

# **A FRAMEWORK FOR THE REGULATION OF BLOCKCHAIN TECHNOLOGY IN THE FINANCIAL SERVICES SECTOR**



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**DECLARATION**

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the University of Nairobi.

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NKARICHIA DENNIS MUGAMBI  
(Candidate)

This dissertation has been submitted for examination with my approval as the student supervisor

.....  
DR. JACKSON BETT  
(Supervisor & Lecturer, Department of Commercial Law)

## **DEDICATION**

I would like to dedicate this thesis to my wonderful family for all their unwavering support extended over the duration of my studies. To my dad, mom, and my siblings, I am grateful for the financial, emotional, and social support extended to me. Thank you guys, I will forever treasure your support.

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To Stella Nasirumbi, Jennifer Wairimu, Jennifer Githu, Judy Mumbi, Cindy Nariasi, Joseph Macharia, Patricia Naeku, Mrs. Kimkung, and the rest of the Master's Class of 2018, thank you so much for all the assistance and support as I struggled with a demanding schedule over the course of the year. I appreciate each and every form of support received. To Firm C 4 for the ATP Class of 2018, thank you for the willingness to support and accommodate me over the year.

Be blessed each and every one of you.

## **LIST OF STATUTES**

### **Kenyan Regulations**

The Banking Act

The Proceeds of Crime and Anti-Money Laundering Act

### **Japanese Regulations**

The Japanese Payment Services Act

The Prevention of Transfer of Criminal Proceeds Act

### **American Regulations**

The International Emergency Economic Powers Act

The Trading with the Enemy Act

The Patriot Act



## CHAPTER ONE: INTRODUCTION TO BLOCKCHAIN TECHNOLOGY

### 1. Introduction

An asset is denoted in the Cambridge Online Dictionary as a valuable item that can be utilized by an individual or an organization to meet its financial obligation indicative of the essential feature of an asset as an item that can be leveraged upon to meet future obligations.<sup>1</sup> Irrespective of whether it is tangible, intangible, a long-term investment or an item that can be easily converted to cash, the owner of an asset perceives it as an economically advantageous item and wishes to be afforded protection to ensure they can derive benefits from the item.<sup>2</sup>

According to the Organization for Economic Co-operation and Development, a financial asset is any entity that serves as a store of value and endows the owner with an economic benefit, with the right of ownership enforced by established institutional units.<sup>3</sup>

From the definition, one can perceive that for any commodity or financial instrument to be perceived as an asset it must retain its value over time, capable of being owned individually,

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<sup>1</sup> Cambridge Online Dictionary, 'ASSET | Meaning in the Cambridge English Dictionary' (CUP 2018) <<https://dictionary.cambridge.org/dictionary/english/asset>> accessed 12 September 2017.

<sup>2</sup> Organization for Economic Co-operation and Development, 'OECD Workshop on Digital Financial Assets - OECD' (*OECD Workshop on Digital Financial Assets*, 16 May 2018) <<http://www.oecd.org/finance/2018-workshop-digital-financial-assets.htm>> accessed 14 May 2018.

<sup>3</sup> Organisation for Economic Co-operation and Development, 'OECD Glossary of Statistical Terms - Financial Assets Definition,' (*OECD Glossary of Statistical Terms*, 15 November 2001) <<https://stats.oecd.org/glossary/detail.asp?ID=961>> accessed February 22 2018. Impliedly and later on expressly stated by the OECD, is the position that there exists a myriad of instances where the terminology "asset" denotes a broad category of items in various senses. Within this broad understanding of the term "asset" to refer to various items in various settings, like natural asset to refer to natural resources, there is broad consensus that the position advanced by the OECD on the definition of a "financial asset" is the predominant position in economic and financial notions of allocation of resources within a company, an industry, or the broader economy. All terminologies utilized in this dissertation hence ought to be appreciated in their financial or economic dimensions, far removed from any other connotations appended to them in other settings.

communally, or collectively, and there must exist an established institutional mechanism for safeguarding the ownership of the commodity. However, this conceptualization of an asset is perceived as the “traditionalist” approach to defining an asset and has been critiqued for failing to evolve and fit the budding digital industry that has moved from intangible assets that serve as representative items for physical items that actualize the returns somewhere else.<sup>4</sup> In the contemporary era, where Netflix login, LexisNexis passwords, and social media influencers trade their social media popularity to earn an income, the concept of what amounts to an asset is in fluid flux.<sup>5</sup>

This definition is strikingly distinctive in its express recognition of the need for a regulatory mechanism to recognize types of assets and protect ownership rights in assets. What the definition fails to contemplate is the notion of an asset class divorced from formal government agency regulatory setup and without a sanction-backed regime to enforce, and that lies at the core of the conundrum that this study seeks to resolve.

The crypto-native economy that flows and thrives from the intersection of block chain technology and digital cryptography is the subject matter of this research as it seeks to extrapolate established principles in financial regulation and export them into an embryonic sector of the economy.

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<sup>4</sup> William McEachern, *Economics: A Contemporary Introduction* (11th edn, Cengage Learning 2016), p 293-313. Chapter 13 of the book canvasses the nuances of what amounts to an asset across the banking era to investigate how financial institutions have created various derivative items to serve as extensions of established asset classes. Increasingly, the book seems to imply that the financial sector is the primary driver for the creation of new asset classes and their evolution into mainstream items.

<sup>5</sup> It is noteworthy that such exchanges exist at the periphery of the established ecommerce world and may violate the terms and conditions for usage for such websites. However, their legality (or lack thereof) has not sated the enthusiasm and vibrancy of these markets. A popular website [BugMeNot](#) offers websites passwords to its users while a platform like [Course Hero](#) offers academic material to students as long as they are willing to trade their course material.

Blockchain technology refers to a systematic manner of storing and retrieving digital information in a decentralized manner to ensure its integrity and enhance its immutability.<sup>6</sup> To fully appreciate what blockchain technology is, consider this; in a typical office arrangement one produces a number of word documents that they store in various folders depending on the document storage and retrieval system they may use.

For a law firm, documents may be stored in folders that contain the client's names or the nature of the document for ease of retrieval. In typical office work, one would arrange all the word documents related to a client in chronological order and protect them from being viewed by other users by using a password or other digital record management system they may have in place. The act of arranging all related documents together is referred to as bundling the data into blocks in blockchain technology, while protecting them using a password or other technology would be the equivalent of cryptographically binding together the blocks of data.

These blocks of data are subsequently arranged in chronological order in a chain using complex mathematic algorithm in a process called hashing by numerous computers that seek to solve mathematical formulae.<sup>7</sup> Once the hashing process is completed and the proof of work available other computers verify that the transaction, and the blocks of data arranged in a chain (hence blockchain) where they are assigned a unique digital signature that is stored within the networked

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<sup>6</sup> Murray Maryanne, 'Blockchain Explained' (*Reuters Graphics*, 15 June 2018) <<http://graphics.reuters.com/technology-blockchain/010070p11gn/index.html>> accessed 19 July 2018. For a more nuanced exploration of the issue see Brad Mills, 'What Is Cryptocurrency: Everything You Must Need to Know!' (*Block geeks*, 13 September 2018) <<https://blockgeeks.com/guides/what-is-cryptocurrency/>> accessed 23 October 2018.

<sup>7</sup> *Ibid*, paragraph 3-5.

computers. The computer that solved the mathematical equation is issued with a token of appreciation that may either be a crypto-currency or other form of digital token.<sup>8</sup>

The uniqueness of the process lies in the cryptographic nature that ensures the confidentiality and anonymity of the information since only the unique digital signature is retained within the networked computers while the transaction details are disposed of once the process is done.<sup>9</sup> Moreover, the process is a “one-way traffic” that makes it almost impossible to alter or tamper with the original information since once the transaction is completed it can only be periodically updated to reflect new transactions while the original digital signature remains immutable.<sup>10</sup> Hence, digital fraud and hacking are rendered less likely while errors can be easily spotted during the creation of a new block of information.

Predicated, and informed, by the OECD definition of an asset, a crypto-asset may be perceived as any digitally created, transacted, and cryptographically stored entity that confers upon its owner an economic benefit over duration of time with its right of ownership enforced by a decentralized peer-to-peer network of computers.<sup>11</sup> Amongst crypto-assets, four main categories have garnered

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<sup>8</sup> Ibid.

<sup>9</sup> C Burniske and J Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* (1st edn, McGraw-Hill Education 2017), page 2-22.

<sup>10</sup> Ibid, page 5-9.

<sup>11</sup> Such a definition is solely produced by the author for the benefit of advancing the argument encapsulated in this study and is primarily based on the definition of a financial asset as provided by the OECD. The definition also borrows its terminology and fundamental principles from Murray (in Maryanne Murray, ‘Blockchain Explained’ (*Reuters Graphics*, 15 June 2018) <<http://graphics.reuters.com/technology-blockchain/010070p11gn/index.html>> accessed 19 July 2018) and Tsukerman (in Tsukerman, ‘The Block Is Hot: A Survey of the State of Bitcoin Regulation and Suggestions for the Future’ (2015) 30 *Berkeley Technology Law Journal* 1127 <<http://scholarship.law.berkeley.edu/btlj/vol30/iss4/19>> accessed 14 April 2018).

A more concise explanation of the nature and function of crypto-assets has been attempted in Chapter Two.

significant development to be perceived as independent stand-alone classes; crypto-currencies, utility tokens, asset tokens, and securities tokens (also referred to as ICO tokens).<sup>12</sup>

Since the American sub-prime mortgage crisis of 2007-08 that had global contagion,<sup>13</sup> public confidence and trust in the financial sector and its regulations have plummeted as instances of regulatory capture and market failure from *laissez-faire* regulation highlighted the shortcomings of the present global financial architecture.<sup>14</sup> As crisis begun to bite, the extent and scope of the failure of the global financial system was archetypically illustrated by the collapse of Lehman Brothers, the fourth largest investment bank in the United States.<sup>15</sup> Such failures previously unimaginable snowballed as the Federal Deposit Insurance Corporation that regulates financial

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<sup>12</sup> Joshua Fairfield, 'Bitproperty' (2015) 88 Southern California Law Review 805 <<https://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=1492&context=wlufac>> accessed 12 April 2018. While the term crypto-assets and cryptocurrencies have been utilized interchangeably by some authors, such a misuse is flawed for crypto-currencies while a major category of crypto-assets, they are not the same.

<sup>13</sup>The 2008 financial crisis was not financial so much as it affected the fundamental underpinnings of the financial world, but financial on the perspective that financial institutions were left holding assets that could not be capitalized upon to realize the value they underpinned. Some commentators have pointed out that calling the crisis global was a misnomer, most emerging economies were left unhurt or isolated from the chaos permeating the American banking sector. Moreover, the crisis was not financial in the established sense of liquidity or solvency issues but financial in the fact that it affected a number of financial institutions that had leveraged upon some securities and in most instances overleveraged on them and were unable to realize the value they underpinned when they called out for redemption. A critical appraisal of the area is addressed in Michael Mah-Hui, 'Old Wine in New Bottles: Subprime Mortgage Crisis - Causes and Consequences' (2008) 3 Journal of Applied Research in Accounting and Finance 3 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1263280](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1263280)> accessed 23 October 2018; Adam Ashcraft, 'Understanding the Securitization of Subprime Mortgage Credit' (2008) 2 Foundations and Trends® in Finance 191 <<https://www.nowpublishers.com/article/Details/FIN-024>> accessed 23 October 2018; and Yuliya Demyanyk and Otto Van Hemert, 'Understanding the Subprime Mortgage Crisis' (2009) 24(6) The Review of Financial Studies <<https://academic.oup.com/rfs/article-abstract/24/6/1848/1583661>> accessed 23 October 2018.

<sup>14</sup> Felix Roth, 'The Effects of the Financial Crisis on Systemic Trust' (2009) 316 CEPS Working Document 1 <<http://aei.pitt.edu/11334/1/1877-1.pdf>> accessed 29 November 2017.

<sup>15</sup> Jamie E Scalera and Melissa D Dixon, 'Crisis of Confidence: The 2008 Global Financial Crisis and Public Trust in the European Central Bank' (2016) 17 European Politics and Society 388 <<https://doi.org/10.1080/23745118.2016.1168970>> accessed 28 August 2018.

liquidity of banks in America and acts as the receiver for banks in financial distress closed over four hundred banks in 2008-2012.<sup>16</sup>

As public trust in established financial institutions began to erode, a new trust system for managing wealth, investment, and savings was needed to alleviate the over dependency on the mainstream financial sector. It is this lacuna, the pressing need for a trusted means of wealth management and investment option decoupled from the mainstream financial system that depends on government agencies and trust amongst bankers that crypto-assets sought to fill.

Within the confines of this academic enquiry, crypto-assets refer to digitally created, transferred, and handled blockchain assets that rely on cryptographically for authentication and securitization.<sup>17</sup> Such a term has been utilized interchangeably (and is a consolidation of) with crypto-backed assets and excludes all other digital assets that do not rely on blockchain technology as the founding blocks. When one thinks of digital assets, more often than not they do not speak to those created by blockchain technology but to derivatives of traditional assets where the ledger is maintained in digital form.

On one hand, their decentralized nature renders them insular from manipulation by institutions or agency while their reliance on peer-to-peer networking computing for verification ensures the

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<sup>16</sup> Federal Deposit Insurance Corporation, 'FDIC: Failed Bank List' (*Federal Deposit Insurance Corporation Web site*, 8 August 2018) <<https://www.fdic.gov/bank/individual/failed/banklist.html>> accessed 28 August 2018. For context on the scale of the failure, the FDIC provides a list of bank failures from 2000 to 2018. From 2000 to December 2006, only 27 banks failed, a rate of less than one banks every two months. From January 2008 to July 2012, four hundred and sixty-five banks failed, a rate of ten banks a month. Such an outcome is unexpected and in monetary terms given the value of some of the banks prior to their distress.

<sup>17</sup> Chris Burniske and Jack Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* (1st edn, McGraw-Hill Education 2017). To a large extent this research has been informed by this text as it remains at the forefront of exploring the technical and economic ripple effect of cryptocurrency within the mainstream financial technology sector.

reliability and integrity of the system. From the lows of financial obscurity in 2008 with a market capitalization under one million dollars, the leading crypto-currency is currently valued at over one hundred billion dollars as per Statista.com, a leading tracker of crypto-currencies.<sup>18</sup>

Despite such growth within a short duration of time, crypto-assets have been devilled by claims of speculation, fraud, and market manipulation against leading figures in the industry as aggressive speculation on the value of the assets keeps in a flux. Rather than move in and regulate the sector to support growth and innovation while protecting consumers, leading financial agencies have exacerbated the situation by denouncing the crypto-native economy as an illegality, an absurdity, or a non-comer in financial terms.<sup>19</sup>

At the domestic level, regulators remain incapacitated by lack of technical capacity, fiscal conceptual framework capability to husband a nascent technology, and regulatory isostasy to fully appreciate the functioning of block chain, crypto-assets, and related technologies within the financial sector.<sup>20</sup> Rather than perceive regulation of crypto-backed assets as an opportunity to

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<sup>18</sup> Statista.com, 'Bitcoin Market Capitalization Quarterly 2012-2018 | Statistic' (*Statista*) <<https://www.statista.com/statistics/377382/bitcoin-market-capitalization/>> accessed 28 August 2018. For comparative purposes, if Bitcoin was a country and its market capitalization its nominal GDP it would be considered the fifth or sixth largest economy in Africa given that Morocco with a nominal GDP of one hundred and five million dollars is ranked fifth by the IMF.

<sup>19</sup> Enda Curran, Piotr Skolimowski and Craig Torres, 'The Cryptocurrency Boom Is Getting Too Big to Ignore' *Bloomberg.com* (30 August 2017) <<https://www.bloomberg.com/news/articles/2017-08-30/cryptocurrencies-are-new-barbarians-at-the-gate-of-central-banks>> accessed 28 February 2018. The article notes that while cryptocurrencies had been previously ignored by major institutions, the rallying of their prices now demand a closer look from regulatory agencies to streamline and mainstream them into the global financial structures.

<sup>20</sup> James Crotty, 'Structural Causes of the Global Financial Crisis: A Critical Assessment of the "New Financial Architecture"' (2009) 33 *Cambridge Journal of Economics* 3 <<https://academic.oup.com/cje/article/33/4/563/1730705>> accessed 23 October 2018. While the article focuses on the securitization craze in America that drove the developed economies financial sector to its knees, it also acknowledges that the fundamental cause of the crisis was the regulatory inertia, isostasy, and inability to fully appreciate the repercussions of the various classes of derivatives that the banking sector was creating in its securitization activities. Similar sentiments are echoed in Michael Mah-Hui, 'Old Wine in New Bottles: Subprime Mortgage Crisis - Causes

further integrate technology into the financial sector, promote inclusivity in finance, and overcome some latent defects of the established financial intermediating technologies, regulators choose to bedevil themselves with the demerits and disadvantages. Given that the international regulatory level of the financial sector is dominated by domestic regulators, need broad consensus for any actionable measures to be undertaken, the failure by domestic regulators to act renders the international regulatory mechanism to remain festooned in a limbo, recognizing the potential but unable to act.

Moreover, the absence of a regulatory mechanism has further served to inhibit growth while restricting innovation on the utilization of the underlying protocols into other non-financial sectors of the economy.<sup>21</sup> While such a position was palatable in the initial stages as regulatory agencies needed time to garner the requisite technical and regulatory capacity to intervene in the sector, the continued *laissez-faire* attitude amounts to a dereliction of their core duty to protect consumers while promoting innovation. Since the domestic regulatory climate informs the global regulatory environment, the lack of domestic responses curtails and undermines any attempt at global consolidation and crystallization of the regulation of crypto-assets.

### 1.1. Statement of the Problem

This exercise in scholarship seeks to provide a deeper examination of crypto-assets and provide a framework for the advancement of responsive regulations to husband the growth of the sector at the domestic level for each country to adopt a proposed model regulatory instrument without

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and Consequences' (2008) 3 Journal of Applied Research in Accounting and Finance 3 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1263280](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1263280)> accessed 23 October 2018.

<sup>21</sup> Aaron Wright and Primavera Filipi, 'Decentralized Blockchain Technology and the Rise of Lex Cryptographia' <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2580664](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664)> accessed 23 October 2018.



restricting innovation and its proliferation into other sectors of the economy. This academic exploration conceptualizes what amounts to a crypto-backed assets to distinguish it from other digital assets, canvass a patchwork of regulatory responses across Africa, Asia, and Americas to inform the discourse as to the best regulatory response before concluding with a draft bill that highlights the underpinning concepts of the industry.

## 1.2. Objectives

As such, this inquiry seeks to formulate a critical appraisal of existing crypto-assets by categorizing them into broad classes that provide a measure of consistency in their treatment; to provide legal and economic justification for the recognition of crypto-assets; to examine the various types of crypto-assets as distinct components of an overarching whole; and to advance a proposed dynamic regulatory framework to address the sector at the domestic level as a precursor to global regulatory convergence. The three issues identified in the problem statement are explored at their point of interphase- of when, where and how crypto-assets should be regulated to ensure the convergence of regulatory measures enhances financial stability, integrity, and state concerns over illicit and illegal financial flows are addressed.

## 1.3. Research Questions

1. To what extent has the lack of a global, regional, and national regulatory framework hindered the mainstreaming of crypto into the economy.
2. Are crypto-native economies amenable to contemporary economic and legal regulation or do they demand a *sui generis* regulatory approach?
3. What would be the underpinning principles for an optimal regulatory framework be applicable to blockchain technology in the financial sector?

## 1.4. Hypothesis

This investigation is informed by four major hypotheses;

Firstly, that the current lack of regulation of blockchain and related technologies within the financial services sector is due to regulatory perception of the technology as infant and insignificant development that should be left to mature.

