational and updated to the extent that the puzzle solving process leads to the publication of a proof-of-work leading to a solution that subsequent users verify before starting to work on a new block hence the so-called

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<sup>13</sup> Bill Maurer and others, “‘When Perhaps the Real Problem Is Money Itself?’: The Practical Materiality of Bitcoin” (2013) 23 *Social Semiotics* 261.

<sup>14</sup> Nicholas Weaver, ‘Risks of Cryptocurrencies’ (2018) 61 *Commun. ACM* 20.

<sup>15</sup> Alan Brill and Lonnie Keene, ‘Cryptocurrencies: The Next Generation of Terrorist Financing?’ (Social Science Research Network 2014) SSRN Scholarly Paper ID 2814914.

<sup>16</sup> *Ibid.*

<sup>17</sup> Bohme and others (n 44).

block-chain technology. A solved puzzle constitutes a bitcoin transaction which does not clear until it has been added to the consensus blockchain. In fact, the puzzle solution process serves to reflect a correct record of bitcoin transactions thereby eliminating the possibility of cheating the system with a fake transaction.<sup>18</sup> The flipside is that the puzzle solving process is quite power intensive making bitcoin mining expensive due to the related power costs. On the upshot, the puzzle solving process allows any mining participant a chance to create bitcoins hence the highly decentralized approach to the bitcoin transactions. In effect, this eliminates the singular intermediary challenge associated with fiat currency.<sup>19</sup>

Cryptocurrencies receive much praise because of the creative innovations that they bring into the world of commerce.<sup>20</sup> Of fundamental importance is the elimination of the need for a trusted third party to act as an arbitrator or mediator in commercial transactions.<sup>21</sup> Currently, cryptocurrencies have protocols that allow users to exchange value and receive payments without ever knowing or trusting the other party. The elimination of the need for intermediaries and trust between parties to a transaction has made commercial transactions reliably faster, secure, and cheaper.<sup>22</sup> Generally, cryptocurrencies have opened up a globally accessible virtual economy that potentially allows any willing participant from any part of the world to take part. This promotes fair competition for all.

However, there are also disadvantages of cryptocurrencies. For instance, cryptocurrencies experience regular wild fluctuations in value and this makes the less lucrative to commercial entities. Cryptocurrencies do not store value because they have nothing underwriting their value. Additionally, governments such as those of China and Russia directed their banking institutions prohibiting dealings in cryptocurrencies. This makes cryptocurrencies less appealing to users.<sup>23</sup>

Cryptocurrencies have also proven to be a fertile ground for fraudulent schemes. Fraudsters under the guise of “crypto experts” abuse the lack of regulation to create or buy cheap cryptocurrencies, hype their value and recommend them to unsuspecting members of the unsuspecting public. Such individuals often profit at the expense of the public from such

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<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Ben Fung and Hanna Halaburda, ‘Central Bank Digital Currencies: A Framework for Assessing Why and How’ (Social Science Research Network 2016) SSRN Scholarly Paper ID 2994052.

<sup>21</sup> Ibid.

<sup>22</sup> Omri Marian, ‘A Conceptual Framework for the Regulation of Cryptocurrencies’ (2015) 82 University of Chicago Law Review Dialogue 53.

<sup>23</sup> Flamur Bunjaku and others, ‘Cryptocurrencies – Advantages and Disadvantages’ (2017) 2 Journal of Economics.

fraudulent schemes. When such schemes are hatched, the unsuspecting public is often left with no recourse since there is no existing regulation.<sup>24</sup>

### **2.3 The Decentralization of Virtual Currencies**

In as much as the centralized virtual currencies are not the subject of this study, it would be remiss to discuss the decentralization of virtual currencies without discussing the former. Centralized virtual currencies, just like the name suggests, are issued and regulated by a central repository. The long and short of centralized virtual currencies is that they rely on a third party, the central repository, to regulate their operations. These range from the creation of new currencies, the verification of transactions, redeeming the virtual currencies from circulation as well as updating the books of accounts.<sup>25</sup>

Centralized virtual currencies are divided into three. The primary category is that of closed virtual currencies that cannot be converted into any of the existing fiat currencies and can only be used within the select community where it is recognized. Examples of such virtual currencies are the loyalty points that customers of select shopping stores are awarded every time they shop from those select stores and can redeem the points for products from these stores. Second in this categorization is unidirectional convertible virtual currencies. These are purchased using fiat currencies at a fixed exchange rate but once purchased, there is no possibility of the virtual currencies being converted back to the fiat currency hence the name unidirectional. These are usually used in acquiring virtual goods and services especially in online games. Lastly are bidirectional convertible virtual currencies. These are purchased using fiat currencies at fixed exchange rates and allow the owners to buy and sell them virtually as well as purchase actual goods and are convertible.<sup>26</sup>

On the other hand, decentralized virtual currencies are mathematically-based, peer-to-peer (p2p) virtual currencies without a central repository. This implies that decentralized virtual currencies have no single body exercising administrative or oversight role over their operations. Examples include the popular Bitcoin, Ripple, Litecoin, among others. Decentralized virtual currencies are relatively safe as the information on transactions are cryptographically signed and a combination

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<sup>24</sup> Ibid.

<sup>25</sup> Arthur Gervais and others, 'Is Bitcoin a Decentralized Currency?' (2014) 12 IEEE Security & Privacy 54.

<sup>26</sup> David Christopher Vitt, 'Does Fiat-To-Bitcoin Exchange Activity Lead To Increased User-To-User Bitcoin Transaction Activity?' [2017] SSRN Electronic Journal.

of private and public keys are used in transferring value from the sender to recipient.<sup>27</sup> Bitcoins, for instance, guarantees the safety and integrity of its ledgers by playing with the wits of miners who are tasked with outwitting each other, through its proof-of-work system, in a bid to protect the network at a fee, of course. The fact that decentralized virtual currencies lack a central repository means that the systems are open source. Any person with access to internet-mediated networks can download the decentralized virtual currency's software from its website and send, receive, and store the cryptocurrencies.<sup>28</sup>

The decentralization of virtual currencies also makes it possible for users of the cryptocurrencies to be able to monitor transactions because of the existence of a public register for shared transactions. The public ledger or register is identifiable through the use of a string of numbers and letters, and an address from the cryptocurrencies websites that are not linked to any individual in particular. Ripple, Litecoin, among other cryptocurrencies that are founded on the same technology as bitcoin are usually referred to collectively as altcoins.<sup>29</sup>

Additionally, the decentralization of virtual currencies has facilitated the development of what can be termed as a "virtual economy" that has thrived on the existence of virtual currencies such as bitcoin.<sup>30</sup> These currencies are used in lieu of the existing legal tenders that have sustained economies for a long time owing to the fact that they are backed by governments. Consumers can presently use virtual currencies to buy real goods and services in real economies. The existence of a virtual economy supported by virtual transactions and virtual currencies in the absence of government regulation seems to pose some real threat to the proceeds that governments often collect as a result of real economies being backed by fiat currencies legitimized by governments as intermediaries.<sup>31</sup>

The reason for this is quite simple. Merchants, the world over, rely on the fact that fiat currencies are recognized globally and as such, are a reliable and common medium of exchanging their goods and services. The real value of fiat currencies has always been in just how stable the government that has legitimized the currency is. Stable governments have high values attached to their currencies while unstable governments often have very little value attached to their

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<sup>27</sup> Rainer Bohme and others (n 44).

<sup>28</sup> Nikolei Kaplanov, 'Nerdy Money: Bitcoin, the Private Digital Currency, and the Case against Its Regulation' (2012) 25 Loyola Consumer Law Review 111.

<sup>29</sup> Ittay Eyal and others, "Bitcoin-NG: A Scalable Blockchain Protocol" 2014.

<sup>30</sup> Cameron Harwick, 'Cryptocurrency and the Problem of Intermediation' (2016) 20 The Independent Review 569.

<sup>31</sup> Ibid.



currencies. The stability of a government, therefore, is relied on to guarantee the value of its currency the world over and this result in strong trading and bargaining powers for the stable country in international affairs. It is now obvious to see why so many countries are unwilling to legitimize virtual currencies as this is likely to weaken them on several fronts in the international sphere.<sup>32</sup>

The virtual economy can be considered as a restructuring of the current free markets that are not really “free” as they have always befallen to the ideological and political arm-twisting by governments.<sup>33</sup> Virtual currencies and the virtual economies have so far successfully attempted to restore free market economies to their purest of states: the absence of government intervention. However, the express exclusion of the involvement of the government in financial transactions of high magnitudes is already proving to be a breeding ground for illicit activities. Reports from Europol's Internet Organized Crime Threat Assessment (IOCTA) reveal that virtual currencies and the virtual economies are quickly turning out to be the medium through which cybercrimes are committed.<sup>34</sup> Instances of extortionist activities, cyber theft of cryptocurrencies, crypto-jacking, among other forms of cybercrimes, have been on rapid increase recently and the failure to identify the perpetrators of these crimes continues to pose a more serious threat to at least fifty-five per cent (55%) of businesses the whole world over.<sup>35</sup>

Ever since the invention and successful launch of bitcoin in 2009, cryptocurrencies have featured among the most lucrative form of payment for encrypted services on the internet, commonly known as the dark web, as they are able to secure information of and communications into the purchase and sale of illegal guns, drugs, among a host of other illegal activities. Evidence of cryptocurrencies being used in money laundering schemes abounds with at least three-four per cent of proceeds of illegal activities being laundered via Europe year in year out by criminal groups.<sup>36</sup>

Based on these findings, it is high time that governments seriously considered the regulation of virtual currencies because a failure to regulate the virtual economy provides criminals with an opportunity to profit from the possibility of decentralized virtual currencies being convertible to

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<sup>32</sup> Gareth Peters and others, ‘Trends in Cryptocurrencies and Blockchain Technologies: A Monetary Theory and Regulation Perspective’ (Social Science Research Network 2015) SSRN Scholarly Paper ID 3084011.

<sup>33</sup> Ibid.

<sup>34</sup> European Union Agency for Law Enforcement Cooperation, *Internet Organised Crime Threat Assessment: IOCTA 2017*. (2017).

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

fiat currencies and profiting from wrongdoing rather than refusing to recognize the existence of the virtual economy and cryptocurrencies.

## **2.4 Technical Challenges Associated with Virtual Currencies**

The successful launch of bitcoin in 2009 as a decentralized virtual currency made the way for the creation of other cryptocurrencies including Ripple, Ethereum, and Litecoin. Despite the relative success that these cryptocurrencies have enjoyed ever since their inception into the virtual economy, governments continue to express skepticism over the use of cryptocurrencies as a form of payment, unit of value, and a store of value almost nine (9) years down the line.<sup>37</sup>

This study, therefore, addresses some of the challenges that bitcoins and altcoins pose for governments and the reasons for the continued skepticism. The governments' aversion towards virtual currencies may be founded on the high and wide price volatility of virtual currencies compared to fiat currencies such as the dollar, euro or Chinese yuan.<sup>38</sup> This has often given both governments and investors in equal measure very cogent reasons for skepticism despite the fact that altcoins have so far produced relatively high returns on investments. For instance, 2011 was the first time that the value of a single bitcoin exceeded the one USD mark. Ever since, the value has gone to as high as thirteen thousand USD and has witnessed fluctuations to six thousand USD for a single bitcoin.<sup>39</sup> The situation has relatively been a fair representation of the currently existing decentralized virtual currencies.<sup>40</sup>

However, there appears to be another group of investors that are thrilled by the speculative nature of cryptocurrencies and are always on the lookout for an opportunity to make a quick return on their investments from the unpredictable yet constant price fluctuations.<sup>41</sup> There also exists talk of the possibility of manipulating the prices of cryptocurrencies. The rise in the price of bitcoins around December 2013 was partly attributed to a coordinated manipulation of prices at the Mt. Gox exchange in which traders used fraudulent trading algorithms.<sup>42</sup>

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<sup>37</sup> Michal Polasik and others, "Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry" (2015) 20 *International Journal of Electronic Commerce* 9.

<sup>38</sup> *Ibid.*

<sup>39</sup> Paraskevi Katsiampa, 'Volatility Estimation for Bitcoin: A Comparison of GARCH Models' (2017) 158 *Economics Letters* 3.

<sup>40</sup> Derek A Dion, "I'll Gladly Trade You Two Bits on Tuesday for a Byte Today: Bitcoin, Regulating Fraud in the Economy of Hacker-Cash" (2013) 2013 *University of Illinois Journal of Law, Technology & Policy* 165.

<sup>41</sup> Anne Haubo Dyhrberg, 'Bitcoin, Gold and the Dollar – A GARCH Volatility Analysis' (2016) 16 *Finance Research Letters* 85.

<sup>42</sup> *Ibid.*

Public perception of bitcoins and altcoins together with the benign neglect from governments may collectively be blamed for the price fluctuation.<sup>43</sup> Legitimacy through the recognition of cryptocurrencies has the potential of influencing the stability of their prices.<sup>44</sup> This is because it would imply that the government is formally recognizing the existence of a virtual economy and is working on policies or even legislation to legitimize their use in the economy. This reassurance could go a long way in establishing a golden standard upon which the value of cryptocurrencies could be measured thus making the prices stable once and for all.<sup>45</sup>

However, the intervention of the government in the virtual economy is counterproductive to the efforts of the founders of cryptocurrencies at establishing an economy that guarantees financial freedom and inclusion for all. The economy has so far operated without government intervention and their involvement would raise serious issues with the decentralization of the virtual economy as well as the integrity and safety of information which the system has developed a great reputation around. This is because government intervention, monitoring, oversight, and general regulation have always been known to weaken consumer confidence.<sup>46</sup>

Yet another explanation for bitcoins pricing lay in the computational power involved in mining read against the limited number of bitcoins available presumably set at 21 million bitcoins.<sup>47</sup> Currently, the value of cryptocurrencies such as Bitcoins are being purely influenced by 84% of computational power, the availability of coins per minute and the algorithm applied during a particular time.<sup>48</sup> However, there also exist other factors that influence the value of cryptocurrencies. These include the number of google searches on bitcoins, the word of mouth spread on bitcoins in the real world, and the rate of acceptability by merchants and governments to influence its value. This, therefore, implies that there are several factors in play when it comes to price volatility and valuation of not only bitcoins but all the existing cryptocurrencies.<sup>49</sup>

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<sup>43</sup> Joseph Walton, 'Cryptocurrency Public Policy Analysis' (Social Science Research Network 2014) SSRN Scholarly Paper ID 2708302.

<sup>44</sup> Ibid.

<sup>45</sup> Lawrence Trautman, "Virtual Currencies: Bitcoin & What Now after Liberty Reserve, Silk Road, and Mt. Gox" (2013) 20 Richmond Journal of Law & Technology 1.

<sup>46</sup> Kaplanov (n 104).

<sup>47</sup> Angela Walch, "The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk" (2015) 18 New York University Journal of Legislation and Public Policy 837.

<sup>48</sup> Adam S. Hayes, "Cryptocurrency Value Formation: An Empirical Study Leading To A Cost Of Production Model For Valuing Bitcoin" (2017) 34 Telematics and Informatics.