Secondly, that the lack of regulation has hampered growth of the industry as investors concern over legitimacy and legality of the industry results in low investments in the technology.

Thirdly, that failure to adequately regulate the sector poses a significant and immediate threat to global financial services stability.

Fourthly, that sufficient regulatory control could be attained in the sector through *sui generis* legislation derived from the payment services regulation and securities market regulations.

## 1.5. Theoretical Framework

This inquiry is informed by a multi-disciplinary theoretical conceptualization of theories of regulation as hybrid concepts that touch on sociology, economics, and political science parameters to attain the aims and objectives of regulation.

The multi-disciplinary ramifications attendant to regulatory theories arise when one attempts to provide a rationale for any form of regulation as they have to consider the political, institutional, and economic forces that grind out to provide a regulatory matrix.<sup>22</sup> Adopting a one-dimensional

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<sup>22</sup> Michael Heldeweg and Evisa Kica, *Regulating Technological Innovation; A Multi-Disciplinary Approach* (1st edn, Palgrave Macmillan 2012), pp 13-41.

approach that focuses on regulation making as simply a creature of parliament or a regulatory agency denies the interrogation the practical dimensions that inform public policy formulation and development, of which regulation is but an example. A holistic, pragmatic, and conscientious examination, therefore, demands a multi-disciplinary approach to account for the major stakeholders and their influence over the process.<sup>23</sup>

Whether contrarian or not, all justifications contain elements whose scope is best appreciated from a non-legal perspective, hence the need for a multi-disciplinary take in the research paper. At their core, all theories of regulation seek to respond to three major questions; why regulation emerges, who are the actors within the regulatory framework, and the patterns of interaction between the actors.<sup>24</sup> From a cybernetic perspective, focusing on a functionary approach, this exploration is premised on four theories; the public interest theory, private interest theory, institutionalist theory and game theory.

### 1.5.1. Public Interest Theory

Public Interest Theory on regulation is traceable to the works of Pigou seminal text, *The Economic of Welfare*, as he attempted to expound on how to mitigate the externalities imposed on society by market inefficiencies through direct government intervention.<sup>25</sup> Public interest theory serves as the

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<sup>23</sup>Ibid, p 22-29.

<sup>24</sup>Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (Cambridge University Press, 2007), pp 12-21.

<sup>25</sup> Arthur Pigou, *The Economics of Welfare* (4th edn, Macmillan Publishers 1932), pp. 25-47.

In the text he proffers a variety of ways of intervening when market inefficiencies cause social costs like pollution on the basis that there is an overriding public interest for the government to reduce the externalities as means of safeguarding public welfare.

primary justification for government intervention in capitalist or capitalist-leaning economies.<sup>26</sup> Later championed by the New Deal supporters to justify the growing legislative measures taken by the American government to revive the economy, the theory managed to serve as a focal conceptual basis for increased government intervention until critique of its benevolence presumption begun to be levelled by the economist aligned to the Chicago school.

From a capitalist approach, the supply, demand, and distribution of resources ought to be governed by the *invisible hand of the market* with no governmental intervention, since intervention distorts the market and imposes unwarranted externalities. The public interest theory is thus traceable directly to the social contract theory, the notion that there exists an agreement between the government and the governed, for the governed to give up some rights in exchange of protection afforded to them by the state.<sup>27</sup> Within such a conceptualization, government regulations are adopted as a measure that seeks to safeguard the public from the detrimental repercussions of market failure while distributing the benefits of functioning markets.<sup>28</sup> The public interest noted in the theory is the desire to ensure optimal allocation and distribution of individual or collective resources that exist within a society.<sup>29</sup>

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<sup>26</sup> Tony Prosser, *Nationalised Industry and Public Control: Legal, Constitutional and Political Issues* (Blackwell 1986), pp 17-29.

<sup>27</sup> John Ledyard, *The New Palgrave Dictionary of Economics*, 2nd ed., vol. 2, 4 vols. (Palgrave Macmillan UK, 2008), pp 2-9.

<sup>28</sup> Michael Hantke-Domas, "The Public Interest Theory of Regulation: Non-Existence or Misinterpretation?," *European Journal of Law and Economics* 15, no. 2 (March 1, 2003): 165–94, <https://doi.org/10.1023/A:1021814416688>. In Jørgen's *Public Interest regulation reconsidered* he attempts to modernize the theory to better align with the criticism levelled against it and spruce it to better address the challenges sprung by regulatory capture and the rebuttable presumption of inherent benevolence in the system that allows regulators to be presumed to be acting in the best interest of the public.

<sup>29</sup>Ibid

In most instances, public interest theory is applied where market failures occur; the distribution of the available resources is suboptimal and inefficient due to the pursuit of selfish interest that are unfavourable to the overall society.<sup>30</sup> A functional market would eliminate externalities like rent-seeking conduct, time-inconsistent preferences, imperfect bargaining due to information asymmetry, monopolies and other imperfect non-competitive market conduct, and the agency dilemma that afflicts principal-agent relationships.<sup>31</sup> On one hand, Coase provided the argument that market failures arise where the property rights are infringed (non-existent, unrecognized, or unenforced) or the costs of negotiations amongst the parties for exchange of the property rights is prohibitively high raising transactional costs externalities.<sup>32</sup>

Once market failure occurs, the society is forced to bear the social welfare costs, hence necessitating the intervention of the government to mitigate the effect of the social costs or shift the effects from the public into the private sector.<sup>33</sup> Since most resources are perceived as either purely public goods or impurely private goods that are non-rival and non-excludable, government intervention seeks to overcome such dynamics and impose rivalry or exclusivity in the goods to better allocate them.<sup>34</sup> Excessive government regulation or inappropriate form of government

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<sup>30</sup> “Market Failures, Public Goods, and Externalities” (Econlib) <https://www.econlib.org/library/Topics/College/marketfailures.html> accessed 11 August 2018.

<sup>31</sup> Francis M. Bator, “The Anatomy of Market Failure,” *The Quarterly Journal of Economics* 72, no. 3 (August 1, 1958): 351–79, <https://doi.org/10.2307/1882231> accessed 11 August 2018.

<sup>32</sup> Ronald Coase, “The Problem of Social Cost,” *The Journal of Law & Economics* 3 (October 1960): 1–44.

<sup>33</sup> “Market Failures, Public Goods, and Externalities” (Econlib) <https://www.econlib.org/library/Topics/College/marketfailures.html> accessed 11 August 2018.

<sup>34</sup> See Cass Sunstein, *After the Rights Revolution: Reconceiving the Regulatory State* (Harvard University Press 1990). For a deeper espousing of the characteristics of public resources that renders them non-excludable and non-rival.

regulation has, however, been accused of creating a countervailing inefficient allocation of resources through government failure.

On the other hand, public interest theory acknowledges that in some instances, markets are efficient distributors of resources with the *invisible hand of the market* ensuring competitive allocation of resources to the best placed entities to exploit them.<sup>35</sup> In such a scenario, the public interest theory argues there is need to ensure the distribution of the benefits amongst the public if the resource so allocated is collectively owned. Moreover, the theory argues that even privately owned resources optimally distributed ought to have their benefits equitably distributed due to the public costs borne by society that facilitates the exploitation of the resource.<sup>36</sup>

At a more crystallized state, public interest theory diverges into two major facets; (1) those theories that seek to advance the notion of regulation as a tool for promoting economic efficiency (the welfare economist school of mind), and (2) those theories that seek to promote other social-political aspirations of promoting public welfare as the core mandate of regulation (the substantive political approaches).<sup>37</sup>

For the blockchain sector, the public interest theory approach would contend that there exists a legitimate state interest in the protection of investors and consumers of the service as an extension of the fiscal policies of the state. Every state wishes to ensure that its citizens can invest in stable

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<sup>35</sup> The term the invisible hand of the market and its attendant economic position in capitalist economies is advanced by Adam Smith to account for how free markets would act to ensure that commodities supplied to the market are balanced with the demand. The *Invisible hand* would ensure that the equilibrium acceptable to buyers and sellers is attained in the market without need for any direct intervention by the state or third-parties. See generally, Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Cosimo, Inc. 2010).

<sup>36</sup> Michael Hantke-Domas, 'The Public Interest Theory of Regulation: Non-Existence or Misinterpretation?' (2003) 15 *European Journal of Law and Economics* 165.

<sup>37</sup> *Ibid*, 167-185.

asset classes, are adequately informed to allow them make informed decisions, and have a modicum of protection against financial crimes to protect their investment as part of its social contract duty to protect and uphold the interest of citizens.

Consequently, the growing trend where retirement funds and other benefit schemes invest significant portions of their member's savings in cryptocurrencies and related technologies raises concerns that unless such investment are protected from fraudulent transaction, insider trading of assets, and other financial crimes that affect mainstream assets, they may threaten the stability of retirement funds across many countries. If the retirement funds hemorrhage the savings the onus would shift on the government to provide relief while public uproar over the failure to regulate would be significant and demand for immediate response from the government.

To avoid such a scenario, governments ought to recognize their fiscal duty to their citizens to protect their investment and assets in blockchain technology as part of their existing mandate to police the financial services sector and extend social welfares protections to citizens. It is noteworthy that a public interest theory approach may tend to be overprotective to consumers and result in overregulation that stifles inventions and developments in the industry as regulators would seek time to understand all risks and develop rules to eliminate them before approving any new changes or developments in the sector.

### 1.5.2. Private Interest theory

Private Interest Theories of regulation are implicitly informed by the presumption that regulation can be advanced and developed by private sector players without public sector interventions.<sup>38</sup> Within such a conceptualization, it is presumed that regulatory mechanisms arise from individual or collective group efforts at maximizing the member's interests, without any regard for the public interests. If public interest motives are realized, private interest theory considers such an outcome incidental and at the penumbra of the regulatory framework. Unlike the public interest theory that is underpinned by the aspirations that regulatory capacity would suffice to meet and alleviate public interest, private interest theory proceeds from the sceptical position that regulations fails to achieve public interest and only serve as externalities to the regulated sector.<sup>39</sup>

A significant plank to the private interest theory is their affirmation that *regulatory failure* and *regulatory capture* are inevitable in public interest regulation, hence the need for allowing private interest groups to chart the course of regulation.<sup>40</sup> Regulatory failure denotes the instances where the stated public interests that motivated the enactment of regulations are not realized by the framework subsequently instituted. In other instances, regulatory failure can arise when regulations stifle innovations and development when the externalities (costs) imposed by the regulation become increasingly prohibitive to the business operations.<sup>41</sup> Regulatory capture on the

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<sup>38</sup>Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (Cambridge University Press 2007), 44-45.

<sup>39</sup> Ibid, such a position is primarily a contradistinction to public interest theory position that regulations arise from market failure. To private interest players, regulations driven by public needs is also vulnerable to regulatory capture resulting in failure of the regulations to attain their underpinning aims within public spaces.

<sup>40</sup> Stephen Croley, 'Theories of Regulation: Incorporating the Administrative Process' [1998] *Columbia Law Review* 56.

<sup>41</sup> Ibid Morgan & Yeung, *An Introduction to Law and Regulation* argument that all regulations, irrespective of their public or private interest motivation, tend to impose a cost on businesses. Such a cost may be direct through extraneous



other hand is the evolution of regulatory agencies and entities that are charged with promoting public interests but increasingly attain close relationships with the entities they regulate and become intertwined in their operations. Eventually, the regulator is compromised and absconds from promoting public interest and switches to promoting the interests of the regulated group, in most instances to the detriment of the public interest that they had set out to promote.

Comparatively, there exists a *mirror-image relationship* between the underpinning presumptions that inform the public interest theory and the private interest theory; the role regulations play in regulatory failure.<sup>42</sup> The public interest theory would contend that market failure arises due to lack of regulations to promote access and public needs; hence, regulations are imposed to solve market failures. In contrast, private interest theories would contend that regulations motivated by the need to promote public interest tend to fail and result in market capture that promotes the narrow interest of some players in the industry to the detriment of the public and other players in the market.

Similar to the public interest theory, private interest theories are further distilled depending on their underpinning notions being economically driven (the economic private interest approaches) or politically informed (the political private interest approaches). The two broad areas arise due to the varying degree of reliance placed on principal-agent theory and positive political economy thought.<sup>43</sup>

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compliance mechanism or indirect through standards and conformity requirements that inhibit businesses ability to “freely” set out their economic activities to maximize shareholder’s equity.

<sup>42</sup> W Niskanen, *Bureaucracy: Servant or Master? Lessons from America*, (Institute of Economic Affairs 1998). Niskanen posits that whether regulations become the servant or master over economic activities is the conceptual distinction that exists between public interest theories and private interest theories on the place of regulation within legal-economic spaces.

<sup>43</sup> Supra Morgan & Yeung *An Introduction to Law and Regulation*, 52.

For major stakeholders in the blockchain sector, the private interest theory of regulation remains attractive on two fronts; firstly, they perceive government regulation as unduly cumbersome and liable to constricting the development of the sector, and secondly they contend that regulators lack the requisite capacity and technical skills to regulate the sector. These suppositions have been entrenched by the reaction of some regulators who have sought to declare blockchain derivative assets as illegal; or illicit asset class on grounds that are indicative of a poor appreciation of the technology that informs the assets.

Hence, the major stakeholders contend that private stakeholder initiative where members form an association to regulate the conduct of all participants within the industry would be the most appropriate avenue to ensure that the technically qualified persons propagate rules for the industry. The approach further lends itself to private players as they perceive it as more responsive to their concerns as a member's association would have a vested interest in ensuring regulations evolve with the needs of the members when compared with public regulations that would be informed by a variety of concerns and tend to be slow to evolve due to regulatory inertia.

Such a *laissez-faire* approach fails to acknowledge that most governments view the financial sector as a common public good that must be regulated and government by public entities to ensure stability of the market and provide an avenue for the government to appropriately stimulate the economy of a country. Leaving regulation to private member's club would undermine the ability of the government to intervene, an outcome that would be resisted by existing regulatory agencies.

### 1.5.3. Institutional Theory

The Institutional theory of regulation refer to a diverse number of theories that attempt to rationalize regulation by focusing on the role and place of *rule-based spheres*, formal institutions

whose substantive and procedural rules are embedded in the market. Morgan and Yeung contend that *rule-based sphere interactions* can occur in a variety of manner; as formal entities *regulatory agencies, state corporations*; as norms and routines in the market *risk analysis best practices, cost-benefit accounting approach, and precedents*; or as systems *like the legal system in an industry, the political system in the jurisdiction, and the economic system governing an industry*.<sup>44</sup> For the preeminent theories classified as institutional, their overarching concept is institutions have a dynamism that gives them operational drive to evolve and adapt to the changing conditions within the market.

Hence, institutions have a preferred outcome as they engage with players in the industry and actively seek to realize their preferences.<sup>45</sup> Additionally, these theories fail to distinguish private and public sector actors by considering them mere actors who influence the evolution of institutions irrespective of the spaces they occupy in either sector of the economy. Further problematization of the concept results in fragmentation of ideas and divergence of opinions into either tripartism.<sup>46</sup>

The institutional approach for blockchain technology would perceive regulations as a series of measures adopted by each region according to its perception of property rights, role and extent of government intervention in the market, and the societal approach to new technologies. Capitalist

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<sup>44</sup> Ibid, 53-54.

<sup>45</sup> I Ayres and J Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press). Provide a nuanced take on the same by perceiving institutions from a tripartite position that seeks to consolidate the “actor-centric” and “system-centric” normative approaches of public and private interest theories into an amorphous level of abstraction.

<sup>46</sup> Such a position has been advanced by Ayres and Braithwaite on *Responsive Regulation*, into *Regulatory space approach* advanced by Hancher and Moran in *Organizing Regulatory Space* or into a deeper examination of *Systems theory* as advocated by Gunther Teubner in *Dilemmas of law in the welfare of state*.

states would be viewed as more liberal in regulation allowing for restricted state intervention in the development of blockchain technologies and more likely to promote a hybrid system of governance where the private sector plays a major role in the regulation of the industry under the overall control of a public agency with a limited role.

Socialist and welfare states would be perceived as more likely to have stringent regulatory requirements as governments tend to be more protective in their approach to consumer protection and investor safeguards. Hence, socialist states may be perceived as medium for government regulation that is likely to stifle innovation and invention due to overregulation informed by their approach of minimizing risks. In contrast, statist countries like China where the government has an all-encompassing role in every state of affairs would perceive regulation as an extension of existing state duty to oversee all aspects of the economy. The government in statist nations would be expected to actively engage in the development of state backed blockchain asset as government sought to attain the requisite technical expertise on the industry by doing and engaging in the sector.

#### 1.5.4. Game Theory

In contrast to the earlier three theories that attempt to propound the grounds for the justification of the actions of the stakeholders involved in the regulatory framing, game theory arises as a quasi-economic, mathematical, and sociological narrative that seeks to explain why stakeholders would pursue a course of action despite prior awareness of the likely outcome in each scenario.<sup>47</sup> With its economic and mathematical grounding, game theory is predicated upon the assumption that

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<sup>47</sup> Martin Osborne, *An Introduction to Game Theory* (illustrated, Oxford University Press 2009) <[https://books.google.co.ke/books?id=\\_C8uRwAACAAJ&dq=an+introduction+to+game+theory&hl=en&sa=X&ved=0ahUKEwjb\\_tOHjJzeAhUFyoUKHSs8A\\_MQ6AEIJzAA](https://books.google.co.ke/books?id=_C8uRwAACAAJ&dq=an+introduction+to+game+theory&hl=en&sa=X&ved=0ahUKEwjb_tOHjJzeAhUFyoUKHSs8A_MQ6AEIJzAA)> accessed 23 October 2018.

every regulatory outcome arises due to the strategic interaction of rational decision makers who pursue their goals by strategic deployment and utilization of mixed strategy to realize their overarching goals.

Propounded by John von Neumann through the *Brouwer fixed-point theorem*, game theory argues that at its core every field of human activity supports a number of players who engage in cooperative games with each seeking to maximize their advantage to accrue the highest possible benefits while incurring the lowest acceptable cost.<sup>48</sup> Within the legal field, game theory can be utilized to explain why the various stakeholders develop a strategy for creating an efficacious regulatory climate that supports optimal market condition without hindering productivity or efficiency of the players. When one perceives regulation as a set of compromises that seek to protect consumers, safeguard investments, provide revenue for governments, and advance public policy in the field, then regulations may arguably be arrived at through compromises by the stakeholders via game theory analysis.<sup>49</sup>

As the science of interdependent strategy, game theory focuses on the mathematical and logical determination of the most likely conduct of a player involved in “the game.” In the current situation regarding regulation of block chain technology within the financial sector, the game denotes the financial sector regulatory environment.<sup>50</sup> The players denote the domestic financial regulators

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<sup>48</sup> Michael Mesterton-Gibbons and Mike Mesterton-Gibbons, *An Introduction to Game-Theoretic Modelling* - Michael Mesterton-Gibbons, Mike Mesterton-Gibbons - Google Books (illustrated, American Mathematical Society 2001) <[https://books.google.co.ke/books?id=44PxwAAQBAJ&dq=an+introduction+to+game+theory&source=gbs\\_navlinks\\_s](https://books.google.co.ke/books?id=44PxwAAQBAJ&dq=an+introduction+to+game+theory&source=gbs_navlinks_s)> accessed 23 October 2018.

<sup>49</sup> Douglas G Baird, Robert Gertner and Randal C Picker, *Game Theory and the Law* - Douglas G. Baird, Robert H. Gertner, Randal C. Picker - Google Books (Harvard University Press 1998) <[https://books.google.co.ke/books?id=ncEJHu35yvQC&dq=an+introduction+to+game+theory+in+financial+regulation&source=gbs\\_navlinks\\_s](https://books.google.co.ke/books?id=ncEJHu35yvQC&dq=an+introduction+to+game+theory+in+financial+regulation&source=gbs_navlinks_s)> accessed 23 October 2018.