<sup>49</sup> Ibid.

Other factors have also been cited for the price volatility exhibited by bitcoins. For instance, at its peak in 2011, bitcoin was already a universal currency that appealed to many consumers because of ability to transact anonymously and at low costs. Additionally, it was not susceptible to asset freezes by governments and hence it appealed to controversial organizations such as Wikileaks.<sup>50</sup>

The finite number of bitcoins that should be in existence could also be a factor in the valuation of bitcoins and cryptocurrencies generally. It is currently estimated that 99% of bitcoins will have been mined by 2040.<sup>51</sup> The mining feedback system of Bitcoins is built in such a way that when the prices decrease, the mining loses its profitability appeal and thus, people lose interest in mining bitcoins. The reduced number of miners forces the system to automatically adjust the cryptographic problems to be solved hence making the mining process easier. Easier cryptographic problems induce people to re-develop interests in the cryptocurrency.<sup>52</sup>

Another possible explanation for the price volatility is that a majority of holders do not hold them as a method of payment but rather as a speculative asset. Such users hope to make supernormal profits should the price increase beyond the price they purchased them for.<sup>53</sup>

Despite large companies including Microsoft, Dell and Virgin Galactic accepting bitcoins as a means of payment, they only do so through intermediaries such as coin base and bitpay. This is because these companies have insurance covers to cushion the value of payments against price fluctuations.<sup>54</sup> This serves to prove that price volatility of cryptocurrencies is one of the major challenges that Satoshi Nakamoto and fellow ideologues will have to deal with if cryptocurrencies are to ever get recognition as a global medium of exchange.<sup>55</sup>

The bitcoin economy is built on the proposal that it is possible to fix the rate of supply of money into the economy to a fixed growth rate of the economy.<sup>56</sup> In fact, the founders of bitcoin envision the minting phase of bitcoins to end when they hit 21 million bitcoins and this is predicted to be around the year 2040. However, this assumption does not take care of the fact

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<sup>50</sup> Vavrinec Cermak, "Can bitcoin become a viable alternative to fiat currencies? An empirical analysis of bitcoin's volatility based on a GARCH model. May 2017.

<sup>51</sup> Ibid.

<sup>52</sup> Kevin Dowd and Martin Hutchinson, "Bitcoin Will Bite the Dust" (2015) 35 Cato Journal 357.

<sup>53</sup> David Yermack, 'Chapter 2 - Is Bitcoin a Real Currency? An Economic Appraisal' in David Lee Kuo Chuen (ed), *Handbook of Digital Currency* (Academic Press 2015).

<sup>54</sup> Cermak (n.50)

<sup>55</sup> Böhme and others (n 85).

<sup>56</sup> Christian Decker and Roger Wattenhofer, "Information Propagation in the Bitcoin Network", *Institute of Electricals and Electronics Engineering Peer-to-Peer 2013 Proceedings* (2013).

that there is the possibility that users may lose their wallets or even lose their private keys. The loss of a user's wallet or private keys means that some of the twenty-one million bitcoins will be taken out of circulation and may not match the targeted growth rate according to the founders. There is also the possibility that the economy could potentially grow faster than the mining of bitcoins as it is possible to dictate the rate at which the economy grows but slightly difficult to accurately calculate the growth rate of the economy.<sup>57</sup>

Another limb of virtual currencies worth examination relates to the susceptibility to use by criminal elements, security, privacy, and confidentiality concerns. The study examines these issues in the ensuing sections using bitcoins in the realm of decentralized virtual currencies as a representative currency of study. An EU study<sup>58</sup> observes that virtual currencies' global accessibility necessarily places them in a digital universe hence beyond the access of no specific nation. The fact that users' identifying information are not captured in the system, which in any case has no central service provider as opposed to fiat currencies, deprives virtual currencies' users the much-needed accountability and oversight mechanisms. Granted, the anonymity and lack of central control inform the core objectives of virtual currencies creation. However, the lack of proper identification records and central authority to hold accountable make virtual currencies a good candidate for criminal engagements at a global level thereby raising the attention of anti-money laundering and anti-terrorism financing authorities.<sup>59</sup> In addition, the non-association with any country places virtual currencies increasingly outside the domain of taxation by national governments.

The EU study<sup>60</sup> cites the FATF's 2014 Report<sup>61</sup> which covered two illicit financial flow cases involving bitcoins.<sup>62</sup> In both reports, cryptocurrencies are a front through which illegal activities are carried through. The first case was the popular Silk Road where consumers used bitcoins to purchase narcotics and other illicit items. The second case was the Liberty Reserve involving an

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<sup>57</sup> Ryan Lancelot and Jack Tatar, *What's the Deal with Bitcoins?* (Pennington, New York: People Tested) (cop. 2013).

<sup>58</sup> See Policy Department for Citizens' Rights and Constitutional Affairs – Directorate General for Internal Policies of the Union, "Virtual currencies and terrorist financing: assessing the risks and evaluating responses." May 2018.

<sup>59</sup> *Ibid.*

<sup>60</sup> *Ibid.*

<sup>61</sup> Financial Action Task Force 'Virtual Currencies – Key Definitions and Potential AML/CFT Risks' (2014) 17.

<sup>62</sup> Mohammed Ahmad Naheem, 'Illicit Financial Flows: HSBC Case Study' (2018) 21 *Journal of Money Laundering Control* 231.

online money remittance service that facilitated transactions among cybercriminals, narcotics traffickers, and fraudsters using bitcoins as the currency of trade.<sup>63</sup>

Furthermore, the European Central Bank has observed that the anonymity afforded to bitcoins users presents terrorism financing risks.<sup>64</sup> In the United States, far-right organizations denied access to traditional crowdfunding avenues resorted to the bitcoins underworld creating a website called *Hatreon* employed in fundraising using cryptocurrencies including bitcoins.<sup>65</sup> A further demonstration of the application of bitcoins in support of cybercrime is the prevalent use of ransomware by criminals and terrorists to seize control of computer systems of institutions including hospitals and then demanding for “ransom” in bitcoins.<sup>66</sup> The privacy and confidentiality associated with cryptocurrencies continually appeal to far-right extremists and terrorists and terror groups. There are cases of jihadist groups carrying out crowdfunding campaigns and requesting for donations and funds in cryptocurrencies such as Monero, Bitcoin, Dash, and Verge on social media and communication applications such as Telegram.<sup>67</sup>

On the privacy front, the EU study<sup>68</sup> asserts that the privacy offered by bitcoins transactions is pseudonymity meaning that the system gives the users pseudonyms thereby affording them some sort of facial privacy.<sup>69</sup> However, this supposed privacy is connected with a confidentiality flaw in that users remain vulnerable to hacking, theft, and other systemic intrusions which could potentially lead to an exposure of people’s private financial affairs.<sup>70</sup>

This is because the validation of transactions is pegged on the ability to access the transaction history. While the blockchain technology combined with cryptography guarantees the anonymity of individual users’ addresses, it is still possible to identify a user from a number of transactions

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<sup>63</sup> Marie Claire Van Hout and Tim Bingham, ‘Responsible Vendors, Intelligent Consumers: Silk Road, The Online Revolution In Drug Trading’ (2014) 25 *International Journal of Drug Policy*.

<sup>64</sup> Lawrence J. Trautman, “Virtual Currencies: Bitcoin & What Now After Liberty Reserve And Silk Road?” [2014] *SSRN Electronic Journal*.

<sup>65</sup> David Fitzpatrick and Drew Griffin, “Cyber-Extortion Losses Skyrocket, Says FBI,” *CNN Money*, April 15, 2016.

<sup>66</sup> Lucian Constantin, “Ransomware Attacks Against Businesses Increased Threefold in 2016,” *PC World*, December 9, 2016.

<sup>67</sup> *Ibid.*

<sup>68</sup> Houben and Snyers (n 136).

<sup>69</sup> Sean Foley and others, “Sex, Drugs, And Bitcoin: How Much Illegal Activity Is Financed Through Cryptocurrencies?” [2018] *SSRN Electronic Journal*.

<sup>70</sup> *Ibid.*

even if they used different addresses. Also, there are companies such as Chainalysis that are now capable of monitoring transactions so as to identify illegal transactions.<sup>71</sup>

Additionally, the decentralized virtual currency system does not protect the IP addresses of the users due to the need to maintain a public ledger for public information. It is possible to use the addresses of users to identify their locations and even their identities. Even the dark web that is famed for its anonymity has proven susceptible in the virtual economy to a hacker's attack and there is a possibility of not only revealing the identity of a user but also compromising the entire system. There is also the possibility that the vendor of goods and services can abuse the privacy of a user he/she deals with. This is because despite the anonymity on the system, an individual is still required to fill in their personal details in order to receive their purchases. Moreover, the account of the vendor may also be susceptible to hacking and anti-money laundering policies such as "Know-Your-Customer" that has the potential of revealing the identity of a user.<sup>72</sup>

## 2.5 Conclusion

This chapter explained the conceptualisation and implementation of virtual currencies. It focused on the decentralised aspect of virtual currencies. In addition, it delved into the technical challenges including concerns around price volatility, security, money laundering, and privacy questions. In this chapter the study demonstrated that although virtual currencies have received public acceptance and use, the dearth of regulations opens the use of virtual currencies to potentially illegal and criminal activities. In addition, privacy and confidentiality matters suffice requiring the attention of the modern legislator. The study has brought forth the technical challenges arising from the use of virtual currencies and looks to examine the legal solutions applicable in the foregoing chapters.

In chapter three the study evaluates the Kenyan regulatory approach to alternative payment systems. It analyses the regulatory challenges posed by virtual currencies to the Kenyan regulatory framework. The chapter also reviews the regulatory mandate of the CBK with a juxtaposition of the challenges virtual currencies present to the CBK in the exercise of the latter's regulatory mandate. Chapter three takes the conversation further in that it examines the

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<sup>71</sup> Elli Androulaki and others, "Evaluating User Privacy in Bitcoin" in Ahmad-Reza Sadeghi (ed), *Financial Cryptography and Data Security* (Springer Berlin Heidelberg 2013).

<sup>72</sup> Arthur Gervais, Ghassan O. Karame, Vedran Capkun and Srdjan Capkun, "On the Privacy Provisions of Bloom Filters in Lightweight Bitcoin Clients", *Proceedings of the 30th Annual Computer Security Applications Conference on - ACSAC '14* (ACM Press 2014).

Kenyan regulatory framework with the intention of contextualizing the use of virtual currencies under the prevailing legal regime albeit with necessary regulatory changes.



## **3.0 CHAPTER THREE: THE REGULATORY FRAMEWORK FOR PAYMENT SYSTEMS IN KENYA**

### **3.1 Introduction**

In chapter two, the study discussed technical aspects of virtual currencies. The study highlighted the technical operations of virtual currencies including the associated cryptographic technologies. The study also discussed the technical challenges facing the use of virtual currencies. These included price volatility, security and privacy concerns, and potential of virtual currencies aiding money laundering and other criminal activities. Generally, chapter two provided a broad and technical review of the use of virtual currencies.

In chapter three, the study conducts an analysis of the relevant regulatory framework for payment and settlement systems in Kenya. The focus on payment and settlement systems' regulation is informed by the fact that virtual currencies inevitably impact this space. The chapter attempts to draw the mandate of the CBK to regulate alternative payment systems in Kenya, including where applicable, the CBK's mandate on the regulation of virtual currencies. Finally, the chapter addresses the legal challenges that the absence and/or inadequacy of a regulatory framework on virtual currencies poses to the payment and settlement systems' regulatory regime in Kenya.

Chapter three is organised in eight main sections set out below. The introduction is set out in section 3.1. It brings to the fore the legislation analysed in the chapter. Section 3.2 focusses on the relevant provisions of the Constitution of Kenya, 2010. Section 3.3 delves into the provisions of the Central Bank of Kenya Act while section 3.4 examines the provisions of the National Payment System Act, 2011. Section 3.5 grapples with relevant provisions of the Proceeds of Crime and Anti-Money Laundering Act, 2010. Section 3.6 examines the Proceeds of Crime and Anti-Money Laundering Regulations, 2013 while section 3.7 looks at the application of the Foreign Account Tax Compliance Act of the United States in Kenya. Finally, section 3.8 lays out the conclusion of the study in chapter three.

The National Payment System Act,<sup>1</sup> defines a payment system as an arrangement or a system through which payments between parties selling and buying goods and services are completed.<sup>2</sup>

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<sup>1</sup> Act No. 39 of 2011.

<sup>2</sup> National Payment System Act, Section 2.

Through this set of systems or arrangements, the payment system is considered instrumental in facilitating the circulation of money or currency within an economy.<sup>3</sup> A payment system as such entails a complex set of accepted instruments of making payments, the procedures involved in the making and receiving of payments, and the institutions involved in the circulation of money within an economy. In essence, a payment system is fundamental to the legal, institutional, and regulatory framework governing financial services and institutions in any country.<sup>4</sup> In Kenya, the entire financial services and the attendant institutional infrastructure, and the National Payment System form the backbone upon which payment systems are anchored.

The National Payment System is divided into Large Value and Low Value Payment Systems with the primary difference being the size of monetary values and the volumes of products involved in the system.<sup>5</sup> Simply put, Large Value Payment Systems are those that deal with wholesale products and services while Low Value Payment Systems are those that deal in smaller volumes and low monetary value products and services.<sup>6</sup> An example of a Large Value Payment System is the Kenya Electronic Payment and Settlement System (KEPSS) while examples of Low Value Payment System include the credit card and mobile money transfer systems.<sup>7</sup>

KEPSS is a Real-Time Gross Settlement (RTGS) system designed to continuously clear transactions and make settlements on an on-going or continuous basis.<sup>8</sup> KEPSS was established in 2009 with its management and ownership resting with the CBK. In this system, payments and settlements are debited and credited by the CBK into accounts of commercial banks maintained by the CBK. Commercial banks have to hold and maintain the cash reserves as outlined in the Banking Act.<sup>9</sup> Also, the transfer of payments or the crediting and debiting of funds is dictated by the instructions that buyers and sellers give to the commercial banks.<sup>10</sup>

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<sup>3</sup> Ghislain Deleplace and Edward J Nell, *Money in Motion: The Post-Keynesian and Circulation Approaches* (Springer 2016).

<sup>4</sup> Ibid.

<sup>5</sup> Robleh Ali and others, 'Innovations in Payment Technologies and the Emergence of Digital Currencies' (Social Science Research Network 2014) SSRN Scholarly Paper ID 2499397.

<sup>6</sup> Ibid.

<sup>7</sup> Joyce Wangui Gikandi and Chris Bloor, 'Adoption and Effectiveness of Electronic Banking in Kenya' (2010) 9 *Electronic Commerce Research and Applications* 277.

<sup>8</sup> Morten L Bech and Bart Hobijn, 'Technology Diffusion within Central Banking: The Case of Real-Time Gross Settlement' (Social Science Research Network 2006) SSRN Scholarly Paper ID 932596.

<sup>9</sup> Section 19(1), Banking Act of Kenya, Cap 488 of the Laws of Kenya

<sup>10</sup> William Jack and others, 'Monetary Theory and Electronic Money: Reflections on the Kenyan Experience' (Social Science Research Network 2010) SSRN Scholarly Paper ID 2189122.

KEPSS' importance is well underscored by the immense contribution and impact it has had on the economy since its inception in 2009. It has made it possible for gross and final processing of payments, transfer of cash, and real-time settlements to be continuously made. Viewed through the CBK lens, the system has enabled the mitigation of systemic risks hitherto associated with the banking sector in the age of paper-based settlement systems such as transactional fraud.<sup>11</sup> In this regard, KEPSS remains instrumental in the management of liquidity and the maintenance of the recommended cash reserves by firms in the banking industry. Thanks to KEPSS, it is now possible to make international payments and settlements, transfer large values of cash between banks within a short period, and generally, efficiently manage funds through a simplified payment and settlement process.<sup>12</sup>

On the other hand, the Low Value Payments Systems, also known as retail payment systems, include credit and debit cards as well as mobile money transfers. These have been instrumental in sustaining commercial activities especially on the e-commerce frontiers. However, there are more technological advancements that are continuously taking place with regard to retail payment systems. These advancements afford consumers high levels of efficiency, safety, and convenience when making payments in commercial transactions.<sup>13</sup>

In Kenya, there are quite a number of such payment systems. The Nairobi Automated Clearing House, for instance, clears cheques and Electronic Fund Transfers within Kenya.<sup>14</sup> This, sometimes, requires the joint effort of the CBK, commercial banks as well as the Ministry of Finance to develop guidelines and regulations for the sector. Credit cards and debit cards, on the other hand, continue to be an important payment system in retail transactions not only in Kenya but the world over.

The system for mobile money transfer, a Low Value Payment Systems, was birthed in Kenya in 2007 and continues to serve as a global blueprint for mobile money transfers. The CBK and commercial banks continue to work, hand in hand, to deliver safer, highly convenient, and secure technologies for consumers that prefer these payment methods.<sup>15</sup>

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<sup>11</sup> Morten Linnemann Bech and others, 'The Quest for Speed in Payments' (BIS Quarterly Review 2017).

<sup>12</sup> 'National Payments System' (CBK).

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> 'National Payments System' (n 12).

### 3.2 The Constitution of Kenya, 2010

Being the grand norm upon which all laws in Kenya are founded, the Constitution of Kenya, 2010<sup>16</sup> lays the legal regulative framework for the financial services and institutions in Kenya. The Constitution also guarantees ownership rights in providing that every individual in Kenya has the right to own property of any description in any part of Kenya.<sup>17</sup> The State or any other individual for that matter is barred from arbitrarily depriving an individual or group of individuals their lawfully gained property, or lawfully earned interest or right over any property in any part of Kenya. The right to property under the Constitution also extends to the right to ownership of intellectual property. The Constitution deems the role of the State in supporting, promoting, and protecting intellectual property rights to be crucial to the enjoyment of the right to intellectual property.<sup>18</sup> The development and creation of cryptocurrencies as a form of property and subsequent value systems around cryptocurrencies are founded on creations of the mind thereby inviting intellectual property rights into consideration. Arguably, cryptocurrencies should enjoy the protection accorded by Article 40 of the Constitution.

Virtual currencies are globally considered as being an innovative and inventive development with likely disruptive consequences to the traditional notion of property as they involve both artificial and human intelligence and efforts in their development.<sup>19</sup> Intellectual property rights accrue to offer protection and enjoyment of the rewards of such innovativeness and creativity. Such protection can exist in the form of patents and or copyrights. Additionally, the development of virtual currencies has fed a number of ancillary services and products associated with them such as the making, processing, and receiving of payments in the virtual economy.<sup>20</sup>

For instance, on 1 March 2018 PayPal sought to patent a process that would expedite the virtual currency transaction systems. It argues that currently, virtual currencies are slowed down by the need to confirm and verify transactions before services or products can be transferred to the buyer. This makes traditional payment systems more lucrative as they are not subjected to delays, or what is commonly referred to as the latency period, between the time of completing a payment and receiving purchases. The expedited virtual currency transaction system is,

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<sup>16</sup> Constitution of Kenya, 2010.

<sup>17</sup> Article 40, Constitution of Kenya, 2010.

<sup>18</sup> Article 40(5), Constitution of Kenya, 2010.

<sup>19</sup> Katie Szilagyi, 'A Bundle of Blockchains-Digitally Disrupting Property Law' (2017) 48 Cumberland Law Review. 9.

<sup>20</sup> Steve Omohundro, 'Cryptocurrencies, Smart Contracts, and Artificial Intelligence' (2014) 1 AI matters 19.

therefore, aimed at improving the processing of transactions using virtual currencies.<sup>21</sup> It is not impossible to foresee a situation such as this in Kenya especially with the existence of business entities such as Bitpesa that deal exclusively in cryptocurrencies and crypto-based assets.

Article 231 of Kenya's constitution establishes the CBK conferring it the mandate of regulating financial services and institutions in Kenya. The CBK is tasked with *inter alia* the issuing of currency within Kenya, the formulation of a sound and robust monetary policy, and the promotion of the stability of prices in Kenya.<sup>22</sup> The Constitution also declares that the CBK shall be established by an Act of Parliament. The Act provides for the composition, powers, functions, and operations of the CBK as set out in Article 231(5).

### **3.3 The Central Bank of Kenya Act, Cap. 491**

The Central Bank of Kenya Act (the "Act"),<sup>23</sup> is the constituting statute that establishes the CBK and lays the framework for its operations. It is the statute that denotes the Kenya Shillings (KShs) as the currency of Kenya<sup>24</sup> and all matters incidental thereto.<sup>25</sup> The Act establishes the CBK as a body corporate with perpetual succession and a common seal. As a body corporate, the CBK can acquire, possess, and dispose of property. Additionally, the CBK is a separate legal entity that enjoys the power to sue as well as be sued in its own name.<sup>26</sup> As a regulator of financial services and institutions, the CBK has powers to make its own rules of procedure and/or conduct for good order and the management of the affairs of the CBK as well as the efficient management of financial institutions and services within Kenya. In as much as the CBK regulates the banking industry in Kenya, it is not subject to the Banking Act<sup>27</sup> or the Companies Act<sup>28</sup> despite being a body corporate.<sup>29</sup>

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<sup>21</sup> Avi Mizrahi, 'Paypal Files Patent for Expedited Cryptocurrency Transaction System' (*Bitcoin News*, 5 March 2018).

<sup>22</sup> Article 231, Constitution of Kenya.

<sup>23</sup> Cap 491 of the Laws of Kenya.

<sup>24</sup> It is noteworthy that Article 231 of the Constitution of Kenya, 2010 renders guidance on the form of currencies in addition to mandating the CBK as the issuer of currency. However, the Kenya Shilling as a currency is established by the Central Bank of Kenya, Act Cap 491.

<sup>25</sup> Section 19, Central Bank of Kenya Act.

<sup>26</sup> Section 3, Central Bank of Kenya Act.

<sup>27</sup> Cap 488 of the Laws of Kenya

<sup>28</sup> No. 17 of 2015

<sup>29</sup> Section 3, Central Bank of Kenya Act.

The CBK is mandated to ensure the stable and efficient functioning of the nation's financial system by fostering the liquidity and solvency at all times.<sup>30</sup> Towards this end, the CBK is expected to formulate and implement policies and practices designed to promote the effective regulation and supervision of a payment and settlement system that is not only efficient but also effective. Another important function of the CBK, with respect to payment systems, is the issuance of currency notes and coins.<sup>31</sup> Currency issued by the CBK attains legitimacy and is considered as legal tender within Kenya.<sup>32</sup> According to the Act, the unit currency of Kenya is the Kenya Shilling and is made of one hundred cents.<sup>33</sup>

In Kenya, the issuance of any legal tender, any note or coin, or the withdrawal of legal tender, notes or coins remains the sole mandate of the CBK.<sup>34</sup> Additionally, any inscription, denomination, material, form or any other characteristic of the currencies in Kenya is subject to the determination of the CBK after consultations with the Cabinet Secretary in charge of the finance docket in Kenya.<sup>35</sup> This implies that for any currency to be used as part of the payment and settlement system in Kenya, it must obtain approval by the CBK. A perusal of the Act on questions around currency presupposes that only fiat currency as issued by the CBK operates in Kenya. Indeed, the Act makes no mention of other forms of currencies such as virtual currencies. Additionally, Part VI (A) of the Act speaks to regulation of foreign exchange dealings. Under this part, the CBK has regulative powers which include inspection and oversight of the foreign exchange dealers' activities.<sup>36</sup> It is imperative to note that the limited nature of foreign exchange dealers' mandate does not allow them to transact in any manner with virtual currencies. Such transactions may attract the attention and punishment of the CBK.<sup>37</sup>

The first attention to virtual currencies by the CBK came in December 2015 with the CBK's issue of a public notice warning the public against transacting in virtual currencies and more specifically bitcoins.<sup>38</sup> The CBK was unequivocal in its resolve, stating that bitcoins or any other cryptocurrencies built on the cryptographic model were not part of the legal tender in Kenya.

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<sup>30</sup> Section 4, Central Bank of Kenya Act.

<sup>31</sup> Section 4, Central Bank of Kenya Act.

<sup>32</sup> Anna Schwartz, 'Currency Boards: Their Past, Present, and Possible Future Role' (1993) 39 Carnegie-Rochester Conference Series on Public Policy 147.

<sup>33</sup> Section 19, Central Bank of Kenya Act.

<sup>34</sup> Article 231(2) of the Constitution of Kenya, 2010.

<sup>35</sup> Section 22, Central Bank of Kenya Act.

<sup>36</sup> Sections 33D, 33E and 33F, Central Bank of Kenya Act.

<sup>37</sup> Ibid.

<sup>38</sup> Banking Circular No. 14 of 2015

Neither the Act nor the legislation that regulates both domestic and international transfers of money sanctions the use of virtual currencies. The CBK opined that the unregulated nature of bitcoins made it risky for investors and parties desirous of holding, buying or trading in them as they (investors) would have no legal recourse in the event that the Bitcoin platform or venture was forced out of business.<sup>39</sup> Additionally, the CBK issued warnings on the risks attendant to the use of bitcoins taking the view that such risks would be detrimental to the interests of investors who bought, held or traded in virtual currencies such as bitcoins.<sup>40</sup> The said risks are discussed in the ensuing sections.

Firstly, virtual currency transactions are anonymous, and this appeals to organized criminals and criminal groups.<sup>41</sup> Secondly, the CBK opined that characteristics such as the absence of assets to back cryptocurrencies and the fact that the value of cryptocurrencies is largely speculative were not good for business.<sup>42</sup> This is because these characteristics may expose investors to potentially high losses and risks as has been witnessed with the high volatility in the prices and values of bitcoins. These make the trading, holding or buying of cryptocurrencies a venture which was too risky for investors and the CBK cautioned against trading, holding or purchasing of bitcoins or products of a similar nature.<sup>43</sup> However, the CBK is keen not to throw the baby with its bathwater. Recently, the CBK Governor confirmed the CBK's relative comfort with cryptographic technologies' application in the banking sector as pioneered by a number of commercial banks in Kenya.<sup>44</sup> As such, many have interpreted the new stance as an about-turn from the initially "reject all approach" manifested in the tenor of the warning letter issued by the CBK.<sup>45</sup> Further, the CBK Governor alluded to the fact that the CBK has been involved in far and wide consultations with other Central Banks that have managed to establish regulatory frameworks for digital currencies, and that the CBK was benchmarking with them to develop a central bank virtual currency for Kenya.<sup>46</sup> This latest CBK Governor's perspective offers a glimmer of hope

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<sup>39</sup> Ibid.

<sup>40</sup> Ibid.

<sup>41</sup> Peter Van Valkenburgh, 'The Bank Secrecy Act, Cryptocurrencies, and New Tokens: What is Known and What Remains Ambiguous' (2014).

<sup>42</sup> Banking Circular No. 14 of 2015

<sup>43</sup> Ibid.

<sup>44</sup> Frankline Sunday, 'Central Bank of Kenya Warms up to Digital Currencies' (*The Standard*).

<sup>45</sup> Ibid.

<sup>46</sup> This is seen in the willingness of Central Bank of Kenya to work with the Taskforce on Digital Technologies on the creation of a cryptocurrency that will be regulated by the Central Bank of Kenya.

towards a nuanced and informed adoption of cryptographic technologies in the banking sector which perhaps would ultimately include the adoption of virtual currencies.

However, the CBK is evaluating its role in this emerging area in the regulation of payment systems especially after the report of the International Monetary Fund making a case for digital currencies.<sup>47</sup> These far and wide consultations bearing in mind the report of the taskforce on digital technologies hopefully can lead to the creation of legislation that would offer the public adequate protection.<sup>48</sup> This move comes after the Government of Kenya sanctioned a task force to develop a framework on the blockchain technology and artificial intelligence (“taskforce on digital technologies”).<sup>49</sup> The Government hopes that these technologies may be the springboard to realizing financial inclusion in Kenya, combating cyber security, dealing with election processes, digital identities, and a delivery of public services beyond reproach by the government to the people.<sup>50</sup> The taskforce on digital technologies aims to lay a solid background for the development of a legislative and institutional framework for the use of cryptographic technology in Kenya possibly to include cryptocurrencies.<sup>51</sup> In exercising its statutory role on currencies’ flows, the CBK is guided by among others, the National Payment Systems Act, discussed below.

### **3.4 The National Payment System Act, 2011**

The National Payment System Act, 2011<sup>52</sup> defines a payment system as an arrangement or understanding between payers and beneficiaries to facilitate the settlement of payments.<sup>53</sup> The payment system usually involves the transfer of an instrument with some monetary value between the parties involved in the transaction. Through such transfers, payment systems also facilitate the circulation of currencies in an economy. A National Payment System, therefore, not only includes the transfer of instruments with some form of monetary value but also includes the procedures and the institutions related to the transfer of such instruments. It also includes the

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<sup>47</sup> Christine Lagarde and IMF Managing Director Singapore Fintech Festival, ‘Winds of Change: The Case for New Digital Currency’ (*IMF*).

<sup>48</sup> Valentine Kondo, ‘Kenya Blockchain Has Concluded Report on AI, Digital Accounting Integration’ (*The Standard*).

<sup>49</sup> Kenya Gazette Vol.CXX-No.33 of 9th March 2018.

<sup>50</sup> ‘Kenya Govt Sets up Blockchain & Artificial Intelligence Taskforce!’ (*Kenyan Wallstreet*, 16 January 2018).

<sup>51</sup> *Ibid*.

<sup>52</sup> Act No. 39 of 2011.