<sup>50</sup> Osborne, *An Introduction to Game Theory*, 211-321.

like Central Banks, national legislature equipped with law making mandate, various investors and entrepreneurs seeking to leverage on block chain technology to intermediate the financial services sector, the emerging companies that seek to offer services aimed at block chain products like coin exchange platforms, and the public who are getting into the block chain field either for speculation purposes or as potential economic ventures.<sup>51</sup>

In such a game, there is interdependence amongst participants as the outcome depends on the strategies adopted by each player and their ability to compromise to advance their shared interests. Currently, we are witnessing a zero-sum game in most countries where the regulators have gone out of their way to denounce and ostracize block chain technology. In a country like Kenya, the zero-sum game plays out as the financial regulators view their interests as totally incompatible with the interest of the investors, block chain enthusiasts, and other players seeking to promote block chain.

For the Central Bank, regulation demands control of the means and ways in which a product will be utilized within the financial sector. Such an outcome is in conflict with the decentralized feature that underpins block chain technology as it renders it impossible to control a technology that leverages on decentralization, and in some instances cryptography and anonymity. As such, the regulators quest for control being incompatible with the underpinning technology on decentralization, anonymity, and cryptography, we are at an impasse. The regulator remains unwilling to sanction the technology, its derivatives, and associated uses, investors continue clamouring for legal protection of their investment, and the public is left confused on the legality and legitimacy of a product that offers tantalizing prospects.

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<sup>51</sup>Ibid.

In other jurisdictions like Japan, Hong Kong, and to some extent America, a positive sum game is playing out through cooperative framework involving regulators, investors, speculators, and some financial firms.<sup>52</sup> Realizing some of the benefits of leveraging on block chain technology within the financial sector, Japan has drafted and published a number of regulatory notes that seek to offer guidance and regulate the sector through its regulatory authority. In this game, the regulators interest is primarily the need to ensure a vibrant digital market in securities and assets that ensures Japan remains competitive in the hyper competitive global financial sector.

For the investors and speculators who seek to ensure that their investment is legitimate and the tax implications of such investment are clear, any form of regulation is desirable to stimulate the block chain market. In such an environment, through technical capacity building assistance extended to the financial regulator and the investors willingness to conform to these regulations have allowed the development of a dynamic crypto-native assets market that advances the interest of all the players.

Two established strategic interactions in game theory can be utilized to advance the argument for domestic regulation of block chain technology. Firstly, the *prisoner's dilemma* is an established game theory illustration that seeks to illustrate how a sequential move game plays out in regulation.<sup>53</sup> At the outset, both the regulator and the market are involved in a sequential game where they have to consider the reactions of each stakeholder in the market in case they move in

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<sup>52</sup> Felix Hartmann, Wang Xiaofeng and Maria Lunesu, 'Evaluation of Initial Cryptoasset Offerings: The State of the Practice': *2018 International Workshop on Blockchain Oriented Software Engineering* (IEEE 2018) <<https://ieeexplore.ieee.org/abstract/document/8327569>> accessed 23 October 2018.

<sup>53</sup> Michael Mesterton-Gibbons and Mike Mesterton-Gibbons, *An Introduction to Game-Theoretic Modelling* - Michael Mesterton-Gibbons, Mike Mesterton-Gibbons - *Google Books* (illustrated, American Mathematical Society 2001) <[https://books.google.co.ke/books?id=44PxBwAAQBAJ&dq=an+introduction+to+game+theory&source=gbs\\_navlinks\\_s](https://books.google.co.ke/books?id=44PxBwAAQBAJ&dq=an+introduction+to+game+theory&source=gbs_navlinks_s)> accessed 23 October 2018.

a certain direction. Every player has to anticipate the move and countermove that the other player will use and accordingly calculate the optimal choice that counteracts the other players move.

As it stands, if regulators fail to regulate block chain technology and its associated financial derivatives, they stand to lose from the revenue that could be generated from the sector and the first move advantage of influencing the development of the technology. Other countries have begun tentative steps towards regulation as they seek to gain a measure of influence over the development and utilization of the technology.

On the other hand, should domestic regulators move in and enact stringent regulations that seek to box in the technology, they may stifle innovation and the dynamism that lies at the heart of block chain technology. Overregulation will also push out investors and innovators who will move to unregulated jurisdictions to continue with their operations away from the oversight of burdensome regulators.

However, if regulators adopt a laissez-faire approach that allows the investors and other players to self-regulate, there is the threat of a race to the bottom as each domestic jurisdiction moves to deregulate the sector as a public policy move for attracting investors and innovators to their jurisdiction. Given the central role played by intermediating technologies in the financial sector and the interlinked nature of the financial services sector with other parts of the economy, deregulation as part of a race to the bottom holds the threat of unravelling the stability of the financial sector, an outcome undesirable to all the players.

The optimal position, therefore, becomes a measure of hybrid-regulation where the regulator cooperates with the market players to develop responsive regulations that promote the industry



without pushing away investments or undermining the stability of the financial sector through deregulation.

## 1.6. Literature Review

Exploring the regulation of a burgeoning technology within an established sector of the economy is a challenging undertaking as one must avoid blinkered analysis that tethers them to the established doctrines that may be inadequate or incapable of accommodating the new technology. In my literature review, a number of limitations have arisen. Firstly, there is a dearth of academic literature on most facets of block chain technology from primary sources in Kenya, Africa, and globally as no country at present has a statutory instrument that addresses the area.

Any case or judicial opinion on the sector also tends to be narrowly construed at the tax implications of block chain technology, leaving its regulation a grey area of the law. As such, my literature review has attempted to borrow heavily from American and European literature on crypto-currencies as one of many forms of crypto-native assets that are underpinned by block chain technology. It's noteworthy that strictly speaking America is not a common law jurisdiction and the regulatory convergence in Europe has pushed for a civil-law dominated perspective on regulation rendering common law countries bereft of persuasive jurisprudential sources.

Moreover, the whole block chain technology arena is in continuous flux as the technology struggles to assert itself and innovators push to create new uses and forms of assets backed by block chain technology. Hence, this exploration is qualified qualitatively as today's technological invention may be quickly overtaken by tomorrow inventions that are presently unconceived. While this inquiry on blockchain technologies has repeatedly been revised to track the changes and recent

development in the industry, it remains a work in progress that reflects the situation as it exists as of July 2018

### 1.6.1. The Deficiency in Global Regulatory Framework

Gikay contends that despite the repeated assertions and indications by the European Central Bank since 2015 of the need to regulate cryptocurrencies primarily as the means to providing clarity on their handling and transaction, such regulation is yet to materialize.<sup>54</sup> In the article, Gikay perceives cryptocurrency from a functional approach, the notion that crypto-assets are primarily used for transactional purposes like legal tender, and as such, the most efficacious regulatory approach would be to govern them under existing framework on payment services.<sup>55</sup>

He arrives at the conclusion that the lack of a regulatory framework within the European Union is due to the lack of recognition of bitcoin as a legal tender, since the existing framework presupposes to solely govern legal tenders. He subsequently notes that the development of a *sui generis* framework would be *impossible* as such a development would fatally erode the core feature of decentralization inherent in cryptocurrencies.

Strikingly, Omri Marian recognizes a similar gap in the American regulatory framework, the lack of a regulatory framework to govern crypto-assets as transactional commodities, but moves ahead

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<sup>54</sup>Asress Gikay, “Regulating Decentralized Cryptocurrencies Under Payment Services Law: Lessons from European Union Law,” *Journal of Law, Technology & the Internet* 9, no. 1 (2018): 1–35.

<sup>55</sup> Such a position is highly contestable due to the significant role played by crypto-assets beyond transactional purposes. While bitcoin, the leading crypto-asset and the primary subject matter of Gikay’s article is used for transactional purposes, other assets exist that have minimal transactional value but significant investment and capital markets value. However, while to perceive crypto-assets from a solely transactional dimension is highly restrictive and fails to provide a holistic notion of crypto-assets, it offers a poignant starting point that the most predominant form is yet to be regulated.

to propose a conceptual framework to govern the same.<sup>56</sup> To Marian, the proposed framework for regulating cryptocurrencies would focus on their transactional function and seek to promote innovation and utility of crypto-assets while curbing the criminal potential offered by decentralization and anonymity. Advocating a public interest theory of regulation, he proposes on a framework that imposes costs on the anonymity character of cryptocurrencies while enhancing their decentralization in value transfer and security features.

From a criminology perspective, he contends that the utility model for addressing criminal conduct would be ideal and moves to propose a regulatory model with an anonymity tax imposed on cryptocurrency transactions if one or more of the parties to the transaction remain anonymous. The approach focuses on the primary use of cryptocurrencies in criminal venture, to launder money hence the tax on anonymous transaction, while allowing legitimate users to access the service without bearing the imposed costs.

According to the Library of Congress *Report on the Regulation of Cryptocurrency Around the World* prepared by the Staff of the Global Research Directorate, the most dominant course of action pursued by most institutional regulators across the globe has been the issuance of public notice on the dangers facing the public from investing and transacting in crypto-assets.<sup>57</sup> Such an approach fails to provide a substantive or procedural regulations or guidance to the citizens, only creating fear amongst private investors as individual speculators are unsure of the stability and

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<sup>56</sup>Omri Marian, “A Conceptual Framework for the Regulation of Cryptocurrencies,” *University of Chicago Law Review* 82, no. 1 (2017): 53–69.

<sup>57</sup> The Law Library of Congress, Global Legal Research Centre, “Regulation of Cryptocurrency Around the World,” Web page, The Law Library of Congress Web site, June 2018, <http://www.loc.gov/law/help/cryptocurrency/world-survey.php>.

sustainability of their investment is non-conducive to the mainstreaming of crypto-assets into the financial services sector.<sup>58</sup>

Gikay's and Omri's texts focus lies on the treatment of blockchain technology within the financial services sector as synonymous to cryptocurrencies, a position that fails to acknowledge that cryptocurrencies are merely the most popular manifestation of blockchain technology within the financial services sector. In light of the distinction between cryptocurrencies and other blockchain native financial instruments, it would be flawed to develop and implement a regulatory framework that treats the various categories of blockchain backed instruments in a contemporaneous manner with a single class of the same.

This paper provides a framework for distinguishing the various kinds of blockchain backed assets and develops a proposal on how the various classes may be differentially treated to leverage on their unique characteristics to intermediate within the financial services sector. By extending the regulatory approach beyond the perception of blockchain technology as an alternative currency, then the full benefits of the technology can be harnessed to ensure the optimal configuration of the financial services sector in the era of information technology.

### 1.6.2. Associated Challenges with Regulating Crypto-assets

While Gikay's position that crypto-asset are impossible to regulate is contestable, he points to the fundamental challenge inhibiting most regulatory efforts; the decentralized and anonymity backed

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<sup>58</sup> The report additionally notes that such notices are issued by the financial sector regulator or the currency issuer in a jurisdiction, mostly Central Banks, and merely amount to a public awareness campaigns on the volatility of trading in crypto-assets and lack of government guarantees or protection for such trades. While some cautionary notes warn of the lack of any legal recourse in case of loss, some go further to note that crypto-assets are uniquely vulnerable to illegal activities that may open their citizens to criminal sanctions for handling or transacting in crypto-assets.

nature of crypto-native economy. Any concise attempt at regulating crypto-assets inevitably has to breach the jurisdictional purview of the regulating entity and would be bound to result in competing jurisdictions amongst a host of territorial regulators.<sup>59</sup> Decentralization in the creation, record keeping, and storage of crypto-native economies grants them a global character that is currently beyond the regulatory scope of any entity.

Regulatory agencies and states attempting to invoke jurisdiction to regulate any form of crypto-asset would have to grapple with their conceptualization of territorial jurisdiction, how to handle competing claims, and resolve conflict of laws. While such a position may seem academic and technical, without resolving jurisdictional claims and creating collaborative or cooperative arrangement amongst the various regulators the sector would be vulnerable to forum shopping, race to the bottom and deregulation, and the formation of crypto-havens in line with the current trend in formation of tax havens.<sup>60</sup>

Secondly, the dynamic nature of crypto-native economies predicates the sector to a high level of volatility and fluidity in the type of assets, the functions of such assets, and the derivative use of the underlying technological and technical expertise. As crypto-technology permeates across the

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<sup>59</sup> Financial Services Regulatory Authority, 'Guidance Note- Regulation of Crypto Asset Activities in ADGM' <<https://www.iosco.org/library/ico-statements/Abu%20Dhabi%20-%20FSRA%20-%20Guidance%20-%20Regulation%20of%20Crypto%20Asset%20Activities%20in%20ADGM.pdf>> accessed 13 July 2018. The opinion of the Financial Services Regulatory Authority of the Abu Dhabi Global Market presents a striking attempt at conceiving jurisdiction from a functionalist purview of the locale where the economic activity is occurring and the final position where the crypto-asset is intermediating the transaction.

<sup>60</sup>Omri Marian, 'Are Cryptocurrencies Super Tax Havens?' (2013) 112 Michigan Law Review First Impressions 38. Such a position has further been advanced by Philipp Ruppert, 'Privacy, Tax Evasion, and the Development of Cryptocurrencies' (2017) 398 Georgetown Law Technology Review <<https://www.georgetownlawtechreview.org/privacy-tax-evasion-and-the-development-of-cryptocurrencies/GLTR-04-2017/>> accessed 28 August 2017. In their argument that the increased anonymity provided by crypto-asset has heralded the dawn of a new form of tax havens, "the crypto-havens", that seek to evolve the traditional forms of money laundering and tax evasion within the new digital mediums offered by cryptocurrencies.

formal economy, it has attracted interest from trading in oil, creation of crypto-backed smart contracts, crypto-backed registries and recording systems, and crypto-tokens and their derivatives in the capital market.<sup>61</sup>

Such dynamism creates a conflicting mirror-image position on the effect and impact of regulation into the sector. From the start, any regulatory efforts would have to play catch-up with a sector fuelled by speculation and driven by the need for quick returns.<sup>62</sup> As the sector continues in its innovation and invention frenzy that renders yesterday's bleeding-edge innovation today's anachronistic fossils, an argument could be made that regulations would remain inadequate to offer any of the merits that would *prima facie* justify their implementation.

Attempting to implement regulations ex-ante would result in dramatic failure to realize the public policy or private interest motivation. Alternatively, it would birth a constitutional and economic conundrum of *ex-post-facto lit*<sup>63</sup> with regulations attempting to dictate conduct that has been overtaken by developments; an absurdity that would surely kill the economic and public policy justification for the adoption of the regulatory framework.

On the other hand, the imposition of regulation in a dynamic cocktail of technological, fiscal, and budding economic frontier with hazy boundaries and superficially appreciated impact would

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<sup>61</sup> Ibid Ruppert's *Privacy, tax Evasion, and the Development of Cryptocurrencies* is an incisive take on how the underpinning concept of crypto-assets renders them particularly pernicious to contemporary global financial systems.

<sup>62</sup> In examining various moves to legislate on crypto-native assets, Tsukerman makes the compelling argument that any regulation tends to be post-facto and is soon overtaken by new developments in the industry that render it an external cost on innovation that stifles development or moribund form of paper tiger. See Tsukerman, 'The Block Is Hot: A Survey of the State of Bitcoin Regulation and Suggestions for the Future' (2015) 30 Berkeley Technology Law Journal 1127.

<sup>63</sup> In common law jurisdictions, *ex-post-facto-lit* regulation refer to any law that claims retrospective application to cure an identified defect by seeking to decriminalize the act when it was committed.

cripple the overall outlook of crypto-native economy through the imposition of externalities cost of compliance and conformity; rendering the sector unattractive for investment in the essential research and design for its maturation.<sup>64</sup> While not fundamentally as revolutionary as the development of the internet in the dot com era, crypto-native economy share similar characteristics with the early internet backed economy; and the failures of regulation in the dot com era are recent enough to stymie the hand of the most active regulators.

Thirdly, and vanishingly rarely relied upon by economical commentators, has been the argument that the current crypto-native economy is too small and insignificant to attract the attention of regulators preoccupied with revitalization of the global economy.<sup>65</sup> Noteworthy has been the rise of crypto-native economies from the ashes of the 2007-2008 subprime mortgage fires that gutted the Lehman Brothers, and over one hundred other banks in the aftermaths. As financial regulators, economists, and fiscal policy analysts focus on stabilizing the global economy and propping up ailing institutions, little time, attention, or funds are available to spend on a sector of the economy subsumed in technical and economic penumbra.

While such arguments held sway in 2008, the increased public fascination and speculative interest on crypto-assets since then has served to place the issue front and centre of most regulatory strategic planning for financial stability. While one can afford to dismiss it as a novelty, one cannot

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<sup>64</sup> While Ronald Coase argued that overregulation creates transactional costs of negotiations that undermine the transfer of property rights amongst individuals, inappropriate, overzealous, or heavy handed regulation of crypto-native economies would not only impose excessive costs of negotiating the assignment of property rights in crypto-assets but would also burden the parties with steep compliance and conformity requirements. Such an outcome is neither justiciable nor desirable from a legal, economic, of political dimension.

<sup>65</sup> Lagarde C, 'A Regulatory Approach to Fintech' (2018) 55 Finance & Development 11 <<http://www.imf.org/external/pubs/ft/fandd/2018/06/how-policymakers-should-regulate-cryptoassets-and-fintech/straight.htm>> accessed 22 May 2018. While illustrating the need for further innovation in regulating financial technology (Fintech) Lagarde makes the observation that in its current form it represents a miniscule percentage of global economy but retains the potential for exponential growth with sufficient support from regulators.

afford to ignore its growing hold over public discourse on the future and viability of the institutionalized global financial systems.

### 1.6.3. Insights of Proposed Frameworks

Despite the lack of a robust regulatory framework over crypto-assets, tentative steps have been undertaken by some regulators in various jurisdictions like Japan and the United States, to advance a set of regulatory principles premised on a functionalist approach.<sup>66</sup> These endeavours point to two converging ideas on regulation of crypto-assets; treating them as *sui generis* class of existing assets and co-opting the existent regulatory framework to govern them or their treatment as a nascent class of assets with a narrow set of regulations advanced to them. Fairfield provides a concise summation of property law fundamental concept of list and ledgers and exports it into the crypto-native economies to provide an appropriate starting point to regulate crypto-native assets.<sup>67</sup>

According to Fairfield, the core facet of all property regulation is the maintenance of list and ledgers to eliminate falsification and duplication in ownership; hence proving clarity essential to the transfer and assignment of property rights amongst individuals. From the traditional view, laws tend to authorize a single entity to maintain the list, with users of the property regime required to pay for access to review the list and trust the entity maintaining the list to keep it current and weed out any fraudulent alterations. Such an approach imposes transactional cost in any transfer or

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<sup>66</sup> The broadest survey of regulation is provided by the Library of Congress at The Law Library of Congress, Global Legal Research Centre, 'Regulation of Cryptocurrency Around the World' (*The Law Library of Congress Web site*, June 2018) <<http://www.loc.gov/law/help/cryptocurrency/world-survey.php>> accessed 17 August 2018.

<sup>67</sup> Joshua Fairfield, "Bitproperty," *Southern California Law Review* 88, no. 4 (December 4, 2015): 805–74. At a narrow sense, Fairfield merely provider's pointers to enable regulators transition from contemporary forms of property into a nascent understanding of property rights in light of technological and social evolution that calls for a fresh mind set in regulatory approaches.



assignment of property rights, as the parties have to incur costs and take time to access the list. Due to the various types of properties, different ledgers are maintained for each class of property.

From this argument, the regulation of cryptocurrencies demands that regulators begin by classifying the various types of crypto-assets to allow the creation of different ledgers to regulate each class of the assets.<sup>68</sup> Subsequently, a framework must be formulated that empowers an entity to maintain the list for each asset class found in a ledger to ensure trust and eliminate duplication. It is on this second ground, endowing a single entity with the capacity to maintain a list of the assets and their ownership, that the inherent nature of crypto-native economy becomes fatally deficient as the decentralized and cryptographic nature of sector precludes centralization and publicity of ownership.