<sup>53</sup> Section 2, National Payment System Act.



rules, standards, persons, and the technology that facilitate such exchange and circulation of currency.<sup>54</sup>

For a payment to be effected in Kenya, money has to be paid to a beneficiary or an entry has to be passed through the CBK's settlement system or any other settlement system that has been designated as such by the regulator. The National Payment Systems Act, 2011 decrees such settlements to be final and irrevocable especially where such a settlement is credited to accounts maintained by participants in the National Payment System or any other payment system that is designated by the CBK. Additionally, entries into or payments made out of the account of any participant of payment systems designated by the CBK are also final and irrevocable.<sup>55</sup>

In overall, the foregoing legal analysis confirms the position that presently only fiat currencies form the regulatory subject of the payment systems in Kenya. The regulative mandate of the CBK is conspicuously silent on virtual currencies and the attendant regulatory necessities. The flipside is that cryptocurrencies remain an unregulated system that already is being used for payments and purchases in Kenya.<sup>56</sup>

### **3.5 Proceeds of Crime and Anti-Money Laundering Act, 2010**

Efforts to prevent money-laundering in Kenya involve the CBK and financial institutions acting as intermediaries to monitor transactions through the financial system and prevent any suspicious activity related to laundering.<sup>57</sup> The Know-Your-Customer requirements and customer identification requirements are supposed to assist in the identification of persons who deal with these commercial institutions. These are well captured in the Proceeds of Crime and Anti-Money Laundering Regulations, 2013 which were developed to give effect to the Proceeds of Crime and Anti-Money Laundering Act (POCAMLA)<sup>58</sup> through Legal Notice No. 59.<sup>59</sup>

The POCAMLA places regular financial reporting obligations on financial institutions (reporting centers).<sup>60</sup> These institutions must comply with the Know-Your-Client policies for financial institutions for proper record keeping, identification of customers, monitoring and reporting of

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<sup>54</sup> Ibid.

<sup>55</sup> Section 9, National Payment System Act.

<sup>56</sup> Sunday (n 45).

<sup>57</sup> The First Schedule of the Proceeds of Crime and Anti-Money Laundering Act, 2010 gives the supervisory mandate to the Central Bank of Kenya and other players in the money markets such as the Capital Markets Authority.

<sup>58</sup> Cap 59B of the Laws of Kenya.

<sup>59</sup> Section 134., Proceeds of Crime and Anti-Money Laundering Act, 2010.

<sup>60</sup> Section 44, 45, 46, 47, 47A and 48, National Payment System Act.

transactions.<sup>61</sup> These institutions must observe the requirements of utmost disclosure in sections 44, 45, 46, and 47 of the POCAMLA. In essence, these sections collectively require that institutions that offer financial services must report any transfer of funds that look suspicious. Reporting institutions under the Act have the responsibility to file their reports with the Financial Reporting Center established under section 21 of the POCAMLA. The Financial Reporting Center should conduct analysis of the reported unusual or suspect transactions in accordance with section 12 and 44 of the Act.

The anonymity which virtual currencies are renowned for makes it possible for financial institutions to maintain records, but not identify the faces of persons making the transactions. As such, this constantly frustrates and hinders the adherence by financial institutions to the Know-Your-Customer requirements and Customer-Identification-Procedures as demanded by POCAMLA.

### **3.6 Proceeds of Crime and Anti-Money Laundering Regulations, 2013**

As has been mentioned before, these were developed by the Cabinet Secretary for Finance under the powers given under section 134 of the POCAMLA, 2010. Regulation 5 reiterates the above stated position that reporting institutions must comply with sections 44, 45, 46 and 47 of the POCAMLA. Regulation 6 requires the reporting institutions to undertake risk assessments with the main objective of preventing and mitigating the possibility of money being laundered through their systems as well as testing the efficacy of their systems in combating money laundering. Additionally, the regulations require these reporting institutions to continuously update their systems, programs, and policies to take into account factors such as the entry of the institution into new markets or the introduction of new services and products for its clients.

Regulation 7 requires these institutions to take measures that are reasonable enough to ensure that new technologies such as cryptography are not used as vehicles for money laundering schemes. With regard to cross-border transactions, Regulation 8 requires that such transactions exceeding US\$ 10000 shall be declared and recorded by customs officers at border points or ports. The customs officer must then submit such declarations to the Director of the Financial Reporting Center for further action in accordance with Section 12 of the POCAMLA. Regulation 11 requires that reporting institutions shall refrain from opening or maintaining accounts with no

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<sup>61</sup> Regulation 12 of the Proceeds of Crime and Anti-Money Laundering Regulations, 2013.

identifiable owners or rather whose owners are either fictitious or anonymous. Part IV of the Regulations requires financial institutions to conduct due diligence and readily have verifiable information on their clients. This is also the part that requires the reporting institutions to implement the Know-Your-Customer policy in banking transactions. Regulation 23 requires the financial and designated non-financial institutions with foreign branches and/or subsidiaries to duly observe the measures established by the POCAMLA and of the Proceeds of Crime and Anti-Money Laundering Regulations, 2013 to the extent that the foreign or host country can allow their applicability. Finally, Regulation 26 requires the reporting institutions under the Act to ensure that in the course of offering money transfer or value transfer services the provider of such services are licensed or registered as a money transfer or value transfer service provider or money service business. Such money service business must have a robust policy and/or programme that effectively outlines how they deal with the prevention of money laundering. The system must be efficacious enough to guarantee effective monitoring of transactions, weeding out suspicious ones and generally ensure compliance with the legislative framework on money laundering in Kenya. This is just an exposition of the AML regulations affecting banks.

This study notes that the AML regulatory framework in Kenya as mainly anchored on the POCAMLA does not envisage regulation of virtual currencies. This precarious position leaves the fight against money-laundering incomplete. Virtual currencies, by their nature pose money laundering challenges and their use in Kenya would necessarily invite a revision of AML laws so as to conclusively address any loopholes. As it were it is currently impossible to dutifully adhere to the utmost disclosure requirements in Part IV of the regulations with respect to virtual currencies.

The next section of this study analyzes the Foreign Account Tax Compliance Act, 2010 whose extra-territorial effect finds application in Kenya. This is because of an international agreement between the Internal Revenue Services and financial institutions involved in any money business in different countries, Kenya included. In so far as this study is concerned, this is the only piece of legislation that actually deals with the trading and holding of virtual currencies in Kenya. Simply put, this law applies to financial institutions holding virtual currencies for persons in Kenya who are considered U.S persons for purposes of taxation. The law, therefore, places reporting obligations on financial institutions to report owners of virtual currencies in Kenya to the Internal Revenue Services.

### **3.7 The Foreign Account Tax Compliance Act, 2010 of the United States of America in Kenya**

The Foreign Account Tax Compliance Act, 2010 (“FATCA”) is an Act of the legislature of the United States of America.<sup>62</sup> FATCA is an extra-territorial legislation aimed at enforcing taxation on American citizens staying in the diaspora. Section 1 of FATCA requires automatic transfer of financial information from foreign financial and investment institutions and the United States about U.S persons with foreign financial accounts. It must be noted that the exchange of information is not between governments but between financial institutions and the Internal Revenue Service (IRS) of the United States.<sup>63</sup> The IRS hopes that FATCA can effectively solve the problem of tax evasion by requiring that foreign financial institutions file information disclosing financial activities of American citizens with foreign financial accounts. Failure to which such foreign financial institutions shall be subjected to a 30% withholding tax on income gotten from the United States.<sup>64</sup> Section 1 of FATCA defines a Foreign Financial Institution to mean an institution that maintains any depository or custodial account or any equitable or debt interest for a U.S person. The primary purpose or intention of the Act is, therefore, to prevent and discourage its US nationals from tax evasion through maintaining offshore accounts. FATCA aims to enhance greater transparency through a robust financial reporting system to prevent and deter tax evasion by its nationals. Viewed differently, FATCA invites a limitation to privacy of financial information by disclosing the ownership and location of owners of financial instruments.<sup>65</sup>

#### **3.7.1 Relevance of FATCA to Virtual Currencies**

The primary purpose of FATCA was the prevention of tax evasion and other fraudulent practices by American citizens or companies registered in the United States through foreign financial institutions.<sup>66</sup> The enactment of FATCA brings into question the classification of virtual currencies under the systems of the IRS of the United States. The IRS views cryptocurrencies as

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<sup>62</sup> Joanna Heiberg, ‘FATCA: Toward a Multilateral Automatic Information Reporting Regime’ (2012) 69 Washington and Lee Law Review 1685.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Section 2 of FATCA.

<sup>66</sup> Lisa De Simone, Rebecca Lester and Kevin Markle, ‘Transparency and Tax Evasion: Evidence from the Foreign Account Tax Compliance Act (FATCA)’ (Social Science Research Network 2018) SSRN Scholarly Paper ID 3037426.

assets for purposes of tax collection. Therefore, any transfer involving any form of digital currency is considered a transfer or exchange of property and must, therefore, be subjected to the Capital Gains tax regime.<sup>67</sup> US persons, being citizens or institutions registered in the United States, with foreign financial account or foreign crypto wallets holding over 10000 USD within any given day of any given financial year from 2011 must file tax returns showing the same.<sup>68</sup> The foreign financial institutions that are holding or maintaining cryptowallets or financial accounts with digital currencies must make a point of continuously liaising with the IRS for the exchange of such information in accordance with Internal Revenue Code Section 1471(d)(5).<sup>69</sup> In essence, FATCA affected financial institutions in Kenya need to obtain information on their affected clients dealing in virtual currencies. Practically, this is a tall order as these Kenyan based institutions still lack Kenyan legislative guidance on virtual currencies.

### **3.8 Conclusion**

The chapter's analysis of the prevailing legislative framework on payments and settlement systems read together with the CBK's mandate on currencies reveal a dearth of legislation on virtual currencies. The regulatory framework is well tailored to address questions of the legal tender, the use and circulation of fiat currencies, and the recognition and exchange of foreign currencies. However, the legislator and the CBK remain silent on questions around virtual currencies. The CBK's initial warning against use of virtual currencies served as an indicator of the government's reluctance to embrace virtual currencies. However, the taskforce on digital technologies read together with the CBK's late warm embrace heralds a shifting perspective. Be that as it may, overwhelming evidence leads us to conclude that despite the benefits incidental to the use of virtual currencies, they currently do not fall within any form of regulatory control in Kenya.

In chapter four, the study shall undertake a review of various case studies on ongoing regulation of virtual currencies from other jurisdictions. The review is aimed at examining the best practice on the adequacy and efficacy of regulations of virtual currencies in a manner responsive to the attendant challenges in the use of virtual currencies. This study adopts the view that a regulatory

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<sup>67</sup> Ibid.

<sup>68</sup> Ibid.

<sup>69</sup> Payments to Foreign Financial Institutions Under FATCA: Reporting and Withholding Requirements - Tax Guidance Essentials - Tax Law - LexisNexis® Legal Newsroom.

framework must have adequate reporting and disclosure requirements, dispute resolution mechanisms, an appropriate institutional framework, among others in order to be considered legally robust and efficient for the purpose for which it is established.<sup>70</sup>

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<sup>70</sup> Jordi Herrera-Joancomartí and Cristina Pérez-Solà, 'Privacy in Bitcoin Transactions: New Challenges from Blockchain Scalability Solutions' in Vicenç Torra and others (eds), *Modeling Decisions for Artificial Intelligence* (Springer International Publishing 2016).

## **4.0 CHAPTER FOUR: ANALYSIS OF THE JAPANESE AND AUSTRALIAN APPROACH**

### **4.1 Introduction**

In chapter three, the study undertook an analysis of the prevailing regulatory framework on national payment and settlement systems in Kenya. The study identified the dearth of legislation on virtual currencies in Kenya. It highlighted the legislator's focus on legal tender including the circulation and use of fiat currencies in addition to the recognition and exchange of foreign currencies. The study concluded that the prevailing regulatory framework was undesirable after failing to regulate Kenya's virtual currency market.

Chapter four reviews select case studies on the regulation of virtual currencies by drawing lessons from other jurisdictions. To that end, chapter four examines the effectiveness and adequacy of the best practices in these select jurisdictions. Chapter five will make a case for adoption of these best practices as proposed regulations that should govern the recognition and use of virtual currencies in Kenya.

The chapter analyses some of the regulatory responses to virtual currencies from different jurisdictions globally. The jurisdictions' selection, to wit Australia and Japan, are informed by their adoption of best practices and their regulatory approaches in ensuring effective and efficient use of virtual currencies. This chapter also discusses some of the challenges that virtual currencies present to regulators. It concludes by making a case for the development of an international uniform practice with regards to virtual currencies to adequately address those challenges.

The chapter has five sections. Section one introduces chapter four; section two discusses the justification for selecting the two jurisdictions; and section three delves into the legal framework governing dealings in virtual currencies in the two countries chosen. It addresses the taxation of virtual currencies, consumer protection, anti-money laundering and financing of terrorist activities, payment systems, and virtual currencies as securities and investments. The fourth section discusses the gaps identified in the jurisdictions under study according to the study. The last section is the conclusion of chapter four.

#### 4.1.1 Justification for selecting Australia and Japan as Case Studies

It should be noted from the onset that, currently, taxation and the aligning of virtual currencies with anti-terrorist financing and anti-money laundering regulations remain two of the greatest concerns for countries that have managed to develop a regulatory framework for virtual currencies.<sup>1</sup> Additionally, countries still maintain that investments in virtual currencies are risky investments because of high price volatility, the anonymity associated with the parties involved in transactions, and the absence of governmental backing.<sup>2</sup> Some notable responses from governments are the complete prohibition of virtual currencies in certain jurisdictions with the intention of curtailing their development and growth, the positive regulation with adoption of a legal framework to govern the operations of virtual currencies in others, and lastly, some sort of indifference to the operation of virtual currencies in others.<sup>3</sup> Out of the elicited responses, this study, therefore, settled on evaluating the legal and regulatory responses to virtual currencies in countries that have approached their regulation in a positive way.

This study elects to evaluate the regulatory and policy response to virtual currencies in Australia, and Japan based on the fact that these countries have given a positive, formal, and legal recognition to virtual currencies and, therefore, aiding the operationalization of virtual currency markets in these countries. For example, there are ongoing efforts to enact new laws or amend existing laws as a proactive response to the threats that virtual currencies pose to economies. Additionally, this study hopes that the legal recognition that these countries have given to virtual currencies could inform the development of a legal, institutional, and policy framework that adequately addresses the existing concerns and threats posed by virtual currencies in Kenya. Most importantly, this study recognizes the importance of promoting invention and innovation in fintech as well as the protection of consumers of financial products. Lastly, it appears that whether or not governments approve of virtual currencies, the latter are here to stay and hence the best approach is in favour of a proactive regulatory framework rather than a reactive approach in the event that the identified risks explode on a full scale.<sup>4</sup>

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<sup>1</sup> Matthew Kien-Meng Ly, 'Coining Bitcoin's Legal-Bits: Examining the Regulatory Framework for Bitcoin and Virtual Currencies' (2013) 27 *Harvard Journal of Law & Technology* 587.

<sup>2</sup> *Ibid.*

<sup>3</sup> Omri Marian, 'A Conceptual Framework for the Regulation of Cryptocurrencies' (2015) 82 *University of Chicago Law Review Dialogue* 53.