A competing view would contemplate that the decentralized and closed nature of crypto-transactions precludes duplication and eliminates opportunities for monopolization of record keeping of the list for property.<sup>69</sup> Since by their nature crypto-native economies decentralize their lists to eliminate duplication or falsification of records, and the current crypto-exchanges provide a mechanism for transferring and assigning rights to crypto-assets, the regulatory climate ought to focus on classification of the crypto-native economy and promulgation of fundamental principles to govern each class of assets.

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<sup>68</sup> Ibid the Financial Services Regulatory Authority of Abu Dhabi *Guidance Notes* that seeks to perceive crypto-assets as various classes that ought to be regulated depending in their functional usage within the jurisdiction where they are utilized.

<sup>69</sup> Jeffrey Carmichael and Michael Pomerleano, *The Development and Regulation of Non-Bank Financial Institutions* (World Bank Publications 2002). Jeffrey's core argument is that the non-bank financial sector cannot be adequately regulated without the formulation of a broad class of principles to inform the regulatory approach he further contends that the use of the banking sector regulatory principles in the non-bank financial sector tends to constrain innovation and undermine the level of compliance in the sector.

From a public interest grounding, the Abu Dhabi Financial Services Regulatory Authority has provided a scheme that manages to protect the consumer interest, national security interests in countering financing of terrorism, and anti-money laundering provisions.<sup>70</sup>

### 1.7. Research Methodology

This study is a qualitative research that is informed by primary and secondary sources of literature. It exclusively focuses on desk-based research in examining the diverse literature touching on crypto-native technologies and related economic tools. Ranging from regulatory advisories and guidance notes issued in some jurisdiction touching on specific classes of crypto-assets, public remarks issued by leading regulatory agencies and financial institutions, public remarks made by the founders and established figures in the crypto-economy, and a spate of cases in America touching on the crypto-economy.

### 1.8. Limitations to the Study

The major limitation to the study is the lack of primary sources given that with the exception of the State of Japan no other developed country has instituted institutional and regulatory reforms to advance the formal recognition of block chain technology within the financial services sector. Such a dearth in primary sources has forced the study to heavily rely on secondary sources that serve as persuasive indicators of the author's domestic jurisdiction approach to the sector.

Amongst the secondary sources available, it is noteworthy that there is limited literature from developing countries within Africa and the Asian region. It is this dearth of academic material

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<sup>70</sup> Ibid the Financial Services Regulatory Authority of Abu Dhabi *Guidance Notes*.

from developing countries that this research seeks to bridge by consolidating the limited African sources and offering insights on them while advancing the jurisprudence provided.

Another major limitation to the study is the time period covered by the research. While attempts have been made to update the paper, it ought to be recognized that this paper serves as a snapshot of the current state of affairs as of July 2018 unless the contrary has been expressly recognized. As such, recent developments may have overtaken some of the ideas pronounced in this text while other developments may have only served to underline some of the issues raised in the text,

Moreover, as a desktop based study, the paper does not attempt to offer quantitative analysis of the current status of the sector. It seeks to offer a limited overview of the qualitative state of affairs and its veracity is heavily dependent on the validity and fidelity of the sources quoted in the text. It should also be noted that some of the sources used here are not strictly academic as blogs, industry magazines, and the publicized comments of leaning figures in the industry have been used to bridge the informational gap that exists in some instances. Within limited scope, the author has attempted to corroborate such questionable secondary sources with other sources and has pursued to verify the professional qualification of some of the authors of the secondary sources utilized.

Blockchain is an emerging technology and as such some academic liberties have been taken by the author to advance critical thought in the area by casting their net wide for the best quality of the available material.

## 1.9. Chapter Breakdown

Chapter one provides a concise introduction into regulatory approaches and the underpinning jurisprudential grounds for the adoption of various regulatory approaches within the financial

services sector. It explores the main theories that account for differentiated regulatory approaches across various jurisdictions and indicates the interdisciplinary between law, economics, and public policy.

Chapter two seeks to explore blockchain technology within the financial services sector by examining the various interrelated aspects of cryptocurrencies, digital coins, and digital tokens that are underpinned by blockchain technology in their development and utilization.

Chapter three provides the rationale and justification for the regulation of cryptocurrencies using *sui generis* regulatory approach. It argues that the nature of blockchain technology renders it challenging to engage in wholesale importation of financial services payment principles within a nuanced technological field.

Chapter four offers a snapshot of regulatory responses in select countries to account for the challenges identified in chapter three when wholesale adoption of existing regulatory measures is exported into a dynamic field. For each country examined,

Chapter five offers a summary of the research and recommends a number of measures that domestic regulators may adopt when formulating their regulatory approach. An annexure of a model regulation that would offer *sui generis* regulation of crypto-assets is offered.

## CHAPTER TWO: THE NATURE OF BLOCKCHAIN TECHNOLOGY

### 2. Introduction

To develop an efficacious regulatory response, the underpinning concept that interlink between information security, digital resource management, cryptography, and data management is essential to ensure regulators are aware of the characteristics of blockchain technology and its interface with the financial sector. Through proactive appreciation of what is blockchain technology and its functionality, regulators can develop a better idea of where it will interact with the financial services sector in the future, and develop appropriate responses that ensures the underpinning principles of the regulatory framework are sufficiently flexible to adapt and move with a fluid field.

Such awareness enables them to develop legal principles that ensure legitimate state interest, public policy goals, and legislative objectives are met without unduly handicapping the industry. To that end, this chapter explores the nature of blockchain technology within the financial services sector with the express intention of building the core technical capacity and appreciation that would inform regulators of what is blockchain technology and where is it likely to interface with the financial services sector.

In contemporary record keeping, every asset has been conceived as a mere system of ledgers that keep track of transactions in an asset class with an external regulatory agency to maintain the fidelity of the ledger.<sup>1</sup> When one buys land, that person merely needs to go to the records office and have the records updated to reflect their new ownership. The lands registry, aptly

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<sup>1</sup> Fairfield J, 'Bitproperty' (2015) 88 Southern California Law Review 805 <<https://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=1492&context=wluofac>> accessed 12 April 2018.

named a registry, is merely a record-keeping office that tracks all transactions over a described piece of property. Similarly, when a person buys a music track from iTunes, they merely need to notify the provider who updates the records to reflect their assignment of user rights to access the purchased track (under the generally accepted copyright laws in the World Intellectual Property Organization framework).<sup>2</sup>

All these changes in ownership, therefore, are distillable into a series of changes made to a list of formal and informal ledgers that recognize the transaction and the resultant transfer of ownership or user rights from one entity to another.<sup>3</sup> Noteworthy is the presumption that all the changes are made and the records maintained by a centralized agency to eliminate fraud and duplication. Additionally, presumed is the notion that the central record keeping entity undertakes its obligation under the ambit of a legal regime that recognizes the transaction, upholds the transfer of rights, and demands compliance from the public through threat of sanctions for breach or infringement of the rights.

## **2.1. A concise overview of block chain technology**

Based on this understanding, crypto-assets (or the broader crypto-native economy) may be perceived as any digitally created instrument that serves as a store of value, is transacted digitally, capable of being individually or communally owned, that leverages on cryptography for the creation of additional instruments and to ensure the fidelity of transactions.<sup>4</sup> In digital

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<sup>2</sup> In this instance we would perceive the transfer or assignment of property rights in software and electronic media to amount to the mere changes in the registry maintained by the copyright holder who serves as the central entity for maintaining and updating the registry to the extent of the rights assigned to each party. When one buys a laptop in Moi Avenue, Nairobi, the seller merely needs to issue a receipt as an acknowledgement of their transfer of the rights attached to ownership of the laptop to their new owner. When one logs into the laptop and activates their Microsoft™ software package, the transaction merely happens as an update in the ledgers maintained by the licensing office/department at Microsoft™ to reflect their assignment of limited rights to use the software in line with the relevant software ownership legal regime in their country and Microsoft's headquarters.

<sup>3</sup> Fairfield, *ibid* n.3, provides a holistic take on the essentialness of property rights as mere ledger transactions.

<sup>4</sup> See generally Organization for Economic Co-operation and Development, "OECD Workshop on Digital Financial Assets - OECD," OECD Workshop on Digital Financial Assets, May 16, 2018,

creation, a process known as *mining* occurs, in this instance mining refers to the process where a computing system attempts to solve a complex mathematical formula as a step in the record updating process to ensure consistency and retain the fidelity of the system from unauthorized alterations.<sup>5</sup>

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<http://www.oecd.org/finance/2018-workshop-digital-financial-assets.htm>. In a series of workshops hosted by the OECD the overarching conclusion is that various discussants utilized the term crypto-asset and cryptocurrencies in a manner that seems interchangeable. Moreover, they seem to focus on the transactional character of crypto-assets in their definition. This text adopts such an approach but goes further to provide some clarity on the writer's perceived distinction between crypto-asset, crypto-native economy's and crypto-currencies,

<sup>5</sup> Maryanne Murray, "Blockchain Explained," Reuters Graphics Web site, accessed July 19, 2018, <http://graphics.reuters.com/TECHNOLOGY-BLOCKCHAIN/010070P11GN/index.html>. Murray provides a more concise, detailed, and graphically representative piece of work in her work. My explanation is an attempt at dumbing down the interrelated concepts of peer-to-peer computing, cryptography, and digital rights management associated with the mining process.

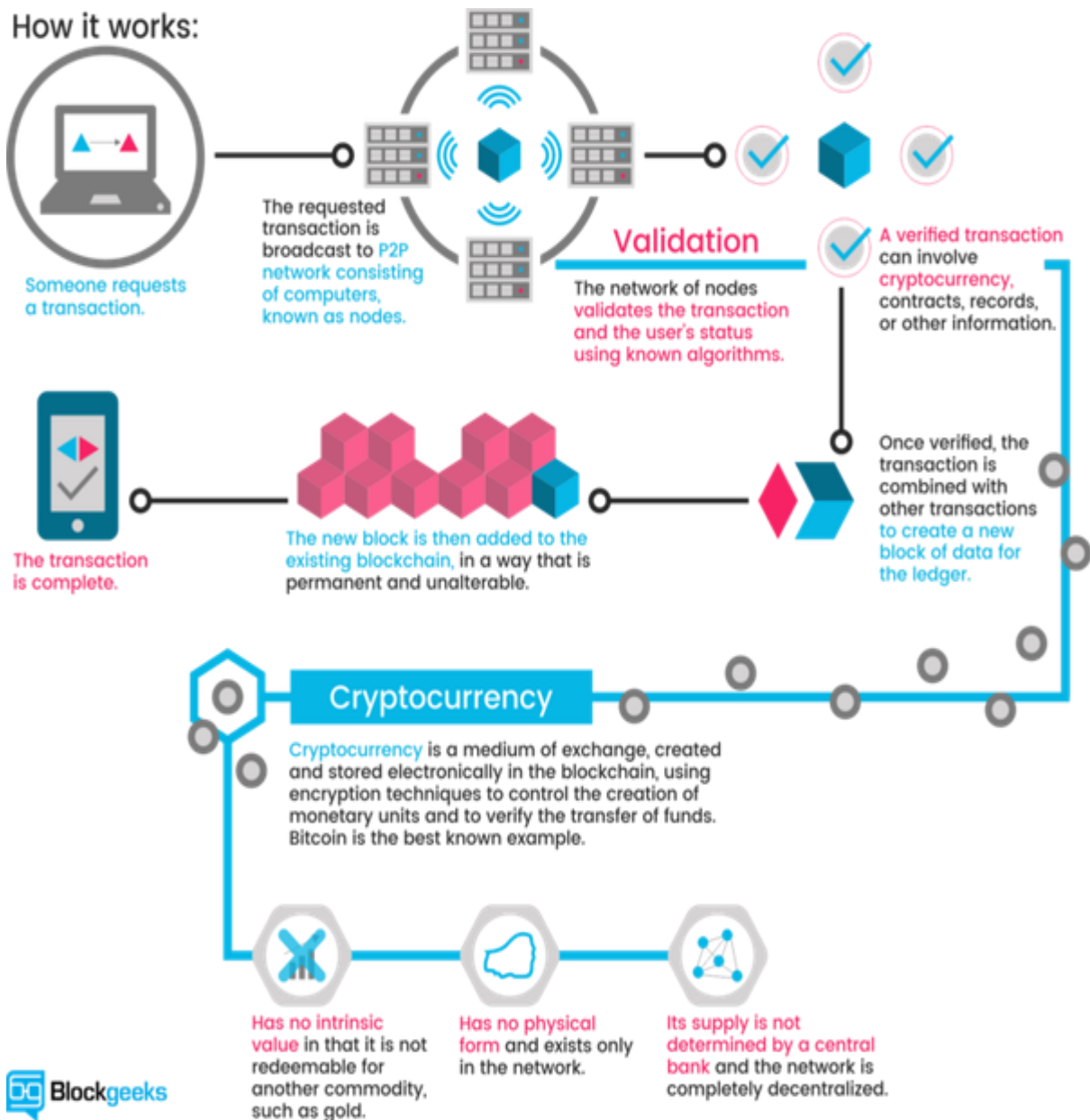


Figure 1 A representative graphical model of the mining process and the creation of one cryptocurrency unit<sup>6</sup>

<sup>6</sup> Brad Mills, 'What Is Cryptocurrency: Everything You Must Need to Know!' (13 September 2018) <<https://blockgeeks.com/guides/what-is-cryptocurrency/>> accessed 23 October 2018.



At the outset, the creator of a crypto-native asset creates a digital database that they organize into a block, with their encryption key (*hash*) and the works target difficulty. In mining, a computer system arranges a set of digital records into a *block* (or database) that is transmitted to all the interconnected computers for verification with the initial block created by the founder by evaluating the *proof of work* (concept of solving the mathematical formula) contained in the new block. All subsequent blocks contain the cryptographic *hash (signature)* of the previous block to maintain fidelity of the system.

While the connected computers can easily and quickly verify the validity of the *proof of work* by focusing on the *once* produced, the generation of a new *proof of work* is very difficult, consumes large amounts of processing power, and time. Solving the formula allows the computer (or in this instance its owner) to be rewarded with a piece of a crypto-assets.<sup>7</sup>

## 2.2. On crypto-currency

In contrast, cryptocurrency refers to a crypto-native asset primarily utilized as a medium of exchange that is characterized by its peer-to-peer and decentralized nature.<sup>8</sup> To most individuals, bitcoin remains the premier cryptocurrency due to its first-mover advantage and its global reach in terms of utilization. Apart from bitcoin, there exists thousands of other cryptocurrencies called *altcoins* (alternative coins) with bitcoin viewed as the primary cryptocurrencies and all other cryptocurrencies merely alternatives to bitcoin due to their reliance on bitcoin technological and financial ethos in their development, transaction, and

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<sup>7</sup> Murray, *Blockchain explained*,

<sup>8</sup> See generally Lansky, Jan (January 2018). "Possible State Approaches to Cryptocurrencies". *Journal of Systems Integration*. 9/1: 19–31. Accessible at <http://si-journal.org/index.php/JSI/article/viewFile/335/325>. Lansky provides a framework for determining whether a digital asset may be deemed as a cryptocurrency. In his formulation, he stipulates six conditions that must be met before a digital asset may be considered a cryptocurrency. Such an approach heavily borrows from the *Bitcoin Manifesto* but fails to appreciate the dynamic nature of the crypto-economy. fundamentally, he errors by perceiving cryptocurrencies from a system approach rather than a utilization approach. As long as crypto-entity is acceptable as a medium of exchange, one would argue it has met the critical requirement for any type of currency; its ability to serve as a medium of exchange.

mining of new coins. Cryptocurrencies are created through *mining*, a process where computing power is deployed to solve a complex mathematical question with the first computer to solve the problem awarded a unit of the cryptocurrency.

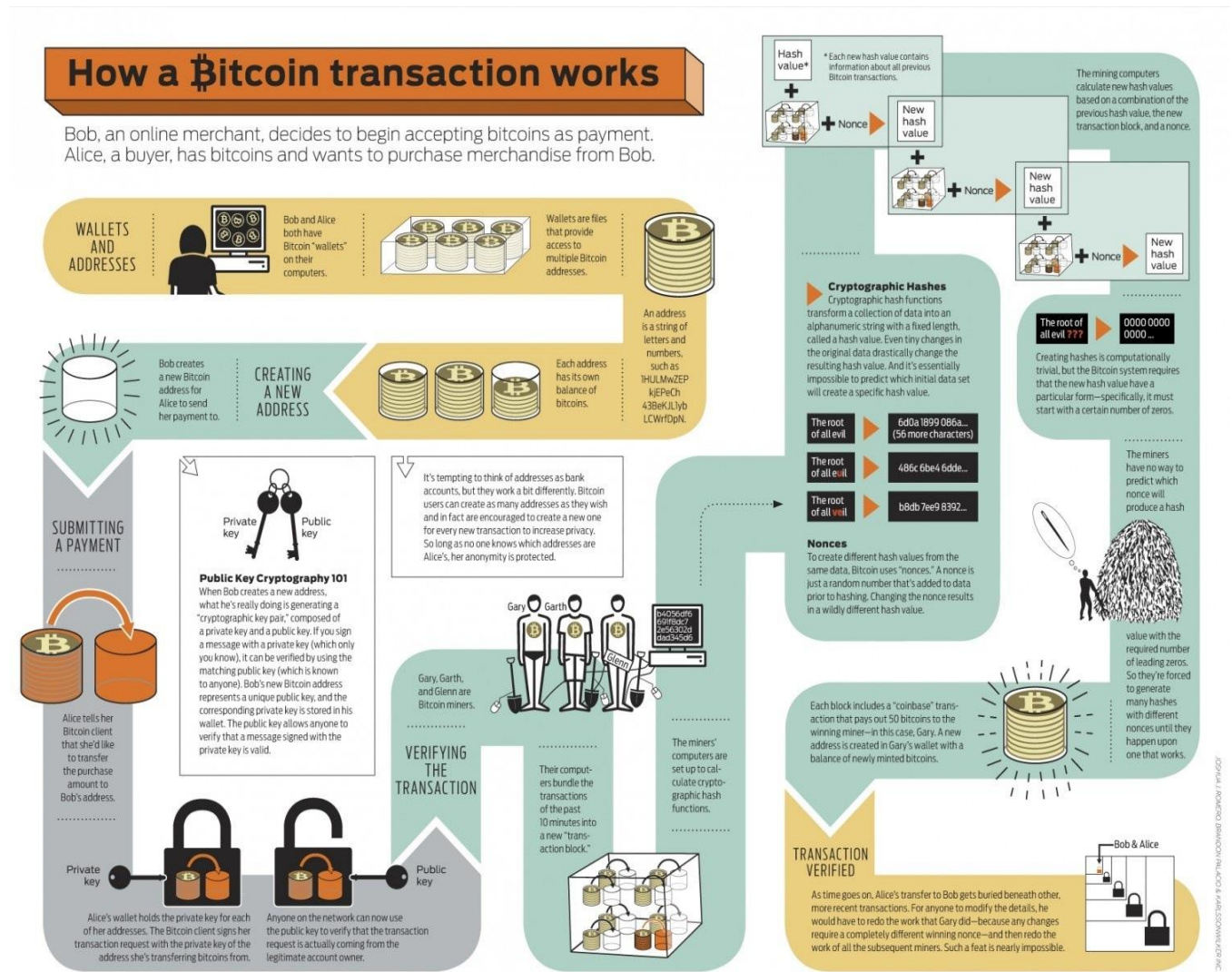


Figure 2 Visual representation of the continuum of a bitcoin transaction<sup>9</sup>

<sup>9</sup> Rahul Kanitra, 'How #bitcoin transaction works? #BestDiagram' (Medium) <https://www.google.com/url?sa=i&rct=j&q=&escr=s&source=images&cd=&ved=2ahUKEwjemLKMwXeAhVFiRoKHVcVDrsQjxx6BAGBEAI&url=https%3A%2F%2Fmedium.com%2F%40rahulkanotra%2Fhow-bitcoin-transaction-works-bestdiagram-eef44be0dd91&psig=AOvVaw2q4BPLu3DS5HyBFD4IYfje&ust=1542890562727514>, accessed on 22 July 2018.

Amongst the altcoins tether occupies a unique position, though controversial and frequently vilified, of perceived stability in value with the stated exchange value of each tether equivalent to one dollar. Its name *tether* denotes its “fixed” or “tethered” value to the dollar since its backers claim to have an equivalent number of dollars to the tethers created, unlike other free-floating currencies that are not backed by any currency nor have a fixed monetary value. At the other end Venezuela has launched a commodity-backed cryptocurrency, the *petro*, to facilitate its commercial trade in oil. A crypto-exchange refers to a platform provided by third parties for owners of cryptocurrencies to exchange them for other cryptocurrencies or for digital money. Its equivalent in mainstream financial circles would be a foreign exchange markets.<sup>10</sup>

On the other hand, a crypto-backed transaction may be utilized to denote any peer-to-peer transaction that relies on cryptography for its transactional flow fidelity. Such transactions seek to leverage on blockchain security features to ensure ease in tracing transactions and verifying the authenticity of past transactions.<sup>11</sup> As a conceptual rule of thumb, all crypto-assets are crypto-native, indicative of the undergirding blockchain technology utilized in creating additional units and in securing future transactions. In contrast, crypto-backed transactions vary in their origination but are executed using blockchain technology at their transactional stage to ensure cryptographic technology upholds the fidelity of the transaction.

While cryptography has existed as a skillset in the security industry, its transition into the finance sector is attributable to the work of Satoshi Nakamoto from 2006 until 2008 when

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<sup>10</sup> Chris Burniske and Jack Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* (1st edn, McGraw-Hill Education 2017).

<sup>11</sup> *Ibid.*

bitcoin debuted.<sup>12</sup> In August 2008, Nakamoto published a paper, *Bitcoin: A Peer-to-Peer Electronic Cash System*, regarded as the founding document for cryptocurrencies as it detailed the foundational tenets for bitcoin that has been widely copied by most altcoins.<sup>13</sup>

### 2.3. Types of Crypto-Assets

Attempting to provide definitive classification taxonomy of block chain backed assets and the resultant native assets is a daunting task due to the dynamism in the field and the tendency of individual to use some of the terms interchangeably to convey nuanced meanings within specialized fields. By adopting a functionalist approach, one can categorize the various assets and derivatives into classes based on their use within the financial world to offer a basis of their regulation depending on their utilization. Currently, one may argue that there exist four broad classes of assets and derivatives that are backed by block chain technology. These are;

#### 2.3.1. Crypto-currencies

A blockchain backed instrument is deemed a cryptocurrency when buyers and sellers are willing to accept instrument as a means of settling accounts for various transactions. While the modern notion of currency has become inexplicably intertwined with the concept of legal

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<sup>12</sup> Economist Staff , "Blockchains: The great chain of being sure about things". *The Economist*. (31 October 2015). Archived from the original on 3 July 2016. Accessible at <https://www.economist.com/news/briefing/21677228-technology-behind-bitcoin-lets-people-who-do-not-know-or-trust-each-other-build-dependable> . There currently exists vibrant debate on whether Satoshi Nakamoto was a single individual or a collective of individuals. The debate while technical can be reduced to the position that the level of specialized economic, legal, financial, and computer science skills evidenced by the work leading to the creation of the bitcoin was too technical for a single individual to have mastered. Moreover, the posting habits were geographically distributed and the time of posting seemed indicative of an individual in constant globetrotting or merely a set of individuals posting from different time zones. For all intents and purposes, Satoshi Nakamoto is presumed to be male, as the only biographic description provided in their initial handle used the male gender honorific in the description.

<sup>13</sup> The paper is colloquially called the *Bitcoin Manifesto* as its ideas have increasingly permeated and influenced the development of other cryptocurrencies.

tender, this has not always been the case as in historical times there have existed numerous currencies utilized to settle accounts amongst trading communities that were never legal tender.

For example, during the Indian Ocean trade in the Kenyan coastal plain, gold was utilized as currency to settle some accounts amongst traders, but nobody would be insidious enough to suggest that they were legal tender whose production and issuance was overseen by a central government. Moreover, even in the present day there have been instances in commodities trading and markets where traders continue to engage in trade using gold, indicative of their acceptance of gold as a unit of settling account.

In the block chain era, crypto-currencies denote digital tokens created through mining, cryptographically secured and managed through a centralized ledger available to all the users for viewing on a peer-to-peer network that serves as the registry for trade in the tokens. They can also be defined as any digital financial instrument where encryption techniques are used to ensure the integrity of the transaction and the generation of units and the verification of the transfer of funds is done by private individuals using a pre-agreed approach operating independently of any central bank.<sup>14</sup>

As a store of value- as a store of value, one focuses on the ability of alternative coins to maintain their value to established legal tenders over duration of time. Despite the intense speculation that has bedevilled bitcoin valuation as the dominant crypto-currency, there are other alternative coins that have managed to maintain a semblance of incremental change in value that is indicative of the stability demanded from currencies.

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<sup>14</sup><https://www.standardmedia.co.ke/business/article/2001267065/bitcoin-is-a-bubble-avoid-it-warns-central-bank-of-kenya> accessed on 7th June 2018.

As a unit of account- as a unit of account one explores the ability of crypto-currencies to be used as a standard of measuring the value of goods and services being offered in various sectors of the economy. While the prevailing approach is to convert crypto-currencies to other currencies, there have been instances where commodities value has been quoted exclusively in crypto-currency denominations. Famously, the Silk Road a digital black market used to quote commodities and services in crypto-currencies with users required to convert legal tenders into cryptocurrencies to transact in the platform. Other examples exist in the deep web where transactions are valued exclusively in crypto-currencies.

As a medium of account- as a medium of account one explores the ability of cryptocurrencies to be utilized as an intermediary in transactions and its ability to be broken down into smaller units to allow transactions of various values to occur. Currently, bitcoin as the leading cryptocurrency is quoted in terms of thousandth of a coin, indicating its divisibility into smaller units to allow transactions of varied value to be undertaken. Examples of cryptocurrencies include Bitcoin, Bitcoin Cash, Monero, Litecoin and ZCash, among others.<sup>15</sup>

### 2.3.2. Crypto-fiat currencies

These are a quiet recent new development that have arisen due to concerted efforts by some governments to institute central bank regulation of the blockchain industry. Unlike cryptocurrencies that are issued and maintained by private individuals without any form of government control or support, crypto-fiat currencies are issued by the entity that is permitted

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<sup>15</sup> Chris Burniske and Jack Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* (1st edn, McGraw-Hill Education 2017).

to issue legal tender in a country (in most instances central banks), tends to be backed by a commodity to support their valuation, and has their value assured by the government.<sup>16</sup>

Venezuela has recently announced the *Petro* as the first crypto-fiat-currency that will be backed by the country's oil reserves and the value guaranteed by the government. such an approach could conceivably be adopted by other countries that do not have domestic currencies (like Zimbabwe which now relies on the American Dollar) due to rapid inflation and offers an interesting economic tool for the control of galloping inflation and economic unravelling of a country.

For countries with stable economies and currencies, crypto-fiat-currencies may be an attractive option for them to reduce the cost of producing and maintaining hard currency reserves, while enabling easy tracing of financial transactions to combat corruption, money laundering, and terrorism financing. The transparency and efficiency of crypto-fiat-currencies as a concept seems to have been proven by the Venezuelan approach and offers an intriguing approach to contemporary fiscal and monetary policies development.

### 2.3.3. Digital Platform Tokens

Digital platform tokens refer to digitally created user access to a system or set of applications that they have prepaid access.<sup>17</sup> In the contemporary digital economy, most electronic platforms like websites and applications have user information stored on a server where users can login irrespective of their digital location and access the service. With the rise in cyber

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<sup>16</sup> Ankitt Gaur and Li Zhiwen, *Blockchain 'Unwrapped for Non Techies'* (Google Books 2018).

<sup>17</sup> Chris Burniske and Jack Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* (1st edn, McGraw-Hill Education 2017), pp22-45.

hacks and other digital attacks that compromise on the user access to digital platforms, platform tokens are seen as a way of boosting security while ensuring privacy of user information.<sup>18</sup>

Imagine a school website where students can download course material, submit assignments, and schedule for personal interaction with tutors. In such a website, if the tutor's password was compromised, a third-party could easily access the information and could wreak havoc in the system. To prevent such an outcome, the university may create a shared database amongst its various campuses located in different geographical areas and institute a system for verifying the identity of users within the intranet. The different servers in each campus would regularly compare their databases at various times to note any alteration or attempt at compromising the data integrity. For users to access such platforms, they would be issued with a digital token to be stored in their device that would have a unique identifier alongside the usual password that the user would have to access the system. Such an approach tracks every user, and personally identifies any changes or attempt at changing the information by a user.

Ethereum remains the leading platform token by market capitalization and has been deployed across various industries to underpin smart contracts and the logistics sector.

#### 2.3.4. Crypto-collectibles

Think of Pokémon Go, and then consider how the maker of the game grossed over two billion dollars in revenue within two years of the release of the game, and the potential for crypto-collectibles becomes apparent. Crypto-collectibles refers to digitally created items of fascination that individuals can collect and store as its values keeps appreciating due to its rarity or popularity.<sup>19</sup> In traditional terms, antique items, coins, unique stamps, and limited

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<sup>18</sup> Ibid.

<sup>19</sup> Ibid .



edition cars, toys, and comic books have been some of the most popular form of collectibles, individuals go out of their way to acquire such possessions and prize them due to their intrinsic value by fans of a specific cultural phenomena.

Crypto-collectibles are similarly digital items that reference popular cultural items and trends, are created exclusively in limited numbers, and their value keeps constantly appreciating depending on the collector's demand for the items.<sup>20</sup> For the Pokémon Go game earlier referenced, it's a computer game based on a hugely popular comic strip aimed at kids. In both the game and the comic strip, revolves around a fictional universe where young teenagers known as Pokémon trainers interact with fictional animals (the Pokémon's or pocket monsters) and engage in duels between the Pokémon's.

While the franchise had enjoyed a measure of success as a video game and creating collectible toys, the development of augmented reality technology and leveraging on Google mapping technology allowed the company to develop and release a virtual concept of the game with digital Pokémon's for users to collect and store as digital collectibles. In light of the massive success of the game's iteration, blockchain enthusiasts have subsequently developed other digital tokens based on popular culture that rely on blockchain technology for their uniqueness.

## 2.4. Inherent benefits of Crypto-Assets

### 2.4.1. Stability in value

Unlike commodity-backed financial instruments whose value correlates to the value of the commodity, crypto-assets are independent of a given commodity enabling them to retain their

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<sup>20</sup> Alex Tapscott, 'Cryptocurrency Is Just One of Seven Types of Cryptoassets You Should Know' (*Quartz*, 25 July 2018) <<https://qz.com/1335481/cryptocurrency-is-just-one-of-seven-types-of-cryptoassets-you-should-know/>> accessed 14 November 2018.

value over time.<sup>21</sup> The current spate of speculation in bitcoin has fundamentally altered the founding intentions of crypto-currencies as a stable alternative to traditional fiat currency due to wild swings in the transactional value of bitcoin as traded in various exchanges. However, unlike other commodities crypto-assets can be limited in the maximum possible output ensuring that the intrinsic value of crypto-assets is maintained through interaction of demand and supply forces.

#### 2.4.2. Underpinned by a peer-to-peer network <sup>22</sup>

Unlike centralized network where a single individual or entity has complete control over the registry and the records stored in the server, peer-to-peer networks are decentralized and publicly accessible. Through decentralized storage and maintenance of the records, data integrity and information validity is ensured as there exists minimal capacity to reverse-engineer the proof of concept necessary for a change to be made in the blocks contained within a data chain. Attempts at changing or altering information within the network can be easily noticed and handled by the decentralized networks.

#### 2.4.3. Anonymity and confidentiality

For most crypto-assets, the creator has wide discretion on the development of the blueprint that informs subsequent development within the new asset they create. In most instances, firms have sought to imbue their crypto-assets with anonymity that renders it impossible to track the transfer of ownership across various parties once the asset is in circulation.<sup>23</sup> Ownership and

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<sup>21</sup> Burniske and Tatar, *Cryptoassets: The Innovative Investor's Guide*, pp 8- 21.

<sup>22</sup> Nakamoto, S, 'Bitcoin: A peer-to-peer electronic cash system.' (*bitcoin.orgwebsite*, 2008) <https://bitcoin.org/bitcoin.pdf> accessed\_9 June 2018.

<sup>23</sup> Burniske and Tatar, *Cryptoassets: The Innovative Investor's Guide*, 10-17.

identity are perceived as dependent-variables that allow the individual with control over the storage of the crypto-assets to be presumed to be their owner. The digital wallet where crypto-assets may be stored, as such, remains the only identification protocol in place allowing individuals to transact business using crypto-assets without divulging their information but by merely transferring the requisite assets from one wallet to another.

Any company or business can create an infinite number of bitcoin addresses without reference to name, address or any other information and so long as this information is not publicly confirmed, complete anonymity will remain.

#### 2.4.4. Speed of transaction

As digital assets that have their records electronically maintained, transactions happen instantaneously allowing users access to their assets with minimal delay. For cryptocurrencies, the absence of a centralized clearing house allows the transaction to occur in peer-to-peer networks that take seconds to reflect irrespective of the geographical position of the parties. Such a feature is crucial for international trade and transactions as it allows individuals to access and seamlessly transfer cryptocurrencies with minimal latency time built into the system.

### 2.5. Disadvantages of Crypto-Assets

These have been well captured by one Ivaschenko, <sup>24</sup> though they are quite minimal, who attempts to envisage how the inherent features of blockchain technology renders it a volatile unit of asset class.

#### 2.5.1. Volatility due to speculation

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<sup>24</sup> Ivaschenko, A.I, 'Using Cryptocurrency in the Activities of Ukrainian Small and Medium Enterprises in order to improve their Investment Attractiveness.' *Problems of economy*, (3), p. 267-273. (2016).

For most cryptocurrencies, their trading value tends to be in continuous swing depending on the latest announcement by regulatory agencies or major players in the industry as speculators seek to short the assets.<sup>25</sup> Such volatility has been compounded by a significant increase in the number of parties engaged in the cryptocurrencies trade markets who have little or minimal pre-existing appreciation of the nature and functionality of cryptocurrencies. For other crypto-assets, their value has tended to mirror the outlook for cryptocurrencies, although they tend to have minimal swings in their valuation.

### 2.5.2. Security risks

With technology developing every day, the cryptocurrency systems are open to hackers who may cause menace by disrupting the ongoing transactions which will lead to the transactions being cancelled and losses suffered by both the purchaser and owner of the Blockchain.<sup>26</sup> Since ownership equates to control of the digital wallet, where individuals lose access to their digital wallet they have no recourse for recovering their crypto-assets. In other instances, the upsurge in value of cryptocurrencies have stoked a raging digital war between information security providers assisting crypto-exchanges and third parties who seek to infiltrate the security systems in place to gain access to the hoard of cryptocurrencies maintained by the exchanges.

### 2.5.3. Vehicles and channels for illicit activities

For most regulators, the capacity for anonymity and the decentralization of the peer-to-peer network that support blockchain technology has been perceived as undermining regulatory efforts to police the financial sector. Anonymity within cryptocurrencies has been credited for

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<sup>25</sup> Ibid .

<sup>26</sup>Vora, G. 'Cryptocurrencies: Are Disruptive Financial Innovations Here?' *Modern Economy*,6 (7), p.816832. (2015).

an uptick in illicit financial flows in China that resulted in significant capital outflows in the country. In response, China banned cryptocurrencies as it deemed their anonymity and decentralization to undermine the state's efforts to restrict capital flows and centralizes information communication technologies.

In other countries, the peer-to-peer network that offers no records to trace transactions has been perceived as a vehicle for terrorism financing and money laundering activities as the system exists outside the formal financial sector that is heavily regulated through Know-Your-Client requirements.<sup>27</sup>

## 2.6. Conclusion

Consequently, blockchain technology serves as a leveraging agent within established technologies to provide a digital method for creating immutable records, foster anonymity in transactions, and uphold the fidelity of data through cryptography. Due to such characteristics, it creates a digital instrument that may serve as either a distinctive asset class from established assets or serve as an instrument for the settlement of accounts amongst agreeable entities engaged in commercial activities. Its regulation should, therefore, take into consideration its unique character as principles and legal doctrines are developed to husband the sector.

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<sup>27</sup> The self-proclaimed Islamic State and how it's declared cryptocurrencies purported use by the caliphate in Iraq and Syria in acquiring weapons and paying affiliated fighters.

## **CHAPTER THREE: REGULATION OF BLOCKCHAIN FINANCIAL DERIVATIVES**

### **3. Introduction**

As the various digital instruments and assets backed by blockchain continue to permeate the electronic commerce industry, there is need for the development of an efficacious sector-specific regulatory approach. Such an approach would be influenced by the social, economic, political, and geopolitical matrix dominant within each jurisdiction. While this research contemplates a future with regulatory convergence, such convergence is only realizable where domestic approaches and responses exist. This chapter therefore breaks down into three major parts; the political economy that informs development of domestic financial regulations, the justification for adopting a stand-alone regulation for the technology, and rationale to inform the various principles that ought to undergird model regulations.

The political economy of financial regulation seeks to bridge the gap between the three regulatory approaches advanced in chapter one (public interest theories, private interest theory, and game theory) and their pragmatic application within societies with competing social, economic, and legal forces. The justification for a stand-alone regulation serves to indicate the weakness of existing financial regulation that render it unresponsive and inadequate to regulate blockchain technology financial derivatives while the rationale offers insight it how various established principles in the financial services field could be optimized and adapted to fit the innovative products offered by blockchain.

## 3.1. The Political Economy of Financial Regulation

### 3.1.1. Introduction to regulatory ecosystems

At a conceptual level, every sector of the economy experiences a measure of regulation that seeks to provide for certainty, stability, and formalize the procedures for handling matters within the sector.<sup>1</sup> Viewed from an evolutionary perspective, the growth of an economic activity may either be informal or formal in its Provisions depending on the underlying nature of the activity. Where an embryonic sector of the economy is financed by the government or is deemed a strategic national resource, the government actively engages in the development and provides a modicum of regulation to govern the sector whether as an administrative mechanism or as statutory mechanism.<sup>2</sup>

Such a model, the hub-and-spoke concept, denotes how sectors where the government is the primary player tend to move in tandem with government directives, even where such directives are primarily aimed at the government's agency or are "in-house". Due to the governments centralizing effect, its overarching nature lends it to influence all sectors as collateral to its regulatory effect.

On the other hand, where a sector is primarily financed by private sector players or has minimal public interest issues, it tends to develop informally.<sup>3</sup> The market leader in the sector or the dominant player develops in-house Provisions and policies to guide their activities that eventually

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<sup>1</sup> Peter Mooslechner, *The Political Economy of Financial Market Regulation* (Edward Elgar Publishing, 2006).

<sup>2</sup> Ibid, 42-48.