<sup>4</sup> *Ibid.*



## 4.2 Regulation of Virtual Currencies in Australia

Quite a number of countries, including Australia, have taken a keen interest in investigating the opportunities and challenges that virtual currencies may pose to the regulatory framework for financial services.<sup>5</sup> The regulatory regime for virtual currencies in Australia addresses related regulatory concerns through the lens of taxation, anti-money laundering and counterterrorism financing, consumer protection, payment systems, and securities and investments.<sup>6</sup> The ensuing sections examine the Australian approach towards the regulation of virtual currencies.

### 4.2.1 Taxation of Cryptocurrencies in Australia

In Australia, legislation on taxation is crafted in such a way that it only imposes and regulates the taxation on a single subject matter.<sup>7</sup> This has the result of several statutes being crafted by the commonwealth parliament to address the many subjects of taxation such as income tax,<sup>8</sup> taxation of goods and services,<sup>9</sup> taxation of fringe benefits,<sup>10</sup> among others. For purposes of taxing cryptocurrencies in Australia, there are different regimes that cryptocurrencies avail themselves to depending on the nature of each particular transaction. The tax collection agency, the Australian Tax Office (ATO), demands that persons dealing with cryptocurrencies keep every single record of their day-to-day transactions.<sup>11</sup> In order to bring cryptocurrencies within the taxation regime of Australia, the ATO developed and published rules in a tax guidance document for purposes of taxing cryptocurrencies.<sup>12</sup>

Currently, the ATO is of the opinion that each transaction involving virtual currencies must be treated individually and is open to two approaches for purposes of taxing virtual currencies.<sup>13</sup> Firstly, the direct sales approach suggests that registered entities engaging in the mining and supplying of virtual currencies must pay the goods and services tax from the proceeds of direct

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<sup>5</sup> Flavio Rubinstein and Gustavo Gonçalves Vettori, 'Taxation of Investments in Bitcoins and Other Virtual Currencies: International Trends and the Brazilian Approach' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3135580.

<sup>6</sup> Australian Taxation Office, 'Tax Treatment of Crypto-Currencies in Australia - Specifically Bitcoin.'

<sup>7</sup> Section 55 of the Australian Constitution.

<sup>8</sup> Income Tax Assessment Act, 1936 and Income Tax Assessment Act, 1997.

<sup>9</sup> Goods and Services Tax Act, 1999.

<sup>10</sup> Fringe Benefits Tax Assessment Act, 1986.

<sup>11</sup> Australian Taxation Office, 'Tax Treatment of Crypto-Currencies in Australia - Specifically Bitcoin'.

<sup>12</sup> Ibid.

<sup>13</sup> Senate Economic References Committee, 'Digital Currency – Game Change or Bit Player' (2015) at p.31.

sales.<sup>14</sup> Secondly, the principal-agency relationship where businesses act as the agents of their customers implies that the businesses do not hold any virtual currencies but merely facilitate the sale or purchase of virtual currencies. In this model, the business is liable to pay taxes on the fee they charge for facilitating the purchase and sale of virtual currencies.<sup>15</sup>

#### **4.2.2 Securities and Investments in Virtual Currencies**

According to the Australian Securities and Investment Commission (ASIC), virtual currencies cannot be defined as financial products as laid out in the ASIC Act, 2001 (herein referred to as the Act).<sup>16</sup> ASIC argues that virtual currencies do not readily meet to the requirements of section 12BAA in the Act that a financial product must be capable of providing individuals with a means of making a financial investment, managing the risks associated with the financial investment or the making of non-cash payments.<sup>17</sup> However, the ASIC maintains that the holding of virtual currencies for long periods of time leads to their classification as derivatives under section 761D of the Corporations Act.<sup>18</sup>

Additionally, the ATO maintains that any investment in cryptocurrencies will be taxed under the Capital Gains Tax regime if the holder disposes them off through a number of ways such as the sale or gifting away of cryptocurrencies, the purchase of goods using cryptocurrencies, the conversion of one cryptocurrency for another and the conversion of cryptocurrencies to fiat currencies, all form part of transfer of property.<sup>19</sup> This implies that the Australian Tax Office for the purposes of Capital Gains Tax treats cryptocurrencies as assets that can be transferred from one holder to another with subsequent isolation of the capital gains or losses realized from such transactions. The guidelines dictate that any capital gain or loss realized from the disposal of a cryptocurrency through purchase of goods or services meant for private or personal consumption as long as they cost 10000 Australian dollars must be disregarded.<sup>20</sup>

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<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Act No. 51 of 2001.

<sup>17</sup> Senate Economic References Committee, '*Digital currency—game changer or bit player,*' (2015) at p8.

<sup>18</sup> ASIC, Senate inquiry into digital currency: Submission by the Australian Securities and Investments Commission, p12.

<sup>19</sup> Australian Taxation Office- Transacting with Cryptocurrency.

<sup>20</sup> Australian Taxation Office (ATO), '*Tax Treatment of Crypto-Currencies in Australia – Specifically Bitcoin,*' (2017).

According to the guidance from the ATO, virtual currency transactions are similar to the ancient barter trade arrangements and not fiat currency arrangements.<sup>21</sup> Therefore, individuals are expected to keep accurate records of all transactions for tax purposes.<sup>22</sup> Additionally, remuneration terms for employees that include payment of fringe benefits using virtual currencies must be subjected to the fringe benefits tax.<sup>23</sup> Additionally, any profits earned through the mining of virtual currencies must be included as part of the taxable income of the business during tax assessment and expenses wholly and exclusively incurred during the generation of the income of the business deducted.<sup>24</sup>

#### **4.2.3 Anti-Money Laundering and Counterterrorism Financing Laws and Regulations**

In efforts to prevent virtual currency from being used for money laundering and terrorism financing, the Australian parliament amended the existing laws on anti-money laundering and counter-terrorism.<sup>25</sup> The enactment of the new law was part of the regular review process of the Anti-Money Laundering and Counterterrorism Financing Act that took effect on 3 April 2018.<sup>26</sup> The development of laws to curb money laundering through virtual currencies was born out of the concerns raised by the State agencies including the Senate Economics References Committee and the Productivity Commission in their proposals for the creation of a legal and regulatory framework for the operation of businesses in cryptocurrencies in 2015.<sup>27</sup>

Additionally, the new anti-money laundering laws were enacted based on the recommendations of the Financial Action Taskforce<sup>28</sup> on the regulations of business entities dealing in virtual currencies.<sup>29</sup> The enacted laws require businesses dealing with virtual currencies to seek registration from the Australian Transaction Reports and Analysis Centre (AUSTRAC).<sup>30</sup> Additionally, registered businesses must develop anti-money laundering and counterterrorism

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<sup>21</sup> Australian Taxation Office (ATO), 'Tax Treatment of Crypto-Currencies in Australia – Specifically Bitcoin,' (2017).

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> The Anti-Money Laundering and Counter-terrorism Financing Amendment Act, 2017.

<sup>26</sup> Attorney-General's Department, 'Regulating Digital Currencies Under Australia's AML/CTF Regime: Consultation Paper' (2017).

<sup>27</sup> Productivity Commission, Business Set-Up, Transfer and Closure 240–44, (Inquiry Report No. 75 (2015)).

<sup>28</sup> Financial Action Task Force, "International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation – the FATF Recommendations."

<sup>29</sup> Cat Barker, 'Anti-Money Laundering and Counter-Terrorism Financing Amendment Bill 2017', Bills Digest No. 47, 2017-18 (2017), Parliament of Australia.

<sup>30</sup> Part 2 Section 4, the Anti-Money Laundering and Counter-terrorism Financing Act, 2008.

programs that aid in the mitigation of the risks common to money laundering as well as customer identification and verification programs. Such programs are to include the reporting of suspicious transactions, transactions that exceed the maximum threshold, international money transfer requests, reports on the compliance with the Act, the keeping and maintenance of records of transactions during the course of the business.<sup>31</sup>

#### **4.2.4 Virtual Currencies and Consumer Protection in Australia**

According to the Trade Practices Amendment (Australian Consumer Law) Act<sup>32</sup> (herein referred to as TPA 2010) a consumer is defined under section 3 of the Act as any person who pays or is expected to pay at least \$40000 for goods or services received. TPA 2010 seeks to protect consumers of services offered by businesses and persons dealing in virtual currencies in Australia in a number of ways as will be listed hereunder. TPA 2010 dictates that any person or business entity that seeks to offer any services to a consumer must sufficiently undertake to guarantee that the services will be rendered with due care and skill.<sup>33</sup> The business entities or persons must also ensure that the services they are offering to consumers are fit for the purpose for which the consumers seek to have satisfied.<sup>34</sup> Additionally, TPA 2010 forbids business enterprises and business persons from making consumer contracts that are unfair to the consumers by reason of involving unfair contractual terms.<sup>35</sup> Suppliers of goods and services to consumers are also forbidden from making consumer contracts that are a deviation from the standard form of consumer contracts as dictated by TPA 2010.<sup>36</sup> Finally, business entities and persons operating in Australia are forbidden from engaging in unconscionable conduct or putting out information that may mislead consumers.<sup>37</sup>

As the name consumer protection suggests, the primary aim of consumer protection laws is the protection of the interests of the consumers.<sup>38</sup> Fundamentally, there is no better guarantee for the protection of the interests of consumers than the provision of timely, adequate, and sufficiently

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<sup>31</sup> Section 184(4), the Anti-Money Laundering and Counter-terrorism Financing Act, 2008.

<sup>32</sup> No. 2 of 2010.

<sup>33</sup> Clause 60, Trade Practices Amendment Act, 2010.

<sup>34</sup> Clause 61, Trade Practices Amendment Act, 2010.

<sup>35</sup> Clause 23, Trade Practices Amendment Act, 2010.

<sup>36</sup> Ibid.

<sup>37</sup> Clauses 18 and 20, Trade Practices Amendment Act, 2010.

<sup>38</sup> Geraint Howells and Stephen Weatherill, *Consumer Protection Law* (Routledge 2017).

informative information on any given product that is being offered to them.<sup>39</sup> This information is vital as it aids in the making of informed decisions and choices about the products being availed in the markets.<sup>40</sup>

#### **4.2.5 Virtual Currencies and Payment Systems in Australia**

The regulation of the payment systems of Australia falls under the mandate of the Reserve Bank of Australia.<sup>41</sup> The Reserve Bank Act<sup>42</sup> dictates that the Bank shall be responsible for the development of a sound monetary policy, maintaining Australia's financial stability, the establishment and maintenance of the Australian payment systems policy.<sup>43</sup> Of utmost importance is the fact that the Bank has responsibility to designate payment systems in Australia.<sup>44</sup> This can only be done on account of public interest.<sup>45</sup> The findings of the report of the Treasury through its Financial Systems Inquiry in 2015 established that virtual currencies were still not common in Australia but the situation was highly likely to change in the coming years.<sup>46</sup> It is for this reason that the Reserve Bank of Australia currently does not consider virtual currencies as part Australian currencies but the government is alive to the fact that the current regulatory framework on payment systems must anticipate embracing virtual currencies as part of the payment systems.<sup>47</sup>

In conclusion, as demonstrated in the foregoing paragraphs Australia takes a proactive approach that neatly fits the application and use of virtual currencies within the legal system. In turn, Australia addresses teething questions around taxation, antimoney laundering and counterterrorism, consumer protection, payment systems, and investments and securities.

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<sup>39</sup> Jeffrey Naimon and others, 'Caveat Emptor or Caveat Vendor: The Evolution of Unfairness in Federal Consumer Protection Law' (2015) 132 Banking Law Journal 3.

<sup>40</sup> Ibid.

<sup>41</sup> The Bank is established through the provisions of the Reserve Bank Act, No. 4 of 1959.

<sup>42</sup> Reserve Bank Act, No. 4 of 1959.

<sup>43</sup> Section 10(2) of the Reserve Bank Act, No. 4 of 1959.

<sup>44</sup> Section 11 (1) of the Reserve Bank Act, No. 4 of 1959.

<sup>45</sup> Ibid.

<sup>46</sup> 'Government Response to the Financial System Inquiry – Treasury.Gov.Au'.

<sup>47</sup> Adoption of Recommendation No. 16 of the report from the Financial System Inquiry (n. 41).

## 4.3 Regulation of Virtual Currencies in Japan

### 4.3.1 Introduction

Beginning April 2017, virtual currencies have gained prominence in Japan due to the amendment of the Payment Systems Act, 2017<sup>48</sup> to accommodate virtual currencies as part of the legally recognized payment systems of Japan.<sup>49</sup> The regulation of virtual currencies as such was out of the necessity to align virtual currencies with the national payment systems.<sup>50</sup> Therefore, the registration, record-keeping, securities measures to protect the businesses as well as the consumers among other issues are regulated by the Payment Services Act (herein referred to as PSA 2017).

Additionally, Japan has regulations for preventing money laundering and the financing of terrorist activities.<sup>51</sup> The report<sup>52</sup> of the taskforce<sup>53</sup> created to look into the integration of virtual currencies into the national payment system came up with recommendations to wit: the creation of a system for the registration of business that wish to deal in the exchange of virtual currencies, the development of laws and regulations to curb money laundering and the financing of terrorist activities, and a mechanism for the protection of users of virtual currencies.<sup>54</sup> Following the submission of the report of the taskforce to the Financial Services Agency, a bill for the amendment of the Payment Systems Act was passed in 2016 and officially came into force on 1 April 2017.<sup>55</sup> This has the effect of giving official legal recognition to virtual currencies as a method of payment. The following section is dedicated to in-depth analysis of the relevant legal and regulatory framework for virtual currencies in Japan.

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<sup>48</sup> Payment System Act B.E. 2560 (2017)

<sup>49</sup> 'Japan: A Forward Thinking Bitcoin Nation' <<https://www.forbes.com/sites/outofasia/2017/11/02/japan-a-forward-thinking-bitcoin-nation/#de13c2d33a3f>> accessed 17 December 2018.

<sup>50</sup> Report from the Working Group on Sophistication of Payment and Settlement Operations, chapter 5 (Dec. 22, 2015).

<sup>51</sup> Act on Prevention of Transfer of Criminal Proceeds, Act No. 22 of 2007, *amended by* Act No. 67 of 2017.

<sup>52</sup> Report from the Working Group on Sophistication of Payment and Settlement Operations, chapter 5 (Dec. 22, 2015).

<sup>53</sup> The Working Group on Sophistication of Payment and Transaction Banking created on 28<sup>th</sup> April 2015.

<sup>54</sup> Chapter Five of the Report (n 52).

<sup>55</sup> Payment Systems Act, No. 59 of 2009 amended by Act No. 62 of 2016.