<sup>3</sup> Gerald A. Epstein, Tom Sclesinger and Matias Vernengo, *Banking, Monetary Policy and the Political Economy of Financial Regulation: Essays in the Tradition of Jane D'Arista* (Edward Elgar Publishing, 2014).

become the industry standard through first-mover effects. Perceived as network externalities, where the private sector is at the helm of a blossoming industry a key player dominates the market forcing other players to gradually adopt their procedures and policies as the industry's benchmark. Eventually, they evolve to become the *de facto* rules of the sector and may eventually garner government recognition through their formalization in statutory instruments or administrative measures.<sup>4</sup>

### **3.1.2. Historical development of the concept of political economy**

Irrespective of whether the sector initially develops informally or is underpinned by semi-formal government directives, the push to regulate reflects the relationship between the social, political, and economic facets of a country.<sup>5</sup> The approach adopted by institutions, government agencies, and the legislature tends to reflect a contest of mindsets and a mirror of the social concept of the role of government in private spheres. Moreover, it also donates the relationship between various vested interest parties and their ability to wield influence within private and public spaces.

From a pedestrian conceptualization, regulation speaks to the rule-making and implementation process within a country, a sector of the economy, or an industry. It seeks to appreciate how rules are developed, who are the major players in the process, how these players interact and influence one another, and how the formulated rules are implemented within the existing superstructure of the state.<sup>6</sup> Jurisprudentially, the development of regulation speaks to the social contract within a

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<sup>4</sup> Ibid.

<sup>5</sup> Martin H. Wolfson and Gerald A. Epstein, *The Handbook of the Political Economy of Financial Crises* (OUP USA, 2013).

<sup>6</sup> Supra note 1, 121-142.



given community and the process of amending the social contract since the Provisions issued end-up forming the body of Provisions that govern the relationship between the government and the governed. As such, these interactions between the social, economic, and political spheres in the development of Provisions in a given context denote its political economy.

Historically, the concept of political economy is traceable to the 18<sup>th</sup> Century moralist school that sought to imbue the law with moral conceptions to ensure the social contract in the Greek city states was in consonance with the prevailing social ideals.<sup>7</sup> From its Greek origin, the concept evolved as *polity okonomier* referring to the ability of the state to influence a household's management of wealth. To the Greeks, the law was perceived as a tool for incentivizing desirable conduct on one hand while punishing undesirable conduct.

During the mercantile era, political economy came to denote the study of production trade, and their relationship with law, customs, and governments in the distribution of national income and wealth.<sup>8</sup> Within such a conceptualization, political economy came to denote the interplay between the state, economic agents, wealth generation and accumulation in a social setup. As economics as a field of academic and policy exploration matured, the concept of political economy underwent further refinement to conform to the evolving concept of the place and role of the state in the husbanding of economic development.

Such a limited notion of political economy was based on the perception that government regulation arose from market failures, without market failures it was presumed that the governance structures

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<sup>7</sup> Ibid, 12-16.

<sup>8</sup> Randall S. Kroszner, "The Political Economy of Banking and Financial Regulation in the United States," in *The Banking and Financial Structure in the Nafta Countries and Chile* (Springer, Dordrecht, 1997), 200–212, [https://doi.org/10.1007/978-94-011-5366-9\\_8](https://doi.org/10.1007/978-94-011-5366-9_8) accessed 19 October 2018.

had peripheral role to play.<sup>9</sup> Private individuals, trades guild, and other private associations that sought to advance the affairs of their members were conceived as the ideal vehicles for mediating markets, private contracts, and wealth generation. Moreover, the mercantile era oversaw a weakening of the powers of the monarchy in favor of the citizenry who gained greater economic and political independence to regulate their affairs. With decentralization of political power, the place of the state as a significant influence in the regulatory climate declined and was overtaken by self-regulation amongst various industries.

In self-regulation, private players either individually as legal enterprises or collectively as associations sought to develop a platform for bargained Provisions and standards to govern various industries. Trade guilds and associations were at the pinnacle of setting Provisions for admittance of new members, the acceptable practices of existing members, and the interactions between members and third parties. While the feudal state granted charters and provided other legal safeguards that enshrined the place of guilds and trade associations, that was the extent of their influence in the mercantile era.

The guilds and trade associations also derived power from their monopoly over commercial activities in a given trade or sector of the economy. While non-members could operate their businesses without joining a guild, such private enterprises were limited to a geographical location. Guilds with their formal rules and recognition, allowed for inter-city trade through reciprocity agreements across the country for the various guilds.

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<sup>9</sup> Ibid, 208-210.

In the nineteenth and twentieth century, the scope and role of government in the public sphere began to expand as the state sought to protect the citizens from the growing capriciousness of the trade guilds and associations.<sup>10</sup> Adam Smith's *The Wealth of Nations* and the work of David Hume served to argue for a reconfigured public space where the government served as an independent entity to safeguard consumer and public interests while maintaining facilitating the unimpaired development of commerce.<sup>11</sup>

Moreover, they abandoned the Classical Era attempt at imbuing political economics with moral connotations derived from religious inclinations. In its place, they advanced secularist economics that accounted for wealth distribution in terms of political, economic, technological, natural, and social factors and the complex interactions between them.

Economic concepts as the *invisible hand of the market* advanced by Adam Smith further eroded the mercantilism attempts at perpetuating a trade-centric monopoly over various sectors of the economy.<sup>12</sup> David Ricardo's further advanced the economists focus on individuals over guilds and trade associations through his extrapolation of the *invisible market hand* to formulate a theory of *comparative advantage* that sought to account for the inherent factors that led to localization of industries and their clustering.<sup>13</sup>

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<sup>10</sup> Peter Mooslechner, Helene Schuberth, and Beat Weber, eds., *The Political Economy of Financial Market Regulation: The Dynamics of Inclusion and Exclusion* (Edward Elgar Publishing, 2006) [https://www.e-elgar.com/shop/the-political-economy-of-financial-market-regulation?\\_\\_website=uk\\_warehouse](https://www.e-elgar.com/shop/the-political-economy-of-financial-market-regulation?__website=uk_warehouse) accessed 21 October 2018.

<sup>11</sup> Peter Mooslechner, Helene Schuberth, and Beat Weber, (eds), *The Political Economy of Financial Market Regulation: The Dynamics of Inclusion and Exclusion* (Edward Elgar Publishing, 2006) [https://www.e-elgar.com/shop/the-political-economy-of-financial-market-regulation?\\_\\_website=uk\\_warehouse](https://www.e-elgar.com/shop/the-political-economy-of-financial-market-regulation?__website=uk_warehouse) accessed 21 October 2018.

<sup>12</sup>Ibid.

<sup>13</sup>Ibid

Friedrich List countered such focus on individuals as primary agents within the market by advancing the national political system of the economy that focused on the place of state institutions in the regulatory ecosystem.<sup>14</sup>

The multidisciplinary work that focused on the convergence of various disciplines in the exploration of the regulatory system diverged into conventional academic disciplines that were narrowly focused and deployed systematic methodological examination of issues in their analysis.<sup>15</sup> Such divergence was tempered by the growing recognition of the interactions and relationships between politics, the economy, and social behavior of market forces resulting in the convergence of economics, sociology, political science, and international relations.<sup>16</sup>

Given their overlap and the growing influence of globalization on forcing specialized disciplines to acquire multidisciplinary approaches, political economy analysis gained traction as a holistic exploration of the intertwined regulatory issues in economics. Consequently, a new political economy concept evolved that sought to merge international relations, comparative political science and global economics in a new political economy concept.<sup>17</sup>

Within the new political economy approach, economic ideologies are critical Marxist approaches to understanding economic ideologies or respective nation states. They focus on the sociological and political foundation of economic approaches to enable individuals account for market behavior

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<sup>14</sup> Ibid .

<sup>15</sup> Lars Magnusson and Bo Stråth, *A Brief History of Political Economy: Tales of Marx, Keynes and Hayek* (Edward Elgar Publishing, 2016).

<sup>16</sup> Supra note 11, 78-112.

<sup>17</sup> Ibid.

and perceive economic conduct from the basis of rational choice. On the other hand, a specialized focus on the actions of international actors in influencing the regulatory climate of the economy is perceived as international political economy.<sup>18</sup>

As continued methodological analyses point towards rational decision making by the economic agents, game theory has been deployed to provide logical exploration of individual behavior in changing regulatory climate.<sup>19</sup> While the rational choice approach presumes that human behavior is guided by logical reasoning by using the best option to attain their intended aims, game theory offers an avenue for validating or refuting such suppositions. At a conceptual level, game theory attempts to provide for methodological individualism in explaining irrational tendencies and rational choices within the market since collective reaction of the economy is caused by individual actions of economic agents.<sup>20</sup>

The main assumptions behind game theory are the notion of rational preference, independence of individual action, and the consistency of individual actions over time. On preference, game theory assumes that individuals exercise informed decision making to rank alternatives and pick the best. The available alternatives for any course of action are presumed to be complete, transitive, and comparative enabling the individual to engage in a cost-benefit analysis to determine the most opportune for their circumstances.<sup>21</sup>

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<sup>18</sup> Claudia Goldin and Gary D. Libecap, *The Regulated Economy: A Historical Approach to Political Economy* (University of Chicago Press, 2008).

<sup>19</sup> Ibid

<sup>20</sup> Hale Balseven, "The Political Economy of Financial Regulation Policies Following the Global Crisis," *International Journal of Economics and Financial Issues* 6, no. 2 (April 19, 2016): 607–16.

<sup>21</sup> Ibid, 612.

The independence axiom to resolve uncertainty presumes that the parties are free to pick a range of choices, and each choice is free of prior decisions that the individual may have previously engaged in the market. Once a decision is made, the individual is presumed to stick to it over the long-term and display similar decision making where they are faced by a corresponding choice. Consistency is essential to allow for the extrapolation of an individual's behavior within a limited setting into a broad set up that adheres to similar cost benefit results. Consistency also speaks to the values that the individual considers in their decision-making, by showing a preference for a set of values today, the individual is presumed to exhibit such values in subsequent decisions and listing of preferences. Additionally, game theory is based on the assumption that individual's preference choices are rationally arrived at and informed by ascertainable values that are rational and duplicable over time.

Consequently, game theory has become the major avenue for contextualizing rational choice paradigm in economic modeling as it allows for individual actions to be methodologically analyzed providing a set of actions that will influence market behavior. Some of the economic models informed by game theory include; (i) cooperative (contract) versus non-cooperative games, (ii) symmetric versus asymmetric games- chicken, prisoner's dilemma, stag hunt, (iii) zero sum versus non-zero sum games, and (iv) simultaneous versus sequential games.

In undertaking contemporary political economic analysis of a given sector, one begins by exploring the place and influence of political power. With growing influence of democratic governance, political actors gained legitimacy to intervene directly in economic affairs based on public policy grounds.<sup>22</sup> As an extension of democratic governance, political intervention has

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<sup>22</sup> Robert Fredona and Sophus A. Reinert, *New Perspectives on the History of Political Economy* (Springer, 2018).

become a core aspect of political economy since political behavior has the capacity to legitimize or invalidate the superstructure of Provisions. On the other hand, political intervention is moderated by a number of considerations, which act as a check against capricious political conduct. Such considerations include:<sup>23</sup>

- i. Interests- those (politicians) with the capacity to influence policy do so to advance their economic and political interest
- ii. Ideas- ideologies occupy a central role in development and implementation of policies. Ideology is a guide where rational choices provide uncertainty or unknown outcomes
- iii. Institutions- formal or informal human structures within which rules are developed and implemented

In developing a comprehensive outlook of the political economy, one engages various tools that seek to focus on each level and aspect of the economy. Contemporary tools of political economy analysis include:

- i. Macro-level analysis- at the country level one seeks to understand how major decisions are made and their effect. Interest groups are visible, and discernible political interactions with policy
- ii. Sector-level analysis- looks at the determinants and factors affecting the formation of policies and decision-making for each industry

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<sup>23</sup> Ibid.

- iii. Problem-driven analysis- starts from a discernible problem and examines the factors and forces that have a role in resolving the problem

### 3.1.3. Sample questions for conducting sector-level political economy analysis<sup>24</sup>

- i. **Roles and responsibilities:** Who are the key stakeholders in the sector? What are the formal/informal roles and mandates of different players? What is the balance between central/local authorities in provision of services?
- ii. **Ownership structure and financing:** what is the balance between public and private ownership? How is the sector financed (e.g. public-private partnerships, user fees, taxes, donor support)?
- iii. **Power relations:** to what extent is power vested in the hands of specific individuals/groups? How do different interest groups outside government (e.g. private sector, NGOs, consumer groups, the media) seek to influence policy?
- iv. **Historical legacies:** what is the past history of the sector, including previous reform initiatives? How does this influence current stakeholder perceptions?
- v. **Corruption and rent-seeking:** Is there significant corruption and rent-seeking in the sector? Where is this most prevalent (e.g. at point of delivery, procurement, allocation of jobs)? Who benefits most from this? How is patronage being used?

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<sup>24</sup> Australian Government Department of Foreign Affairs and Trade, *Political Economy Analysis ( DFID ,January 2016)* <<https://dfat.gov.au/about-us/publications/Documents/political-economy-analysis-guidance-note.pdf>> accessed 20 August 2018. Itself drawing on work by ODI and World Bank.



- vi. **Service delivery:** who are the primary beneficiaries of service delivery? Are particular social, regional or ethnic groups included or excluded? Are subsidies provided and which groups benefit most from these?
- vii. **Ideologies and values:** what are the dominant ideologies and values which shape views around the sector? To what extent may these serve to constrain change?
- viii. **Decision-making:** How are decisions made within the sector? Who is party to these decision-making processes?
- ix. **Implementation issues:** Once made, are decisions implemented? Where are the key bottlenecks in the system? Is failure to implement due to lack of capacity or other political economy reasons?
- x. **Potential for reform:** Who are likely to be the "winners" and "losers" from particular reforms? Are there any key reform champions within the sector? Who is likely to resist reforms and why? Are there "second-best" reforms which might overcome this opposition?

From this analysis, one can conceive regulatory development and advancement as a corollary reflection of the convergence of political and economic realities facing various countries. In each instance, a nation chooses a regulatory framework that allows its political ideology to underpin its economic revival. In the era of globalization, one could argue that the global regulatory framework is informed by the coalescing of various domestic regulators as it seeks to provide for consolidation of the prevailing geopolitical matrix to advance the economic needs of the member states. Until a specific sector of the economy is deemed politically sensitive, it continues to operate under an *ad*

*hoc* framework as the various political ideologies attempt to formulate a cohesive response to the sector.

For blockchain regulation, the current dearth of regulations serves to reflect the position that the various geopolitical players responsible for influencing the formation of a regulatory instrument have been pre-occupied with cleaning up the fallout from the sub-prime mortgage crisis. As the current global resurgence continues unabated, one would anticipate that in the foreseeable future the various players in global politics will turn an eye towards blockchain technologies causing an uptick in regulatory responses. However, this research illustrates that the current transactional value of blockchain technologies calls for an immediate response to advance both private, public, and social goals within the industry.

### **3.2. Justification for regulating cryptocurrencies**

Cryptocurrencies are increasingly becoming popular but consumers have few protections.<sup>25</sup>Regulators have the unenviable task of protecting individuals without crushing massive new opportunities for investors. In their current manifestation, there lacks a substantive legal framework to regulate the creation, storage, and transactions related to crypto-assets. At one extreme end, the complete absence of any regulatory provisions by financial sector regulations has given way to self-regulation as various players move to formulate a framework to regulate their affairs by mirroring the financial sector principles but tweaking them to fit their unique

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<sup>25</sup> Balboa E, 'The bitcoin regulation conundrum, explained.' *Benzinga* (20 December 2017) <<https://www.benzinga.com/news/17/12/10935458/the-bitcoin-regulation-conundrum-explained> > accessed 12 June 2018.

characteristic of their industry.<sup>26</sup> This has severely hindered the mainstreaming of the crypto-economy into the global financial system.

Some countries, ranging from Japan, the People's Republic of China, and the United States have implemented targeted regulatory infrastructure to bring crypto-transactions within taxation ingredients, stock market regulations, or financial asset management regulations. Such domestic attempts need to be broadened in scope to include conceivable uses of block chain technology within the financial sector to serve as a precursor to the formulation of a global regulatory climate for crypto-native assets. By regulating crypto-asset at the domestic level, global convergence could be rapidly attained through compromises and standardization of the leading domestic regulators.

However, such regulatory cherry picking is neither adequate to the growing needs and uses of block chain technology in the financial sector nor is it sufficient to offer much needed clarity to investors on the legality of transactions with block chain facets. Without legal clarity, crypto-assets remain frozen outside the financial services sector, an outcome that has severely hampered the growth and investment in crypto backed transactions globally, created room for fraudulent activities, and served as an avenue for money laundering and terrorism financing.<sup>27</sup>

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<sup>26</sup> Maria Gonçalves and Maria Gameiro, 'Hard Law, Soft Law and Self-Regulation: Seeking Better Governance for Science and Technology in the EU' 1 <<https://repositorio.iscte-iul.pt/handle/10071/4870>> accessed 23 October 2018. The authors contend that the lack of firm regulatory provisions within the European Union has given rise to self-regulation amongst the various actors as they seek to provide for binding rules to regulate their conduct without external coercion forces. Such stability is desirable to provide for a climate of greater innovation and greater integration into established financial sectors.

<sup>27</sup>Wright and Filipi, *Decentralized Blockchain*, 12-22; Burniske and Tatar, *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond* explores how the crypto-currency markets have increasingly been targeted by law enforcement agencies on grounds of illicit financial flows that their anonymity allegedly facilitates. Such targeting while informed by legitimate state concerns for security and financial integrity but the lack of understanding of how to supervise the arena and regulate the transactions, however, remains at the core of the challenges.

Currently, three major areas of concern have been starkly illustrated by domestic attempts to regulate some facets of block chain technology within the financial sector. Firstly, crypto-assets pose a significant risk to global security due to their anonymity that allows users to circumvent the disclosure requirements (KYC or AML rules) imposed in financial transactions to counter money laundering and terrorism financing.<sup>28</sup>

Secondly, globally the regulation of the crypto-economy has fragmented and stagnated as formal regulatory approaches vacillate between recognition and rejection of crypto-assets.<sup>29</sup> Moreover, the innate decentralized nature of most crypto-assets renders it difficult for any government to claim exclusive territorial jurisdiction to regulate the crypto-economy.<sup>30</sup> Attempts to focus on the “source nationality” of the crypto-assets are undermined by the geographical mobility of the assets. Thirdly, crypto-assets pose a threat to the stability and resilience of the global financial superstructure established by International Financial Institutions as crypto-currencies are increasingly substituting fiat currency.<sup>31</sup>

In Kenya, cryptocurrencies remain deregulated after the Central Bank of Kenya (CBK) and the Capital Markets Authority (CMA) recently warned investors that investing in such deals is risky as they are not legal tenders. This is to mean that cryptocurrency transactions are neither considered

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<sup>28</sup>Barbara Stettner, 'Cryptocurrency AML Risk Considerations - Allen & Overy' (*Allenoverly.com*, 2018) <<http://www.allenoverly.com/publications/en-gb/lrrfs/cross-border/Pages/Cryptocurrency-AML-risk-considerations.aspx>> accessed 20 October 2018.

<sup>29</sup> Jordan French, 'Why The Dark Cryptocurrency Economy Needs to Be Regulated -- And How' (*The Street*, 2018) <<https://www.thestreet.com/story/14418704/1/why-regulate-the-crypto-economy.html>> accessed 21 October 2018.

<sup>30</sup> Ibid.

<sup>31</sup> Bank for International Settlements, “BIS Annual Economic Report 2018- Cryptocurrencies: Looking Beyond the Hype” (*Bis.org*, 2018) <<https://www.bis.org/publ/arpdf/ar2018e5.htm>> accessed 21 October 2018.

to be legal nor recognized as a medium of exchange and payment. The two have called for caution over the use of cryptocurrencies.