### 4.3.2 The Registration of Businesses for the Exchange of Virtual Currencies

The definition of virtual currencies, according to the Payment Systems Act, is that cryptocurrencies have some property value in them that can be used for purchasing goods and/or services by anonymous individuals.<sup>56</sup> They can also be sold or bought from anonymous individuals and they are transferred through electronic systems for the processing of such data. PSA 2017 also provides an alternative definition of cryptocurrencies that implies that they have some property value in them that upon an existing mutual agreement between anonymous parties can be transferred through electronic systems that process data.<sup>57</sup>

To trade/deal in virtual currencies, businesses must be registered by a competent finance bureau in their locality.<sup>58</sup> In order to be considered competent, such a bureau must be duly registered to run a business for the exchange of virtual currencies.<sup>59</sup> Additionally, such business must have an office and a representative residing in Japan before it can conduct business in Japan. It must also be a stock company.<sup>60</sup> During the operation of the business, water-tight security systems are necessary to protect the information that the business entity shall be holding in the course of its operations.<sup>61</sup> These business entities must constantly avail information to its clients especially on the contractual terms that must be met by the clients.<sup>62</sup> Besides this, these businesses are expected to clearly separate investments made using the client's money and those they have made using their own money. Simply put, there must be a proper system of accountability that sets a clear delineation between money belonging to the business and those belonging to clients when making investments.<sup>63</sup> Lastly, such business entities are also required to put in place proper dispute resolution mechanisms for the resolution of conflicts during the duration of the business.<sup>64</sup>

Again, Article 63-12 paragraph one of PSA 2017 reiterates the importance of a business keeping records of transactions it undertakes involving cryptocurrencies. On an annual basis, these records contained in the annual financial report of the business have to be presented to the

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<sup>56</sup> Article 2 paragraph 5 of the Payment Systems Act, No. 59 of 2009 amended by Act No. 62 of 2016.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Articles 63-2 and 63-3, Payment Systems Act, 2009.

<sup>60</sup> Article 63-5, paragraph 1, Payment Systems Act, 2009.

<sup>61</sup> Article 63-8, Payment Systems Act, 2009.

<sup>62</sup> Article 63-10, Payment Systems Act, 2009.

<sup>63</sup> Article 63-11, Payment Systems Act, 2009.

<sup>64</sup> Article 63-12, paragraph, Payment Systems Act, 2009.

Financial Services Agency.<sup>65</sup> Alternatively, the Financial Services Agency can order business to submit their reports as well as any documents of importance on the operations of the firm. It may also send its officers to inspect the business premises without any notice in order to ensure that at all times the business conforms to the laws and regulations.<sup>66</sup> It may also issue strict instructions when the need for such arises especially with regards to how the business can improve its business operations.<sup>67</sup> The supervisory mandate of the Financial Services Agency extends to the rescission of the registration of any business for up to a maximum of six months in circumstances where a business entity fails to comply with the law. It may also withdraw the license of a business that was illegally registered or any violation of the provisions of the Act.<sup>68</sup>

#### **4.3.3 The Regulation of Initial Coin Offerings (ICOs) in Japan**

Initial Coin Offerings or simply, ICOs as have been mentioned in previous chapter 3 of this research are akin to Initial Public Offerings.<sup>69</sup> In Japan currently, the regulatory instrument for virtual currencies does not make any provisions for offering cryptocurrencies to the public as an investment vehicle, the essential purpose of an ICO. However, the Financial Services Agency is currently looking into the development of a regulatory framework for Initial Coin Offerings. The plans of the agency include the revision of the law on financial instruments and exchange as well as the payment services during the new year's ordinary session of parliament that is slated to begin in January.<sup>70</sup> Additionally, there have been private initiatives on the offering of coins to the public that are aimed at facilitating the discussion on the development of the legal and regulatory framework for ICOs.<sup>71</sup>

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<sup>65</sup> Article 63-13, Payment Systems Act, 2009.

<sup>66</sup> Article 63-15, Payment Systems Act, 2009.

<sup>67</sup> Article 63-16, Payment Systems Act, 2009.

<sup>68</sup> Article 63-17, Payment Systems Act, 2009.

<sup>69</sup> Jiasun Li and William Mann, 'Initial Coin Offerings and Platform Building' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3088726.

<sup>70</sup> Ryoji Kitami and Yukata Shuto, 'Study on Protection of Financial Services Users in view of International Development: International Comparison of Cryptocurrency Regulation and Possibility of Issuance of Digital Currency by Central Banks' (2018).

<sup>71</sup> "ICO of Cryptocurrency, Rules Recommended – By Study Group that 3 Megabanks Joined," BLOOMBERG (2018).



#### 4.3.4 Taxation of Virtual Currencies

Unlike the other previously mentioned jurisdictions, the taxation of cryptocurrencies is a straightforward matter in Japan under the Income Tax Act.<sup>72</sup> Earning from the disposal of virtual currencies are not accounted for as capital gains. Instead, the National Tax Agency treats the proceeds from the transfers as miscellaneous income based on the provisions of the Income Tax Act.<sup>73</sup> During the calculation of a person's taxable income, income from the disposal of virtual currencies forms part of the person's total income.<sup>74</sup> Essentially, this implies that in Japan, virtual currencies are the subject of the Income Tax Act. Income generated from dealing in virtual currencies by individuals is thus treated in the same way that gains or losses from trading virtual currencies would be treated.<sup>75</sup> The net income is calculated by adding up aggregate incomes and then subtracting any expenses incurred in generating the incomes.<sup>76</sup> The National Tax Agency (the main government revenue collection institution) also makes a list of dealings in virtual currencies that constitute miscellaneous income for purposes of taxing such dealings.<sup>77</sup> They include proceeds from the sale of virtual currencies; any purchase of goods or payment for services using virtual currencies; the exchange of one virtual currency for another; margin transactions and the mining of virtual currencies.<sup>78</sup> It must be noted that virtual currencies are now only a subject of the income tax regime based on the order that revised the provisions of the Consumption Tax Act<sup>79</sup> to exclude its applicability to dealings in virtual currencies.<sup>80</sup>

#### 4.3.5 Virtual Currencies and the Anti-Money Laundering Regulations in Japan

During the amendment of the Payment Services Act<sup>81</sup> to integrate virtual currencies into the payment systems of Japan, the Act on Prevention of Transfer of Criminal Proceeds<sup>82</sup> so as to subject business entities that would be dealing with virtual currencies under its provisions on anti-money laundering. Therefore, business entities that deal in virtual currencies have to pull

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<sup>72</sup> No. 33 of 1965 as amended by Act No. 74 of 2017.

<sup>73</sup> Article 35, Income Tax Act 1965.

<sup>74</sup> Article 89 of the Income Tax Act, 1965.

<sup>75</sup> 'National Tax Agency' <<http://www.nta.go.jp/index.htm>> accessed 13 January 2019.

<sup>76</sup> 'Japan Income Tax on Virtual Currencies – Tokyo FinTech – Medium'.

<sup>77</sup> Ibid.

<sup>78</sup> Ibid.

<sup>79</sup> Act No. 108 of 1988.

<sup>80</sup> 'Japan Income Tax on Virtual Currencies – Tokyo FinTech – Medium' (n 76).

<sup>81</sup> Act No. 59 of 2009.

<sup>82</sup> Act No. 62 of 2016.

down the mask of anonymity associated with virtual currencies,<sup>83</sup> keep accurate records of all transactions<sup>84</sup> and notify the relevant authorities under the Act of any business transaction that raises suspicion.<sup>85</sup>

Most importantly, the amended Payment Services Act<sup>86</sup> introduced a preregistration system that requires businesses engaging in dealings in virtual currencies to register with the financial services regulator, the Financial Services Agency and be under the strict supervision of the Agency.<sup>87</sup> Additionally, these registration licenses are only to be granted by the office of the Prime Minister.<sup>88</sup>

The Act on Prevention of Transfer of Criminal Proceeds (herein referred to as the APTCP Act) has the most definitive provisions on the prevention of money-laundering and the financing of terrorism through virtual currencies. Firstly, the APTCP Act restricts businesses that can undertake dealings in virtual currencies to those that have been registered and are to be referred to as ‘specific businesses’ upon registration.<sup>89</sup>

The APTCP Act also requires specific businesses to keep accurate and clear records of any dealings with its clients that involve virtual currencies.<sup>90</sup> Such information is to include the identities of the clients, the purpose for such transactions being conducted, the occupation of the individual or the trade the artificial person is involved in, the identity of the directors in the event of artificial persons, the total assets held by the individual or business entity, and the sources of income for the individual or revenue stream for the business entity.<sup>91</sup> The APTCP Act requires the specific business to create and maintain the data bases with this information for a period of seven years beginning on the date the specific businesses entered into dealings with each of its clients.<sup>92</sup> The finer details of the transaction<sup>92</sup> must also be recorded from the moment the transaction is confirmed by the entity.<sup>93</sup> Article 8 of the APTCP Act places reporting obligations on these specific businesses especially that of reporting any transaction that the entities deem as

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<sup>83</sup> Article 4, Act on Prevention on Transfer of Criminal Proceeds.

<sup>84</sup> Article 7, Act on Prevention on Transfer of Criminal Proceeds.

<sup>85</sup> Article 8, Act on Prevention on Transfer of Criminal Proceeds.

<sup>86</sup> Act No. 59 of 2009.

<sup>87</sup> Article 63-3, Payment Services Act.

<sup>88</sup> Article 63-2, Payment Services Act.

<sup>89</sup> Article 2(2)-31, Act on Prevention of Transfer of Criminal Proceeds.

<sup>90</sup> Article 4, Act on Prevention of Transfer of Criminal Proceeds.

<sup>91</sup> Ibid.

<sup>92</sup> Article 6 & 7, Act on Prevention of Transfer of Criminal Proceeds.

<sup>93</sup> Ibid.

suspicious. In fact, the Act requires that any transaction that is suspicious must be reported and that this should not be limited to monetary receipts but virtually any transaction that appears suspicious to the business.<sup>94</sup> The specific entities must also report instances where they harbour any doubts as to the nature of the transactions especially when those doubts lead them to thinking that there could be money laundering involved.<sup>95</sup>

Finally, the APTCP Act requires that specific businesses must put in place a proper and efficient in-house management systems that ensures compliance with the provisions of the Act, a proper information management system, a training program for its staff especially on the reporting of suspicious transactions and prevention of money-laundering, and a full-time auditing system.<sup>96</sup>

In conclusion, Japan's approach takes into consideration questions around the requirement for registration to deal in virtual currencies' exchange business, taxation, anti-money laundering, and the ongoing consideration of initial coin offering. In a nutshell, Japan has cautiously but nonetheless embraced the use of virtual currencies within its legal and economic system.

#### **4.4 Gaps Identified in the Case Studies**

Firstly, based on the case studies, there is not much in the way of addressing securities and investments in virtual currencies especially with regards to the capital markets. Whereas virtual currencies may have characteristics of securities, currently the legal regime in Australia finds them short of the definition of a financial product as they do not provide individual with means of making financial investments.<sup>97</sup>

Secondly, there is not much in the way of regulating the volatility of the prices of virtual currencies. It appears that the above case studies have not yet thought of a legal mechanism that can be used to curb the worrying volatility in the prices of cryptocurrencies such as Bitcoins that has seen investors incur losses.

#### **4.5 Conclusion**

This study summarizes by elucidating that in the different jurisdictions that have been analyzed, rather than stifling the growth and innovation of financial technology, these jurisdictions have

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<sup>94</sup> Article 8(1), Act on Prevention of Transfer of Criminal Proceeds.

<sup>95</sup> Article 8(2), Act on Prevention of Transfer of Criminal Proceeds.

<sup>96</sup> Article 11, Act on Prevention of Transfer of Criminal Proceeds.

<sup>97</sup> Act on Prevention of Transfer of Criminal Proceeds.

taken it upon themselves to utilize fintech for economic development. Perhaps, this is because whether or not financial regulators agree to the trading and dealing in virtual currencies, they appear to be here to stay.<sup>98</sup>

Both Japan and Australia have taken deliberate regulative measures intended to harmonise the use and recognition of virtual currencies within their transactional systems. In Japan, the regulation focuses on the requirement for registration to deal in virtual currencies' exchange business, taxation, anti-money laundering, and the on-going consideration of initial coin offering. Australia's regulations focus on taxation, antimoney laundering and counterterrorism, consumer protection, payment systems, and investments and securities.

Given that virtual currencies have already penetrated into the Kenyan commercial space, the two jurisdictions that have allowed the operation of virtual currencies provide some of the best approaches that Kenya can follow in regulating virtual currencies. From the research it is evident that there are aspects of the operation of virtual currencies that must be addressed before virtual currencies can be incorporated into the commercial sector in Kenya. Firstly, in order for the regulatory framework to be effective, it must adequately address issues of taxation of the holding, investing, and any other dealing in virtual currencies. Additionally, it comes out clearly that Kenya has to adjust the anti-money laundering and financing laws and regulations to seal any loophole of virtual currencies being used to finance terror or escape the watchful eye of tax authorities. From the lessons drawn from Australia and Japan, consumers must be adequately protected from fraudulent dealers and businesspersons engaging in unconscionable acts. Lastly, business persons dealing in virtual currencies must be closely monitored and every bit of information in the course of business must be recorded and registered in the annual reports to be submitted to regulators.

From this chapter it is evident that before the CBK can make up its mind on whether to legalize transactions in virtual currencies or not, a thorough investigation into the operationalization of virtual currencies is warranted. Such investigations should, however, involve a host of other state agencies and all stakeholders in the provisions of financial services in Kenya as virtual currencies and the distributed ledger and blockchain technology hold a lot of potential for the development of the economy.<sup>99</sup>

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<sup>98</sup> William J Luther, 'Bitcoin and the Future of Digital Payments' (2016) 20 *The Independent Review* 397.

<sup>99</sup> Pedro Franco, *Understanding Bitcoin: Cryptography, Engineering and Economics* (John Wiley & Sons 2014).

Chapter five shall discuss the regulative recommendations that Kenya should pursue for a robust recognition and application of virtual currencies. These recommendations shall be borrowed from best practice picked from the jurisdictions examined as well as from scholarly proposals globally.

## **5.0 RECOMMENDATIONS AND CONCLUSIONS**

### **5.1 Introduction**

Chapter one introduces the study generally with a specific discussion on the study's approach. The literature review section in chapter one broadly introduced virtual currencies and their roles in the global economy. Chapter one also broaches the study's aim which is to make a case for the recognition of virtual currencies as legal tender and the establishment of regulatory measures for their use as currencies in Kenya.

The primary focus of the study is borne out of the need to thoroughly examine the regulatory framework around the development of virtual currencies in a bid to understand the continuing developments in financial technology. The study contends that the absence of a regulatory framework and the failure to embrace virtual currencies as part of the national payment or currency systems in Kenya does not augur well especially with the ever-growing financial technology around the world. It also postulates that the development of a legal framework for virtual currencies and the embracing of virtual currencies in Kenya could potentially lead to the realization of financial freedom and inclusion in Kenya. A failure to embrace virtual currencies is likely to be counterproductive towards the efforts of the government of Kenya at attempting to realize financial inclusivity and freedom. Additionally, it could also result in huge losses of revenue since virtual currencies operate on an international scale or without the restriction of border and hence, the potential to generate government revenue is quite high. The development of a legal framework is also deemed imperative in supplementing the existing consumer protection regimes, prevention of money laundering, and curbing the financing of terrorist activities through an unregulated frontier. In light of the matters highlighted above, this study sets about to make the case for the need to develop a legal framework to prevent these eventualities that may result due to the absence of the same.

The succeeding section of this study will endeavour to bring out some of the important findings in so far as the different worldwide approaches that have been evaluated in a bid to develop a robust legal regime that is capable of adequately protecting the interests of consumers, generating government revenue, and the prevention of the potential of virtual currencies to be used in the facilitation of criminal activities. The subsequent section will highlight the importance of those finding and then the succeeding sections will attempt to suggest some

recommendations apposite to Kenya in light of the findings of the study. The last section of the study will then give a final conclusion of the entire study.

## **5.2 Key Findings of the Research**

As aforementioned, the primary objective of the study was to evaluate the legal and regulatory regime governing payment and currency systems in Kenya especially with regard to alternative payment and currency systems. The subject of this study was virtual currencies as a form of alternative payment system and currency system in Kenya. The study aimed to evaluate the subject at great lengths by discussing the risks and opportunities that it presented to both consumers in Kenya as well as the threat that it posed to the traditional payment and currency systems.

Chapter three undertook an analysis of the prevailing regulatory framework on national payment and settlement systems in Kenya. The study identifies the dearth of legislation on virtual currencies in Kenya. It highlights the legislator's focus on legal tender including the circulation and use of fiat currencies in addition to the recognition and exchange of foreign currencies. The study also discusses the technical challenges concerning the use of virtual currencies. These include price volatility, security and privacy concerns, and susceptibility of virtual currencies being used for money laundering and other criminal activities. The study, therefore, questions the adequacy of the current legal framework at regulating virtual currencies without exposing country to these risks.

In doing this, the study finds out that the current legal and regulatory regime is not perfectly capable of addressing the risks and challenges posed by virtual currencies to governments. This involved assessing the robustness of the laws creating financial institutions and the regulations thereunder. Unfortunately, the chief institution regulating the conduct of financial institutions has been issuing nothing but warnings against dealings in virtual currencies.

With regards to the laws on taxation, the study found out that there is no uniform practice regarding the taxation of virtual currencies. The institutions taxed with revenue collection, therefore, have to clearly define virtual currencies for the purposes of taxation. It is only then that it is possible to tax dealings in virtual currencies. Lastly, money laundering laws in Kenya conform to some of the best practices around. Despite being perfectly capable of addressing money laundering and the prevention of the financing of terrorist activities, the study found out

that a multi-agency approach towards the prevention of the vices is the most efficacious in these circumstances. It is only through cooperation between different state agencies are able to gather information, effectively analyze the laws and be capable of preventing the use of virtual currencies as a conduit for illegal activities.

Therefore, it goes without saying that the current legal regime is most suitable to fiat currencies and does not effectively address virtual currencies if they are to currently be introduced as part of the national payment systems and currencies in Kenya. It is important to note that those already in possession of virtual currencies cannot use them directly and so, they must convert them to fiat currencies. Additionally, the values of virtual currencies are pegged on the values of fiat currencies. It, therefore, follows that the lack of a legal framework to address dealings in virtual currencies is a big blow to international as well as national commerce and that the parliament ought to develop a legal framework for the same.

The study notes that the development of a robust regulatory framework remains vital to the recognition and adoption of virtual currencies in Kenya. This is true in light of the warnings that have been issued by the CBK regarding dealings in virtual currencies. Additionally, the anatomy of virtual currencies is quite a novel one and this renders the current regulatory framework inappropriate in effectively regulating virtual currencies. So far, the elimination of governmental authority by the virtual currencies systems has reduced the cost, speed, and convenience of transactions. Virtual currencies have opened themselves to abuse by criminals as they have proven to be a perfect conduit for their illegal activities. This compels governments to adopt a risk-based approach to the regulation of virtual currencies in order to curb illegal activities. An effective regulatory framework could easily serve two purposes, to wit: virtual currencies gaining legitimacy through governmental approval, and instilling the confidence of the public in dealings with virtual currencies as they will be guaranteed legal protection against any losses. The study, therefore, concludes that the prevailing regulatory framework was undesirous in as far as it failed to regulate the use of virtual currencies in the Kenyan market.

### **5.3 Importance of the Findings**

From the very onset of the study, virtual currencies and fintech companies in general are revolutionizing the worldwide ordering of commercial transactions. The study, therefore, aimed at ascertaining whether there should or should not be developed a legal and regulatory



framework for the purposes of regulating dealings in virtual currencies. This study, materially, contributes to the existing knowledge and literature on virtual currencies in the world. Additionally, it makes a case for the importance of acknowledging virtual currencies as part of the payment and currency systems in Kenya. The dearth of this scholarly work endeavors to inform the process of developing a legal and regulatory framework for dealings in virtual currencies in Kenya. Additionally, the study draws on lessons from other jurisdictions where there exists a legal and regulatory framework for virtual currencies. This limb of the study pronounces itself on virtually all aspects of dealings in virtual currencies that ought to be regulated. It is therefore, crucial in the determination of what may or may not work for Kenya based on the experiences of these jurisdictions.

## **5.4 Recommendations**

### **5.4.1 The Recognition of Virtual Currencies as a Legal Payment and Settlement Systems**

Japan and Australia have recognized virtual currencies as an innovative revolution to the existing payments and settlement systems despite not backing them as legal tender. This is because virtual currencies suffice as a reliable means through which clients and merchants are able to pay and verify payment for goods and services instantaneously. Therefore, virtual currencies facilitate commercial transactions. The recognition of virtual currencies as part of the national payment systems in both Japan and Australia aims at protecting the integrity of transactions between clients and merchants in the free markets. These governments are alive to the widespread use of virtual currencies as payment systems and that even without official recognition buyers and sellers in the markets will most likely continue using virtual currencies as a means of payment. For both governments, the recognition of virtual currencies is considered to be in the best of the public interests.

In light of the above, it is imperative that Kenya gives formal and legal recognition to virtual currencies as an instrument for making payments and settlements in commercial transactions without necessarily recognizing them as legal tender. Additionally, the recognition of virtual currencies as part of the national payment and settlement systems would have the effect of eliminating the bureaucracy, unnecessary delays, and the need to confirm and verify payments that arise from dealing with multiple currencies, institutions and processes in the countries involved.

### **5.4.2 The Mandatory Licensing Requirements**

The existence of mandatory licensing requirements is an important limb in the regulation of entities that engage in the exchange of virtual currencies with fiat currencies or with other virtual currencies. Mandatory licensing has the effect of introducing standards that must be fully satisfied before any entity that offers money exchange services can be allowed to undertake such activities. Mandatory licenses ensure that the businesses are not operating ultra vires and there is a code of conduct, rules and/or regulations that ensure that the players can only conduct their activities within the confines of the law. This guarantees the consumers that their interests are protected by the law should they choose to enter into business arrangements with such commercial entities. Licensing, therefore, builds the confidence of consumers and creates a conducive environment for the development of fintech companies.

There should also be a robust legal, policy, and regulatory framework to exercise oversight with regards to the activities of the licensed persons. Additionally, virtual currencies involve more than just payment systems. It is imperative that all agencies such as those that deal with money laundering, consumer protection, among others, are involved for purposes of facilitated information sharing between these governmental agencies for the ultimate achievement of their respective objectives. The State should ensure that business entities that wish to engage in the exchange of virtual currencies are duly registered and regulated under dedicated governmental institution.

### **5.4.3 Consumer Protection**

It is crucial that the interests of the public are adequately protected when dealing in virtual currencies. Consumers should be accorded an opportunity to verify the credential of the entities that offer services related to virtual currencies. Information on the entities that they are dealing with, the risks associated with virtual currencies, the opportunities that virtual currencies present, among others must be constantly available to the consumer at all times. It is also imperative that a dispute resolution mechanism exists to resolve any disputes that may arise between the consumers and business entities. Such a system can be anchored within the existing judicial system in the State. The businesses must also maintain certain amount of financial resources and have a sound risk management system that adequately protects the interests of the consumers in the event of any uncertainty arising in the course of the business relationship. The business

entities must be fully clothed with accountability and transparency. Information about these businesses and the nature of their activities in addition to the risks associated with such activities must be constantly availed to the consumers. This is important because it helps the consumers make informed decisions before entering into business with these entities. This way a safety net is provided for the investors that choose to enter into commercial dealings with these business entities.

The regulatory regime must adequately protect the investors by availing them with as much information as possible to facilitate the making of reasonably sound investment decisions. Article 46 of the Constitution of Kenya, 2010 rightly confers certain rights and privileges to consumers.

#### **5.4.4 Prevention of Money Laundering and Financing of Terrorist Activities through Virtual Currencies**

Businesses that engage in the exchange of virtual currencies either from one cryptocurrency to another or from cryptocurrencies to fiat currency and vice versa rightly qualify as money remittance businesses.<sup>1</sup> It becomes important that the current anti-money laundering laws be amended in order to facilitate the prevention of money laundering through these entities. Japan and Australia are keen on the monitoring of transactions undertaken by these business entities. Despite the anonymity with which virtual currencies are famed, the laws require business entities to not only keep a correct entry of these transactions but to identify the parties that seek their services. Essentially, both Japan and Australia require a high level of accountability and transparency in the day-to-day operations of businesses dealing with virtual currencies. The identities of the parties must be revealed to the business entities involved, the business must also report any suspicious transactions, it must be possible for the regulator to conduct a random assessment of the books of accounts of the business entities, and lastly, an efficient system of monitoring transactions must be put in place and the records availed to the regulator.

Regardless of the size of the business entity, compliance with the laws on the prevention of money laundering remains mandatory. Employees of these firms ought to be constantly trained

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<sup>1</sup> S Mabunda, 'Cryptocurrency: The New Face of Cyber Money Laundering', *2018 International Conference on Advances in Big Data, Computing and Data Communication Systems (icABCD)* (2018).

on how to monitor transactions, identifying suspicious transactions, and the subsequent reporting of such transactions.

Lastly, it must be appreciated that the prevention of money laundering and the financing of terrorism is a multi-sectoral responsibility. Therefore, a high level of transparency should be maintained between the different players in the financial services industry. The multiple State agencies must communicate with each other on their respective oversight roles. Additionally, the anti-money laundering programs and initiatives must be constantly reviewed from time to time in order to update them to current market developments.

However, should the State must be alive to the potential development of underground virtual currency markets; and develop additional measures that will curb money laundering and the financing of terrorist activities in these illegal markets.

#### **5.4.5 Taxation and the Elimination of Tax Fraud**

It is estimated that governments lose billions through tax evasion using off-shore accounts.<sup>2</sup> The battle to curb tax evasion through off-shore accounts is usually lost due to tax agencies concentrating on jurisdictions that are considered tax havens rather than dealing with the financial intermediaries that facilitate tax evasion.<sup>3</sup> The anonymity, absence of financial intermediaries, and the borderless nature of virtual currencies, make them quite lucrative for purposes of tax evasion.<sup>4</sup> Any regulatory regime must address in an effective manner these daunting characteristics.<sup>5</sup> From the case studies, it is clear that the taxation of dealings in virtual currencies provides a major challenge for tax collection agencies because of the different approaches towards their taxation. These institutions must, therefore, adopt a complex tax analysis that rests on their ability to identify the individual owners of the income generated by cryptocurrencies or the individual spending. The categorization of virtual currencies as capital may also prove important because their disposing them off would enable tax agencies to collect the proceeds from such disposal. However, this also depends on the willingness of individual

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<sup>2</sup> Lisa De Simone and others, 'Transparency and Tax Evasion: Evidence from the Foreign Account Tax Compliance Act (FATCA)' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3037426.

<sup>3</sup> Omri Marian, 'A Conceptual Framework for the Regulation of Cryptocurrencies' (2015) 82 University of Chicago Law Review Dialogue 53.

<sup>4</sup> Ibid.

<sup>5</sup> 'Virtual Currencies – Key Definitions and Potential AML/CFT Risks' 17.

owners to disclose the information. This implies just like with anti-money laundering, the government may have to adopt a multi-sectoral approach.

## **5.5 Conclusion**

Technological development and especially, the development of the internet, continues to rapidly change the ordering of the entire world. The financial markets have not been left behind in this grand scheme of technological revolution. Notably, the decentralization or the elimination of a governmental authority in the monetary system through virtual currencies has elicited different reactions. This is due to the potential effect on e-commerce, national payment systems, international trade, and revenue collection through taxation, among many other potential consequences for different jurisdictions.

Currently, virtual currencies are not subject of the legal and regulatory regime on national payment systems and currency systems in Kenya. This is quite a worrisome scenario given the rate at which virtual currencies are gaining prominence amongst a number of countries around the world. However, this study contends that the virtual currencies bear certain advantages and disadvantages. It notes that the traditional payment systems have weaknesses that prompted the development of alternative currencies such as virtual currencies. The virtual currencies are in themselves not angelic solution. This study has discussed to great lengths the threats and risks associated with virtual currencies. The study has demonstrated that jurisdictions have taken different approaches upon undertaken a cost-benefit analysis to the recognition and adoption of virtual currencies. This study makes the postulation that Kenya should recognize and adopt the use of virtual currencies while remaining alive to the challenges attendant to their use.

## BIBLIOGRAPHY

### BOOKS AND BOOK CHAPTERS

Androulaki E and others, "Evaluating User Privacy in Bitcoin" in Ahmad-Reza Sadeghi (ed), *Financial Cryptography and Data Security* (Springer Berlin Heidelberg 2013).

Deleplace G and Nell E J, *Money in Motion: The Post-Keynesian and Circulation Approaches* (Springer 2016).

Franco P, *Understanding Bitcoin: Cryptography, Engineering and Economics* (John Wiley & Sons 2014).

Herrera-Joancomartí J and Pérez-Solà C, 'Privacy in Bitcoin Transactions: New Challenges from Blockchain Scalability Solutions' in Vicenç Torra and others (eds), *Modeling Decisions for Artificial Intelligence* (Springer International Publishing 2016).

Howells G and Weatherill S, *Consumer Protection Law* (Routledge 2017).

Lancelot R and Tatar J, *What's the Deal with Bitcoins?* (Pennington, New York: People Tested) (cop. 2013).

Miller M, *"The Ultimate Guide to Bitcoin."* (2015) Indiana: Pearson Education.

Robert B and Cave M, *"Understanding Regulation: Theory, Strategy, and Practice,"* (1985) Oxford University Press

Yermack D, 'Chapter 2 - Is Bitcoin a Real Currency? An Economic Appraisal' in David Lee Kuo Chuen (ed), *Handbook of Digital Currency*.

### CONFERENCE PAPERS

Gervais A and others, "On the Privacy Provisions of Bloom Filters in Lightweight Bitcoin Clients", *Proceedings of the 30th Annual Computer Security Applications Conference on - ACSAC '14* (ACM Press 2014).

Mabunda S, 'Cryptocurrency: The New Face of Cyber Money Laundering', *2018 International Conference on Advances in Big Data, Computing and Data Communication Systems (icABCD)* (2018).

Mwangi E, “Adoption of Bitcoin in Kenya, A Case Study of Bitpesa.” (2014). Retrieved <http://repository.uonbi.ac.ke>.

Schwartz A, ‘Currency Boards: Their Past, Present, and Possible Future Role’ (1993) 39 Carnegie-Rochester Conference Series on Public Policy 147.

## JOURNAL ARTICLES

Ali R and others, ‘Innovations in Payment Technologies and the Emergence of Digital Currencies’ (Social Science Research Network 2014) SSRN Scholarly Paper ID 2499397.