Current investment trends indicate that private investors continue to engage in crypto-backed asset trades irrespective of the regulatory approach pursued by the respective countries. As such, the current regulatory apathy needs to change to ensure regulators are well positioned to offer consumer protection measures and investor protection mechanisms. For example, ‘Boxlight Electronic’ is a Kenyan company that has gone ahead to become the first adapter of bitcoin payment in Kenya for its products which include inter alia, TV sets, home theatres and home appliances.<sup>32</sup> In other instances, Blockchain-based intermediaries offer money transfer services via Bitcoin and subsequent conversion of Bitcoins back into fiat currency for withdrawal by recipients through either their mobile phones or a bank account.<sup>33</sup>

Bitcoin has become a form of payment that is a must have for companies that trade online and engage in e-commerce activities. Since Kenya has a large population of its citizens transacting online in both the local and global market, it is very critical therefore to come up with Provisions that guide cryptocurrency transactions as currently there are no guidelines or legislations on how trading in forex online and dealing in cryptocurrencies should be done. Popular worldwide stores that Kenyans transact from include Microsoft, Dell, Newegg among many others.<sup>34</sup>

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<sup>32</sup> James Ngunjiri, ‘City Shop that sees future in Bitcoin.’ *Daily Nation* ( Nairobi, 12 June 2018)<<https://www.nation.co.ke/lifestyle/smartcompany/City-shop-that-sees-future-in-bitcoins/1226-4608206-j101pc/index.html> >accessed on 12<sup>th</sup> June 2018.

<sup>33</sup> Ibid.

<sup>34</sup>Chokun J, ‘Who accepts Bitcoins as payment? List of companies, stores, shops.’ ( 14 January 2018). <<https://99bitcoins.com/who-accepts-bitcoins-payment-companies-stores-take-bitcoins/> >accessed 12 June 2018.

Regulating cryptocurrency is very different from regulating banks and therefore a lot of research and development has to be undertaken. Among these should include the new cryptocurrencies and exchanges launch, understanding the regulatory landscape and adapting quickly to changing rules which will be imperative for company's eager to benefit from the massive growth of the cryptocurrency industry.

Even so, some correlations can be drawn between the two in the end. Securities law is very essential in regulation of cryptocurrencies as most of them and the exchanges trading them apply these laws. These is because in such transactions digital wallet services, registration requirements including broker-dealer, transfer agent, or clearing agency registration, among other things are triggered and all these falls under securities laws. This is one of the key areas that the legislators should consider as they think of ways of regulating these currencies.

Another reason why regulation is necessary is so as to have set procedures that need to be followed. Failure to which, the transaction can be cancelled or penalties served on the party in the wrong. This is because in bitcoin transaction, the customer has a window of 15 minutes during which one is expected to make the payment.<sup>35</sup> The client needs to make payment within those 15 minutes since during this duration one is safeguarded fluctuations of Bitcoins and that means that the customer pays for the exact amount.

Currently, no global regulator exists to offer guidance or marshal the coalescing of domestic responses into a uniform approach that promotes collaboration and cooperation. The International Monetary Fund could play a huge role in this since it's a global institution that would set guidelines

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<sup>35</sup> Ibid, pp. 44-49.

to be observed by all countries. However, it has been reluctant to adopt a more interventionist approach in the market due to its focus on supporting the recovery of the global financial markets from the 2008 subprime mortgage crisis. This is after its director highlighted cryptocurrency's potential as a vehicle for money laundering and the financing of terrorism. Therefore, there should exist policies that protect consumers in the same way as the traditional financial sector.

Additionally, regulation of crypto-assets ought to be informed by the public policy need to protect consumers of a service from any information asymmetry that may undermine their ability to make informed decisions or seek to ensure that their investments are secured against any foreseeable loss that can be mitigated. In most forms, regulatory approaches to consumer protection may appear in either a sophisticated form that seeks to strike a balance between consumer interest and free market ideals or a naïve form that sees consumers as gullible players whose fate can only be exploitation and state intervention is essential to functional markets.<sup>36</sup>

In both instances, regulatory concern coalesces on ways of mitigating consumer exploitation, fraudulent action by specialized stakeholders in the industry, and to ensure the free flow of information necessary for informed decision making by consumers. For blockchain technology, regulators need to be aware that the fast pace of development of new and innovative products should not be allowed to overrun consumers with information overload.

At the outset, firms should be restricted to operations within a sandbox environment that allows their proof of concept for a new product or asset class to be tested within a controlled environment

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<sup>36</sup> William J. Luther, 'Regulating Bitcoins – On what Grounds?' in Hester Pierce and Benjamin Klutsey, (eds), *Reframing Financial Regulation: Enhancing stability and Protecting Consumers* (Arlington, VA: Mercatus Centre at George Mason University, 1<sup>st</sup> edn 2016).

where regulators have an opportunity to study and garner requisite technical appreciation to develop regulations for the industry.

In the absence of a sandbox mentality, regulators may allow unrestricted development and launch of financial instruments with a requirement that all developers will have an obligation to inform and educate consumers before freely floating their fiscal instrument. In this environment, informational asymmetry would be overcome through compulsory outward facing activities and measures by firms to inform and raise awareness of the nature, risks, and benefits of their products before offering them to the public.

Moreover, regulators worry the recent spate of hacks and intrusion of computer systems by third-parties seeking to unlawfully gain access to e-wallets of bitcoin users have the potential to snowball into a threat of the viability of a promising industry. To avert such attacks, regulators could impose stringent requirements for companies handling blockchain derivatives and require the prompt notification of users who may be affected when such attacks occur. Regular reviewing of the security measures of such companies would seek to ensure compliance with best standards in computer system protections, reassuring both consumers and investors in the industry.

### **3.3. Conclusion**

Blockchain serves as the fundamental technology that allows investors and innovators to develop a variety of asset classes and financial instruments for the modern fiscal market. While bitcoin has been synonymous with blockchain, it is merely one type of cryptocurrencies that has been developed using blockchain technology and is not representative of the whole sector. Where utilized to fill a niche in the existing financial services market, blockchain derivatives can serve as a method of raising start-up capital through initial coin offers, as digital tokens for traditional



services industry that reduce instances of fraud, and as asset classes that allow individuals to generate, store, and transmit wealth.

## CHAPTER FOUR: A SNAP SHOT OF REGULATORY RESPONSES

### 4. Introduction

As more investments and innovations in block chain technology continue to spill into the financial sector, regulators have adopted a broad range of responses that are indicative of the level of societal bias to technology predominant in each jurisdiction.<sup>1</sup> This chapter seeks to provide a global snapshot of the regulatory climate amongst the major players in the industry by focusing on the Republic of Kenya, the United States of America, the State of Japan, and the People's Republic of China.

The choice of these countries is informed by three major considerations; the influence they wield regionally or globally in the adoption and utilization of block chain technology across the world, their comparative geopolitical influence that may later shape the global response, and the countries that have significant transactional value in the form of block chain affiliated assets. This chapter shall proceed by analysing why each country has been chosen, then move to the regulatory climate in each country, and explore the impact of such regulation at the domestic market and the international fora.

The financial services sector regulations have converged into a three-tiered system amongst most nations. At the top-most tier, financial regulations seek to govern the issuance of currency, the creation of a monetary tool institution, and a regulatory agency for the regulation of financial sector players within the banking industry, the capital markets, and the securities exchange framework.

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<sup>1</sup> Arjun Kharpal, 'How the World Is Regulating the \$220 Billion Cryptocurrency Market' (*CNBC*, 2018) <<https://www.cnbc.com/2018/08/09/cryptocurrencies--regulating-the-new--economy.html>> accessed 21 October 2018.

At the second tier, the regulatory framework tilts towards consumer protection and public interest theory where the regulatory powers vested on institutional regulators are broken down into functional regime that covers what amounts to banking, investment, and payment services in domestic regulation. At the second tier, the regulations seek to functionalize the role and place of private sector players in the financial sector, both as consumers and as providers of financial services. At the third-tier, the regulations focus externally by seeking to ensure seamless cross-border transactions for the various regional and international cooperation organization necessary in an interlinked global trade and commercial transactions.

## **4.1. The Republic of Kenya**

### **4.1.1. Rationale for choosing Kenya**

In Sub-Saharan Africa, South Africa, Nigeria, and Kenya remain the leading hubs in financial technology invention,<sup>2</sup> regulatory intervention approach, and remain the dominant markets for foreign direct investments in the continent. South Africa as a member of the South African Development Community (SADC),<sup>3</sup> Kenya as a member of the Common Market for Eastern and Southern Africa and East Africa Community (COMESA),<sup>4</sup> and Nigeria as a member of the Economic Community of West African States (ECOWAS),<sup>5</sup> serves as representative nations of the African regulatory approach to financial technology. The three countries can hence be

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<sup>2</sup> Maria Fernandez Vidal, 'Mapping Africa's Latest Innovations in Digital Finance' (*CGAP*, 2018) <<http://www.cgap.org/blog/mapping-africas-latest-innovations-digital-finance>> accessed 19 October 2018.

<sup>3</sup> Southern African Development Community, 'Southern African Development Community: Member States' (*Sadc.int*, 2018) <<https://www.sadc.int/member-states/>> accessed 19 October 2018.

<sup>4</sup> Common Market for Eastern & Southern Africa, 'COMESA Members States' (*Common Market for Eastern & Southern Africa*, 2018) <<http://www.comesa.int/comesa-members-states/>> accessed 21 October 2018.

<sup>5</sup> Economic Community of West African States, 'ECOWAS Member States' (*Ecowas.int*, 2018) <<http://www.ecowas.int/member-states/>> accessed 21 October 2018.

perceived at any moment to serve as representative states of the approach adopted by African countries over a broad range of issues ranging from environmental conservation, financial technology regulation, to regional integration moves.

Strikingly, the three states have adopted similar regulatory approach to block chain technology in the financial sector as their domestic regulator for the financial sectors take mirror stance in warning the public against transacting with the commodity.<sup>6</sup> The choice of Kenya, however, is informed by the recognition that the country remains the leading financial technology hub in the continent as it continues to develop various innovative solutions to enhance financial inclusion.<sup>7</sup> The country's mobile banking platforms remain one of the most innovative product globally in financial technology in recent times and the regulatory approach adopted by the regulator to husband such a technology provides insight on how the current block chain phenomenal is best regulated.

Additionally, it has been reported that Kenya is the leading African country and amongst the top-ten countries globally in terms of crypto-currency holdings and block chain related transactions.<sup>8</sup> As of January 2018, Kenya's Bitcoin holding represented over two percent of the country's gross domestic product, a substantial percentage given less than ten other countries have comparable

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<sup>6</sup> Yaw Owusu, 'Africa's Growing Tech Hubs and Smart Cities ' (2016) 5 (5) ECPDM <<http://ecdpm.org/great-insights/2030-smart-engagement-business/africas-growing-tech-hubs-smart-cities/>> accessed 21 October 2018.

<sup>7</sup> Arjun Kharpal, 'How the World Is Regulating the \$220 Billion Cryptocurrency Market' (CNBC, 2018) <<https://www.cnbc.com/2018/08/09/cryptocurrencies--regulating-the-new--economy.html>> accessed 14 October 2018.

<sup>8</sup> Melissa Daniels, 'Regulations Breathe a New Lease of Life into Cryptocurrencies' (*Kenya Tech News*, 16 April 2018) <https://www.kachwanya.com/2018/04/16/regulations-breathe-a-new-lease-of-life-into-cryptocurrencies/> accessed 18 October 2018.

level of GDP invested in crypto-currencies.<sup>9</sup> Moreover, Kenya remains a key cryptocurrency mining hub as the country's entrepreneurs have invested in developing specialized tools to enable them participate in the Bitcoin boom and related products.

#### **4.1.2. Prevailing regulatory climate**

Despite its lauded liberalism as a receptive hub for innovation and invention, the Kenyan financial sector has adopted an ultra-conservative approach to block chain technology in the financial sector. In 2015, the Central Bank of Kenya Governor who acts as the major regulatory conduit for the financial sector issued a statement expressly cautioning members of the public from engaging in bitcoin and other block chain products.<sup>10</sup>

According to the regulator, cryptocurrencies were neither a legal tender nor a valid currency in the country, a position that would render investors, speculators, and other persons engaged in the trade beyond the remit of the regulator.<sup>11</sup> Since the regulator is mandated by law to offer consumer protection measures including the protection of depositor's money, by publicly disavowing cryptocurrencies the regulator sought to distance themselves from any claims of protection in case the ventures failed.

Moreover, the regulator warned that engaging in cryptocurrencies posed a substantial threat to the country since cryptocurrencies offered an easy avenue for money laundering that destabilized the

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<sup>9</sup> Ibid.

<sup>10</sup> Edchain, 'Around the World in Blockchain Regulations ' (*Medium*, 2018) < <https://medium.com/edchain/around-the-world-in-blockchain-regulations-e077d9a2a535> > accessed 15 October 2018.

<sup>11</sup> Melissa Daniels, 'Regulations Breathe a New Lease of Life into Cryptocurrencies' (*Kenya Tech News*, 16 April 2018) <<https://www.kachwanya.com/2018/04/16/regulations-breathe-a-new-lease-of-life-into-cryptocurrencies/>> accessed 18 October 2018.

financial stability and terrorism financing that was a threat to public safety.<sup>12</sup> Concern was also raised that unlike other traded commodities or futures contracts, there was no underlying asset informing the valuation of cryptocurrencies leaving their value to be determined solely through speculation. As of present there remains no regulation on crypto exchanges or from the stock exchange regulator (the Capital Markets Authority) on the regulation of issuance of block chain backed securities and derivatives.

#### **4.1.3. Impact of the regulatory approach**

Despite the regulatory stance, interest in block chain technology and the crypto-native economy remain high in the country as the public perceives cryptocurrencies as a viable speculative commodity. The comparably high degree of technological sophistication in the country has seen the development of block chain backed technology in various related fields like logistical tracking, smart contracts, and even the proposal of block chain backed ledgers for the land industry.

### **4.2. The United States of America**

#### **4.2.1. Rationale for choosing the United States**

The choice of the United States is informed by its outsized ability to influence the global financial sector due to the usage of the American Dollar as a principle currency across the world. According to the Economic Times, while America accounts for around a fifth of the global economic production its economic muscle is felt everywhere since over fifty percent of all global transactions are undertaken in dollars and over half of all global currency reserves are maintained in dollars.

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<sup>12</sup> Aleksandre Natchkebia, 'Cryptocurrency Regulation Around the World in 2018' *Forex Broker News and Reviews* (27 July 2018) <https://www.forexnewsnow.com/forex-analysis/cryptocurrency/cryptocurrency-regulation-overview/> accessed 15 October 2018.

Such a position, therefore, means that America can directly dictate over international financial sector through the outsized influence that the dollar enjoys in global trade.

Through its troika of economic legislations, the International Emergency Economic Powers Act, the Trading with the Enemy Act and the Patriot Act, it has managed to *weaponize the dollar* and remains at the forefront of dictating global trends in financial regulation.<sup>13</sup> Given that most crypto-assets are traded and valued in dollar terms, the United States restrictions on trade in dollar-backed assets is a significant factor influencing how traders, investors, and other foreign governments perceive the field.

Secondly, the United States remains the global hub for financial technology inventions, has a liberal approach to regulation, and tends to adopt a proactive stance in regulatory affairs that predisposes the various regulators into implementing a responsive framework to address innovations and inventions.<sup>14</sup> Ideologically, the United States offers an opportunity for further development of block chain backed financial solutions and assets due to the more liberal and innovative environment fostered by its technology hubs like Silicon Valley. Despite Bitcoin having a contested history on the identity of its inventor, the next ten crypto-currencies subsequently developed are directly traceable to American or American-backed inventors highlighting the speed and flexibility enjoyed in adoption of new technology within the American market.

#### **4.2.2. Prevailing regulatory climate**

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<sup>13</sup> Satyajit Das, 'How the US Has Made a Weapon of the Dollar' *The Economic Times* (7 September 2018) <https://economictimes.indiatimes.com/news/international/business/how-the-us-has-made-a-weapon-of-the-dollar/articleshow/65715068.cms> accessed 21 October 2018.

<sup>14</sup> Ibid.

At the federal level, the Internal Revenue Services has categorized cryptocurrencies as a form of property and required investors to pay capital gains tax on any value accruing from transactions involving cryptocurrencies during their bull run.<sup>15</sup>

The Federal Reserve Bank and the Treasury having the sole mandate of issuing legal tenders have repeatedly stated that cryptocurrencies are not a form of currency nor legal tender. Such an approach has provided a level of legitimacy and acceptance for block chain derivative assets as investors and innovators compete to develop niche products for various markets relying on the federal designation of cryptocurrencies as a form of property.<sup>16</sup> The Commodity Futures Trading Commission that serves as the regulator for commodity trading in various stock exchanges has also categorized cryptocurrencies as form of property, indicative of the receptive approach adopted at the federal level to stimulate further innovations in the field by extending some level of protection to stakeholder through formal recognition.

However, the Secretary of the Treasury and other banking sector regulators have expressed concerns over the anonymity offered by cryptocurrencies serving as a significant facilitator of various nefarious activities like money laundering, terrorism financing, and tax evasion. These concerns should be understood in the context that most cryptocurrencies are inherently anonymized making it difficult to trace their ownership and impose Know-Your-Client requirements that currently exists in the banking sector.

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<sup>15</sup> The Element Group, 'Crypto Regulation around the World-May 2018' (*Medium*, 2018) <<https://medium.com/@TheElementGrp/crypto-regulation-around-the-world-may-2018-8d859bf831fd>> accessed 15 October 2018.

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



For crypto exchanges and other platforms providing assistance and intermediation in the block chain market, the primary regulatory role has been undertaken by the states which have adopted individualized responses. In some states, crypto exchanges have been legalized and require a permit from the state financial regulator to operate their businesses while in other states, more comprehensive registration requirements have been imposed to protect consumers from loss of investment.

At the stock exchange level, the Securities Exchange Commission (SEC) has sought to treat digital coins as a form of security issued by various entities and requires the issuing entity to conform to the established Provisions governing the issuance of securities.<sup>17</sup> The SEC approach to regulating the crypto-industry has been to work with the existing laws rather than to introduce new one. For example, the issuance of an initial coin offer has been treated as comparable to an initial public offer of a company's shares, requiring innovators to meet the requirements under the securities law.

Such an approach was informed by a number of fraudulent activities where initial coin offers were used for fraudulent purposes, forcing their treatment as securities to offer protection to the consumers investing in such items. The SEC uses the "Howey test" to determine whether something is a security.<sup>18</sup> The test emanates from the 1946 US Supreme Court ruling that explains

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<sup>17</sup> Arjun Kharpal, 'The Blockchain Revolution; How the World Is Regulating The \$220 Billion Cryptocurrency Market' (CNBC, 2018) <<https://www.cnbc.com/2018/08/09/cryptocurrencies--regulating-the-new--economy.html>> accessed 21 October 2018.

<sup>18</sup> 'The Howey Test, The SEC and ICOs' (Coinist.io, 2018) <<https://www.coinist.io/the-howey-test-the-sec-and-ico/>> accessed 21 October 2018.

a security to be an investment in money where the investor expects profits from a third party's efforts.<sup>19</sup>

#### **4.2.3. Impact of its regulatory approach**

The regulatory approach pursued by the United States amounts to formal recognition and acceptance of block chain technology within the financial sector to a limited extent. The recognition has allowed a number of innovations to be developed in the country and has continued to ensure that the United States remains at the forefront of financial technology innovations and inventions.<sup>20</sup> The economic benefits of such an approach have been significant as the financial technology sector remains a significant employer in America and offers sizeable revenue through taxation of crypto exchanges, banking sector profits from crypto-transactions, and capital gains tax for crypto-asset holders.