Barber S and others, “Bitter to Better — How to Make Bitcoin a Better Currency”.

Bech M and Hobijn B, ‘Technology Diffusion within Central Banking: The Case of Real-Time Gross Settlement’ (Social Science Research Network 2006) SSRN Scholarly Paper ID 932596.

Bech M L and others, ‘The Quest for Speed in Payments’ (BIS Quarterly Review 2017) <[https://www.bis.org/publ/qtrpdf/r\\_qt1703g.htm](https://www.bis.org/publ/qtrpdf/r_qt1703g.htm)> accessed 22 November 2018.

Belomytseva O, “Conceptual Framework for the Definition and Regulation of Virtual Currencies: International and Russian practices,” *Our Economy* (2015) Vol. 61 No. 5.

Berentsen A and Schar F, ‘A Short Introduction to the World of Cryptocurrencies’ (Social Science Research Network 2018) SSRN Scholarly Paper ID 3105283.

Blatchford J, “Four ways Blockchain technology will change the world.” 2015.

Böhme R and others, ‘Bitcoin: Economics, Technology, and Governance’ (2015) 29 *Journal of Economic Perspectives* 213.

Bonneau J and others, “Sok: Research Perspectives And Challenges For Bitcoin And Cryptocurrencies” [2015] 2015 IEEE Symposium on Security and Privacy.

Boxerman S and Schwerin M, “Its bark is worse than its bit(e): Regulatory and Criminal Law Implications of Virtual Currency,” *Criminal Justice*. (2017) Vol. 31 No. 4.

Brill A and Keene L, ‘Cryptocurrencies: The Next Generation of Terrorist Financing?’ (Social Science Research Network 2014) SSRN Scholarly Paper ID 2814914.

Bunjaku E and others, ‘Cryptocurrencies – Advantages and Disadvantages’ (2017) 2 *Journal of Economics* <<http://js.ugd.edu.mk/index.php/JE/index>> accessed 1 November 2018.

Cermak V, "Can bitcoin become a viable alternative to fiat currencies? An empirical analysis of bitcoin's volatility based on a GARCH model. May 2017.

Chuen D and others, "Cryptocurrency: A New Investment Opportunity," the Journal of Alternative Investments. (2017) Vol. 20(3) 16-40.

Coindesk, "State of Bitcoin Q1 2015." Retrieved <<http://www.coindesk.com/research/state-of-bitcoin-q1-2015>>.

Croley S, "Theories of Regulation: Incorporating the Administrative Process," Columbia Law Review. (1998) 98 (1) 1-168, 70.

Dabrowski M and Janikowski L, "Virtual Currencies and Central Banks monetary policy: challenges ahead." Monetary Dialogue.

Dabrowski M and Lukasz Janikowski L, "Virtual Currencies and Central Banks monetary policy: challenges ahead." Monetary Dialogue.

Decker C and Wattenhofer R, "Information Propagation in the Bitcoin Network", *Institute of Electricals and Electronics Engineering Peer-to-Peer 2013 Proceedings* (2013).

Dion D A, "I'll Gladly Trade You Two Bits on Tuesday for a Byte Today: Bitcoin, Regulating Fraud in the E-Conomy of Hacker-Cash" (2013) 2013 University of Illinois Journal of Law, Technology & Policy 165.

Dowd K and Hutchinson M, "Bitcoin Will Bite the Dust" (2015) 35 Cato Journal 357.

Dyhrberg A H, 'Bitcoin, Gold and the Dollar – A GARCH Volatility Analysis' (2016) 16 Finance Research Letters 85.

Eyal I and others, "Bitcoin-NG: A Scalable Blockchain Protocol" 2014.

Foley S and others, "Sex, Drugs, And Bitcoin: How Much Illegal Activity Is Financed Through Cryptocurrencies?" [2018] SSRN Electronic Journal.

Fung B and Halaburda H, 'Central Bank Digital Currencies: A Framework for Assessing Why and How' (Social Science Research Network 2016) SSRN Scholarly Paper ID 2994052.

Gervais A and others, 'Is Bitcoin a Decentralized Currency?' (2014) 12 IEEE Security & Privacy 54.

Gikandi J W and Bloor C, 'Adoption and Effectiveness of Electronic Banking in Kenya' (2010) 9 Electronic Commerce Research and Applications 277.



Halaburda H and Gandal N, “Competition In The Cryptocurrency Market” [2014] SSRN Electronic Journal.

Harwick C, ‘Cryptocurrency and the Problem of Intermediation’ (2016) 20 *The Independent Review* 569.

Hayes A, “Cryptocurrency Value Formation: An Empirical Study Leading To A Cost Of Production Model For Valuing Bitcoin” (2017) 34 *Telematics and Informatics*.

Heiberg J, ‘FATCA: Toward a Multilateral Automatic Information Reporting Regime’ (2012) 69 *Washington and Lee Law Review* 1685.

Hout M C and Bingham T, “Responsible Vendors, Intelligent Consumers: Silk Road, The Online Revolution In Drug Trading” (2014) 25 *International Journal of Drug Policy*.

Jack W and others, ‘Monetary Theory and Electronic Money: Reflections on the Kenyan Experience’ (Social Science Research Network 2010) SSRN Scholarly Paper ID 2189122.

Kaplanov N, ‘Nerdy Money: Bitcoin, the Private Digital Currency, and the Case against Its Regulation’ (2012) 25 *Loyola Consumer Law Review* 111.

Katsiampa P, ‘Volatility Estimation for Bitcoin: A Comparison of GARCH Models’ (2017) 158 *Economics Letters* 3.

Kenneth A, “The Potentials and Limits of the Market in Resource Allocation,” in Feiwel, G.R. (ed.), *Issues in Contemporary Microeconomics and Welfare*. (1985) 107-124.

Kitami R and Shuto K, ‘Study on Protection of Financial Services Users in view of International Development: International Comparison of Cryptocurrency Regulation and Possibility of Issuance of Digital Currency by Central Banks’ (2018).

Li J and Mann W, ‘Initial Coin Offerings and Platform Building’ (Social Science Research Network 2018) SSRN Scholarly Paper ID 3088726.

Li X and Chong Alex Wang C , “The Technology And Economic Determinants Of Cryptocurrency Exchange Rates: The Case Of Bitcoin” (2017) 95 *Decision Support Systems*.

Luther W J, ‘Bitcoin and the Future of Digital Payments’ (2016) 20 *The Independent Review* 397.

Ly M K, ‘Coining Bitcoin’s Legal-Bits: Examining the Regulatory Framework for Bitcoin and Virtual Currencies’ (2013) 27 *Harvard Journal of Law & Technology* 587.

Marian O, 'A Conceptual Framework for the Regulation of Cryptocurrencies' (2015) 82 University of Chicago Law Review Dialogue 53.

Mario G, "Virtual Money and the Global Financial Market: Challenges for Lawyers", (1996) 1 Y.B. Int'l Fin. & Econ. L. 3.

Maurer B and others, "'When Perhaps the Real Problem Is Money Itself!': The Practical Materiality of Bitcoin' (2013) 23 Social Semiotics 261.

Middlebrook S and Hughes S, "Regulating Cryptocurrencies in the United States: Current Issues and Future Directions," William Mitchell Law Review. (2014). Vol. 40 Issue 2.

Mokhtarian E and Lindgren A, 'Rise of the Crypto Hedge Fund: Operational Issues and Best Practices for Emergent Investment Industry' (Social Science Research Network 2017) SSRN Scholarly Paper ID 3055979.

Naheem M A, 'Illicit Financial Flows: HSBC Case Study' (2018) 21 Journal of Money Laundering Control 231.

Naimon j and others, 'Caveat Emptor or Caveat Vendor: The Evolution of Unfairness in Federal Consumer Protection Law' (2015) 132 Banking Law Journal 3.

Nakamoto S, "Bitcoin: A peer to peer electronic case system."

Peters G and others, 'Trends in Cryptocurrencies and Blockchain Technologies: A Monetary Theory and Regulation Perspective' (Social Science Research Network 2015) SSRN Scholarly Paper ID 3084011.

Peters G W and others, 'Trends In Crypto-Currencies And Blockchain Technologies: A Monetary Theory And Regulation Perspective' [2015] SSRN Electronic Journal.

Peters G W and others, 'Trends In Crypto-Currencies And Blockchain Technologies: A Monetary Theory And Regulation Perspective' [2015] SSRN Electronic Journal.

Plassaras N, "Regulating Digital Currencies: Bringing Bitcoin within the Reach of IMF" (2013) 14 Chicago Journal of International Law 377.

Polasik M and others, "Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry" (2015) 20 International Journal of Electronic Commerce 9.

Posner R, "Theories of Economic Regulation," The Bell Journal of Economics and Management Science (1974) 5 (2) 334-339.

Rubinstein F and others, 'Taxation of Investments in Bitcoins and Other Virtual Currencies: International Trends and the Brazilian Approach' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3135580.

Seetharaman A and others, "Impact of Bitcoin as a World Currency," Accounting and Finance Research. (2017) Vol. 6 No. 2.

Simone L and others, 'Transparency and Tax Evasion: Evidence from the Foreign Account Tax Compliance Act (FATCA)' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3037426 <<https://papers.ssrn.com/abstract=3037426>> accessed 22 November 2018.

Smith C and Kumar A, 'Crypto-Currencies - An Introduction to Not-So-Funny Moneys' [2018] Journal of Economic Surveys.

Stavroyiannis S, "Volatility Modeling And Risk Assessment Of The Major Digital Currencies" [2017] SSRN Electronic Journal.

Szilagyi K, 'A Bundle of Blockchains-Digitally Disrupting Property Law' (2017) 48 Cumberland Law Review. 9.

Trautman L J, "Virtual Currencies: Bitcoin & What Now After Liberty Reserve And Silk Road?" [2014] SSRN Electronic Journal.

Trautman L, "Virtual Currencies: Bitcoin & What Now after Liberty Reserve, Silk Road, and Mt. Gox" (2013) 20 Richmond Journal of Law & Technology 1.

Tu K and Meredith M, 'Rethinking Virtual Currency Regulation in the Bitcoin Age' 2015 Washington Law Review 272.

Turpin J B, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." Indiana Journal of Global Legal Studies. (2014) Vol. 21: Issue 1, Article 13.

Valkenburgh P V, 'The Bank Secrecy Act, Cryptocurrencies, and New Tokens: What is Known and What Remains Ambiguous' (2014).

Vandezande N, "Between Bitcoins and mobile payments: will the European Commission's new proposal provide more legal certainty?" (2014) Volume 22, Issue 3, 295–310 International Journal of Law and Information Technology.

Vitt D C, 'Does Fiat-To-Bitcoin Exchange Activity Lead To Increased User-To-User Bitcoin Transaction Activity?' [2017] SSRN Electronic Journal.

Walch A, "The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk" (2015) 18 New York University Journal of Legislation and Public Policy 837.

Walton J, 'Cryptocurrency Public Policy Analysis' (Social Science Research Network 2014) SSRN Scholarly Paper ID 2708302.

Weaver N, 'Risks of Cryptocurrencies' (2018) 61 Commun. ACM 20.

## NEWSPAPERS ARTICLES

Amit C, "Overstock.com Is Going To Accept Bitcoin in 2014." Forbes.

'Kenya Govt Sets up Blockchain & Artificial Intelligence Taskforce!' (*Kenyan Wallstreet*, 16 January 2018).

Sunday F, 'Central Bank of Kenya Warms up to Digital Currencies' (*The Standard*).

Kondo V, 'Kenya Blockchain Has Concluded Report on AI, Digital Accounting Integration' (*The Standard*).

Mizrahi A, 'Paypal Files Patent for Expedited Cryptocurrency Transaction System' (*Bitcoin News*, 5 March 2018).

Omohundro S, 'Cryptocurrencies, Smart Contracts, and Artificial Intelligence' (2014) 1 AI matters 19.

Braendgaard P, "Kipochi launches first Bitcoin wallet in Africa with M-PESA integration." July 2013.

Fitzpatrick D and Griffin D, "Cyber-Extortion Losses Skyrocket, Says FBI," CNN Money, April 15, 2016, [http://money.cnn.com/2016/04/15/technology/ransomware-cyber\\_security/index.html?section=money\\_technology](http://money.cnn.com/2016/04/15/technology/ransomware-cyber_security/index.html?section=money_technology).

Constantin L, "Ransomware Attacks Against Businesses Increased Threefold in 2016," PC World, December 9, 2016.

Krugman P, "Bitcoin is evil," 28 December 2013 New York Times. Retrieved <<http://krugman.blogs.nytimes.com/2013/12/28/bitcoin-is-evil>>>.

## ONLINE SOURCES

‘Payments to Foreign Financial Institutions Under FATCA: Reporting and Withholding Requirements - Tax Guidance Essentials - Tax Law - LexisNexis® Legal Newsroom’.

Banking Circular No. 14 of 2015

European Union Agency for Law Enforcement Cooperation, *Internet Organised Crime Threat Assessment: IOCTA 2017*. (2017).

Financial Action Task Force, ‘Virtual Currencies – Key Definitions and Potential AML/CFT Risks’ (2014) 17.

Financial Action Task Force, “International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation – the FATF Recommendations.”

Lagarde C, ‘Winds of Change: The Case for New Digital Currency’ (*IMF*).

## REPORTS

‘Government Response to the Financial System Inquiry – Treasury.Gov.Au’  
<<https://treasury.gov.au/publication/government-response-to-the-financial-system-inquiry/>>  
accessed 3<sup>rd</sup> December 2018.

47, 2017-18 (2017), Parliament of Australia.

ASIC, Senate inquiry into digital currency: Submission by the Australian Securities and Investments Commission, p12.

Attorney-General’s Department, ‘Regulating Digital Currencies Under Australia’s AML/CTF Regime: Consultation Paper’ (2017).

Australian Taxation Office (ATO), ‘Tax Treatment of Crypto-Currencies in Australia – Specifically Bitcoin,’ (2017).

Barker C, ‘*Anti-Money Laundering and Counter-Terrorism Financing Amendment Bill 2017*’, Bills Digest No.

Department of US Treasury, “Risks and vulnerabilities of virtual currency: cryptocurrency as a payment method.”

Financial Action Task Force, “Virtual Currencies Key Definitions and Potential AML/CFT Risks” June 2014.

Monk V J and Bronk C, “Shadowy Figures: Tracking Illicit Financial Transactions in the Murky World of Digital Currencies, Peer-to-peer Networks, and Mobile Device Payments.” Brookings Institution.

Productivity Commission, Business Set-Up, Transfer And Closure 240–44, (Inquiry Report No. 75 (2015).

Quarterly Bulletin Bank of England, “Innovations in payment technologies and the emergence of digital currencies.”

Report from the Working Group on Sophistication of Payment and Settlement Operations, chapter 5 (Dec. 22, 2018).

Senate Economic References Committee, ‘*Digital currency—game changer or bit player,*’ (2015) at p8.

Tarasiewicz M and Newman A, “Cryptocurrencies As Distributed Community Experiments” [2015] Handbook of Digital Currency.