On the other hand, the fragmentary approach has been both a boon and a bane to the sector depending on the position of an individual. On one hand, a fragmentary approach has allowed the various segments of the financial industry to develop tailor-made regulations that seek to stimulate and promote further inventions in the field. The recognition of cryptocurrencies as a form of property has had a legitimizing influence in the industry that has spurred public interest and investments in the industry. On the other hand, the restrictive approach adopted by some banking

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<sup>19</sup>*Securities and Exchange Commission v. W. J. Howey Co.*, 328 U.S. 293 (1946)

<sup>20</sup> The Element Group, 'Crypto Regulation Around the World -May 2018' (*Medium*, 2018) <<https://medium.com/@TheElementGrp/crypto-regulation-around-the-world-may-2018-8d859bf831fd>> accessed 15 October 2018.

sector regulators due to concerns on money laundering, terrorism financing, and tax evasion have seeped into other countries regulatory discourse and hampered their adoption in other markets.

### **4.3. The State of Japan**

#### **4.3.1. Rationale for choosing Japan**

From a regulatory standpoint, Japan has adopted the most liberal and inclusive approach to block chain and crypto-currencies in stark contrast to other regulators. Indicative of a country seeking to place itself at the forefront of futuristic technologies, the Japanese regulators have chosen to embrace block chain and crypto-native technologies to ensure they can influence and shape subsequent global attempts at regulating and mainstreaming the underpinning technology across the economy. On this basis alone, Japan justifies its inclusion as the most developed and comprehensive regulatory approach available globally at the domestic front.

Additionally, as an industrialized nation Japan offers lessons to other regulators on how to address concerns raised on how anonymity in block chain technologies facilitates money laundering, terrorism financing, and illicit financial flows without harming innovation within the industry. As such, countries that eschew from regulating the technology due to valid and legitimate state concern on the threats posed by the underpinning technology can borrow from the Japanese model to develop autochthonous Provisions best suited for their markets.

#### **4.3.2. Prevailing regulatory climate**

Japan has pursued a formalistic regulatory approach that through legislative amendment, regulatory notices, and a concerted effort at tweaking existing regulatory provisions to provide for

block chain and crypto-assets idiosyncratic features.<sup>21</sup> In 2016, the Japanese Payment Services Act was amended to provide for a definition of cryptocurrencies and its recognition as an acceptable form of digital settlement currency.<sup>22</sup> Defined as *property values that are stored electronically* the Japanese approach excludes all currency-denominated crypto but broadly accepts all digital currency or tokens.<sup>23</sup>

While it did not provide for formal recognition of cryptocurrencies as a legal tender, its provisions are by far the most nuanced formal recognition of cryptocurrencies. Moreover, the Act has formally recognized crypto exchange platform as legitimate businesses intermediating within the financial sector as the Payment Services Act allows for companies registered with local Finance Bureaus to operate exchanges.<sup>24</sup> Such provisions seek to ease the transaction of cryptocurrencies and overcome the existing logistical challenge of converting digital tokens and cryptocurrencies into traditional currencies.

The Act has also gone further to provide for the requirements for continued operation of a crypto exchange, the revocation of permits for such exchanges, and what amounts to a continuous monitoring and supervision framework.<sup>25</sup> Monitoring and supervision has been undertaken through business-improvement orders issued by the Financial Services Agency as part of its effort

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<sup>21</sup> Kate Rooney, 'Your Complete Guide to Cryptocurrency Regulations Around the World and Where They Are Headed' (*CNBC*, 2018) <<https://www.cnbc.com/2018/03/27/a-complete-guide-to-cyprocurrency-regulations-around-the-world.html>> accessed 15 October 2018.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Aleksandre Natchkebia, 'Cryptocurrency Regulation Around the World in 2018' *Forex Broker News and Reviews* (27 July 2018) <<https://www.forexnewsnow.com/forex-analysis/cryptocurrency/cryptocurrency-regulation-overview/>> accessed 15 October 2018.

<sup>25</sup> Ibid.

to protect the market from fraud and cyber-attacks that have repeatedly afflicted exchange platforms. The Act on Prevention of Transfer of Criminal Proceeds has been applied to crypto-exchange platforms to act as a Know-Your-Client framework as it requires all crypto exchanges to maintain a register of the identities of their customers, their transaction history, and the prompt notification of the Financial Services Agency upon the detection of suspicious conduct.

On taxation, the National Tax Agency of Japan has adopted the position that profits realised from sale of cryptocurrencies and other transactions related to crypto-assets amount to profits for taxation purposes instead of capital gains as some jurisdictions have done.<sup>26</sup> Such tax treatment has seen individuals add their profits into the traditional miscellaneous income column in their tax returns, providing for certainty and predictability in the treatment of gains realized from crypto-transactions.<sup>27</sup>

#### **4.3.3. Impact of the regulatory approach**

Japan's treatment of crypto-currencies through the existing legislative framework has boosted the country's profile as a financial hub willing to accommodate new technologies within existing modalities.<sup>28</sup> Such perceptions have pushed the country into the forefront of developing a model framework for other countries to adopt in their domestic regulation of their block chain

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<sup>26</sup> Amy Castor, 'Japanese Regulator Unveils Crypto Regulation Updates - Bitcoin News' (*Bitcoin News*, 2018) <<https://news.bitcoin.com/japanese-regulator-crypto-regulations/>> accessed 15 October 2018.

<sup>27</sup> *Ibid.*

<sup>28</sup> Darryn Pollock, 'Japan's Exchanges Regulatory Turning Point: How and Why Authorities Wrested Control' (*Cointelegraph*, 27 June 2018) <<https://cointelegraph.com/news/japan-s-exchanges-regulatory-turning-point-how-and-why-authorities-wrested-control>> accessed 17 October 2018.

technologies. By legitimizing cryptocurrencies, Japan has created a vibrant digital marketplace that offers insight into the potential available through considerate harnessing of the potential of block chain technology within the financial services sector.

It has also served as an indication of how legitimate state interest to combat illegal money flows can be balanced with the desire to allow innovation within the financial services sector. Other developed countries that have shirked from addressing the area have recently engaged in public consultation and drafting of policy position papers that seem to indicate their acceptance of the approach adopted by Japan.

#### **4.4. The People's Republic of China**

##### **4.4.1. Rationale for choosing China**

At the outset, China's position as the leading communist country places it in a field of its own that justifies its inclusion as an attempt to provide a counterpoint to the western model of regulation dominant at the global stage.<sup>29</sup> The level of statism and centralized control over the economy wielded by the government is unrivalled and allows the state to dictate the level, pace, and scope of a variety of activities that in other country's is the bailiwick of self-regulation or private enterprises.<sup>30</sup>

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<sup>29</sup> 'Crypto Regulations in China' (*Comply Advantage*, 2018) <<https://complyadvantage.com/knowledgebase/crypto-regulations/cryptocurrency-regulations-china/>> accessed 19 October 2018.

<sup>30</sup> Statism as a political system denotes a country where the state and its institutional superstructure exercises significant level of control over the economy and large swathes of private life of the citizens. China is the leading statist country as its communist-centric regulatory approach has allowed the state to intervene in all sphere of private and public life; from the one-child policy, to the Great Firewall, and the current surveillance of Uighur Muslims in Xinjiang Province are indicative of how statist societies develop an all-encompassing state machinery to peer over both public and personal affairs under the guise of state security and exercise of sovereignty.

For example, China's Great Firewall has served as an apt example of Chinese model of regulation of the internet to ensure the government continues to exercise complete control of the internet, an anathema to the western world that demands liberalized internet as a precursor for a vibrant ecommerce entrepreneurship. As such, exploring its regulatory approach would ideally serve as a competing model to the liberalist or free market approach adopted by most countries.

#### **4.4.2. Prevailing regulatory climate**

After a brief flirtation with block chain technology and crypto-native economies in 2010 that allowed for the quick growth of the industry in the country, China reversed tack and issued a set of guidelines that culminated in the total banning of cryptocurrencies, crypto-exchanges and all transactions backed by block chain technology within the financial services sector.

The People's Bank of China, China's central bank, the Cyberspace Administration of China, the Ministry of Industry and Information Technology, other regulators within the banking industry issued a joint position paper in 2013 that begun the assault on block chain technology within the financial sector and culminated in its outlawing in 2017.<sup>31</sup> The paper titled *Notice on Precautions Against the Risks of Bitcoins* cautioned members of the public from engaging in Bitcoin transactions and other cryptocurrencies on the basis of that they were not a currency, lacked legal status, and posed a risk to the stability of the domestic financial sector.

The position paper went further to prohibit payments institutions and banks from dealing with any type of cryptocurrency or providing essential transactionary services to facilitate block chain

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<sup>31</sup> 'China to Strengthen Cryptocurrency Regulations in 2018' (*Bitcoin News*, 2018) <<https://news.bitcoin.com/china-strengthen-cryptocurrency-regulations-2018/>> accessed 21 October 2018.

related transactions within China or using the Chinese Yuan. Given the permissiveness of the state regulators, the impact of the decision was immediate and caused substantial short term impact in the global cryptocurrency trade as China had become an established centre for mining cryptocurrencies and crypto-exchanges. In 2017, the seven regulators in the financial sector further issued an *Announcement on Preventing financial Risks from Initial Coin Offering* that served to *de facto* outlaw any transaction within the financial sector that touched on block chain technology.<sup>32</sup> As it currently stands, any dealings touching on block chain technology or the crypto-native economy within the financial sectors is prohibited.

Unlike other players whose motivation as the apprehension of the impact of block chain technology in facilitating terrorism financing and money laundering, China's concerns zeroed on the large volume of capital outflows from the country.<sup>33</sup> With a high level of control over financial outflows and the government's desire to retain its influence over the trading of the Chinese Yuan, cryptocurrencies and crypto-assets were perceived as a direct threat to the fiscal policy of the country with ripple effects on its monetary approach to ensuring continued economic growth.

Additionally, the country was concerned of the large drain on its energy resources as the viability of cheap electricity in the countryside had resulted in the boom of crypto mining. Before they were banned, crypto mining activities had been projected to consumer over ten percent of the country's electric output, raising concerns over the energy security of the country.

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<sup>32</sup> Sarah Dai, 'China Is Developing Its Own Digital Currency, even as It Bans Bitcoin' *South China Morning Post* (Hong Kong, 5 November 2017) <<https://www.scmp.com/business/companies/article/2118468/chinas-central-bank-studying-its-own-digital-currency-even-it> > accessed 21 October 2018.

<sup>33</sup> Ibid



#### **4.4.3. Impact of the regulatory approach**

China's approach has had a raft of implications across the global markets as in the short term it resulted in a significant plunge in the value of crypto-assets due to alarm that other countries would adopt similar positions.<sup>34</sup> With the passage of time and little move by other nations to adopt a similar position, the alarm has receded but the cryptocurrency market is yet to recover fully from the fallout as China had become a dominant player in the mining of new coins and the processing of large volumes of cryptocurrency linked transactions.

However, it is noteworthy that through the Institute of International Finance China has been pushing for the adoption of a global regulatory framework to govern crypto-assets. The People's Bank of China has also been running a study of cryptocurrencies since 2014 and formed the Institute of Digital Money as a department within the regulator to study the impact of digital currencies on fiscal stability.

#### **4.5. Conclusions**

At a conceptual level, regulatory opposition to the mainstreaming and integration of block chain technology within the established financial structures seems to be driven by considerations other than the viability, sustainability, or utility of the technology within the financial services sector. For some regulators in the developed economies, the anonymity provided by block chain technology remains the primary stumbling block due to justifiable concerns over terrorism financing and money laundering.

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<sup>34</sup> Bitcoin Magazine, 'Cryptocurrency Regulation in 2018: Where the World Stands Right Now' (*Hard Fork | The Next Web*, 27 April 2018) <<https://thenextweb.com/hardfork/2018/04/27/cryptocurrency-regulation-2018-world-stands-right-now/>> accessed 21 October 2018.

In the era of war on terrorism and war on organized crime, any financial product that offers unlimited anonymity to the user is inherently a tool for abuse by criminal enterprises and terrorist organizations. Hence, as most countries switch to following the money as an approach to combating terror, countries are unwilling to open a back door into the financial sector that would allow terrorist financiers to continue with their activities unhindered.

Japan offers an astute lesson on how to overcome such concerns by regulating the interface between legal tender and cryptocurrencies at the crypto-exchange level. Since cryptocurrencies eventually have to be converted into legal tenders for use in various domestic jurisdictions, having a know-your-client regime that requires the identification of clients and keeping of historical records of transactions by crypto-exchanges is a viable option to ensure persons engaged in such transactions are identifiable and have verifiable identities. While that may be not fully reassuring, it is worth noting that even the established financial services sector is dotted with back channels that allow for anonymous transactions like shell companies and numbered bank accounts.

Secondly, countries seem concerned that crypto-currencies will provide an easy tool for tax evasion and facilitation of corrupt activities. Like the prior concerns, this is based on the anonymity of cryptocurrencies and the decentralized nature of block chain technologies limiting oversight and scrutiny of the activities of the stakeholder. The globalized nature of peer-to-peer networks utilized in block chain technologies will eventually result in jurisdictional conflicts when law enforcement agencies attempt to subpoena documents and digital information from decentralized networks.

A solution that seems viable is the development of information sharing protocols or agreements underpinned by the pre-existing law enforcement agreements on information sharing. Through either Interpol, UN specialized agencies, or the Financial Task Force 40 recommendations on

combating illicit financial flows, law enforcement agencies can broaden the scope of existing arrangements to provide for the sharing of information related to block chain technologies. Such an approach would build on the trust and established procedures for requesting assistance in criminal investigations and extend them to covering investigations on financial impropriety through block chain technology.

On taxation, there seems to be a level of acceptance that crypt-assets are a form of property liable to be taxed when an individual realizes significant gains from their transactions. From the capital gains tax model adopted by the United States to the miscellaneous income model adopted by Japan for treating gains as profits, taxation agencies seem willing to recognize crypto-assets for taxation purposes irrespective of the stance taken by other financial regulators. Both approaches, as capital gains or as profits, are acceptable as precursor to global convergence where agencies agree on uniform treatment of such gains and develop regimes to avoid double taxation issues. Investors only require an ascertained regime for tax purposes to ensure there is stability, certainty, and predictability in the treatment of their gains before they can lobby for either model.

For developing countries, a major source of concern is consumer protection due to the existence of informational asymmetry where a large number of citizens are engaged in the market for speculative purposes with minimal appreciation of the dangers of their investment. Regulators have to develop a framework for information sharing and public information sessions that would ensure citizens recognize the risks attached to their investments. Where fraud arises from initial coin offering, governments may seek to utilize existing provisions and sanctions within the capital markets arena to punish wayward promoters or develop new measures as a response to the threat posed by such activities.

## CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

### 5.1. Conclusion

As a dynamic and fast evolving technology, blockchain provides an opportune moment for the financial sector to evolve and conform to contemporary times through rapid intermediation in the payment system, creation of a new asset class, and the development of a number of derivative securities for various markets.

This research concludes that the current absence of domestic regulatory framework has undermined the development of blockchain asset derivatives as institutional investors remain hesitant to provide the necessary funding to support research and development within the industry. The funding gap has been met by private investors who engage in market speculation due to the perceived healthy rate of returns. However, these private investors demand more protection than institutional investors and as such there exists a public interest justification for regulatory intervention on the basis of offering consumer protection.

Moreover, a critical examination of the underpinning technology indicates that they are not amenable to regulation through existing frameworks. The dynamic nature of blockchain technology in terms of development trajectory, the decentralized creation and storage of the assets across national boundaries, and their inherent digital form requires regulators to formulate new approaches to govern the area.

While the existing regulatory principles can be extended to cover blockchain technologies through organic evolution to fit the changing circumstances, there is need for regulators to change their

perception to reflect the growing value of non-traditional assets within the global financial payment systems.

## 5.2. Recommendations

At a conceptual level, this study seeks to inform continued regulatory response to technological development in the financial services sector. Awake to the dynamic nature of the technology, the need for an efficacious and organic regulatory framework that would develop with innovations in the field, we seek to offer a number of principles that borrow from the fundamental notion of the financial sector and tweak them to respond to technological changes. We wrap up with a model regulatory instrument that most regulators could adopt to assist them to transition into a tech-centric view of financial intermediation.

Firstly, there's a need to extend the undergirding capital market principles and ideas into the blockchain industry where innovators create a new asset class or derivative. In this principle, the regulators have to ensure that the markets are fair, efficient and transparent for the consumers to benefit from cryptocurrency transactions. Rules should be constructed to ensure that the players do not take advantage of the public by swindling them of their hard earned savings that many have put in the Bitcoin market.

Disclosure requirements currently in place within the capital markets should be extended to cover initial coin offers, with additional conditions to provide for the treatment of consumers in case the business venture succeeds or fails to take off. Since coins are not a unit of equity, consumers would require tangible returns and appropriate consideration by the firms they contribute towards, provisions that could be added into existing Provisions or promulgated as *sui generis* provisions for coin offers.

Secondly, regulators need to invoke mandatory policing and oversight of blockchain technologies by apportioning responsibilities amongst existing regulators in line with their mandate and the interplay with blockchain technology in the field. Such an approach would entail compulsory registration and certification of players by various agencies in the financial sector to ensure that there is prevention of money laundering and funding of criminal or terrorist activities that are on the rise globally. This principle favours the growth and development of cryptocurrency and blockchain since these are by default public and transactions more easily traceable compared to cash used in the fiat system where esteemed institutions are involved in money laundering or within the conventional banking system.

Thirdly, regulatory agencies should seek to protect consumers and safeguard investments in the field as a pre-condition to the growth and development of the industry. This principle seeks to protect the common citizens who may want to invest in cryptocurrency yet they lack information about the same.<sup>1</sup>

Fourthly, competition law doctrines need to be imported into the industry to regulate the relationship between upstream and downstream stakeholders in the industry contemporaneous with the current competition law requirements in the capital markets. Principles of competition law have to be observed to ensure that crypto-asset promoters and publicists do not collude to exploit information asymmetry and create an environment unfavourable to innovation and invention through consolidation of first move advantages.<sup>2</sup>

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<sup>1</sup> Dunning Krugerrands, 'What would Principles based regulation of Cryptocurrencies look like?' <[https://www.reddit.com/r/CryptoCurrency/comments/84lzpe/what\\_would\\_principles\\_based\\_regulation\\_of/](https://www.reddit.com/r/CryptoCurrency/comments/84lzpe/what_would_principles_based_regulation_of/)> accessed on 11 June 2018.

<sup>2</sup> Pascal Salin (ed), *Currency Competition and Monetary Union* (Martinus Nijhoff Publishers 1984).

A model instrument to regulate the financial sector would be best suited when issued by a regulatory agency and not enacted as a formal legislative instrument due to the need for technical expertise in the craftsmanship and the dynamic nature of the industry. While most legislatures allow for experts to assist in the drafting of specialized instruments, the timelines for passing of an act of parliament tend to be a long and tedious process susceptible to political brinkmanship and partisanship that may derail the process. Moreover, most national legislatures would be ill-suited to periodically review a legislative instrument to cater for new developments in financial technology that would appear on a regular basis due to the dynamism within the industry.

Either as a by-law issued under existing financial sector legislative instrument, in common law country issued by the minister in charge or the head of the regulatory agency empowered to create provisions to govern the financial sector, or a regulatory notice issued by a competent regulatory agency, the instrument would allow for flexibility in its amendment to reflect the fast pace of changes in the industry. Also, the instrument would have a broad public participation requirement to allow the various stakeholders involved in the industry to offer their opinion and positively engage in the law making process to ensure the final result is an acceptable compromise to all.

Attached is a sample Act of Parliament that identifies the salient principles and features of a model regulatory instrument for the regulation of block chain technology within the financial services sector. It has sparingly borrowed from the amended Japanese Payment Services Act but encompasses a number of ideas and principles that have been formulated over the course of the research.

ANNEXURE OF A DRAFT REGULATORY INSTRUMENT

**THE BLOCKCHAIN AND RELATED FINANCIAL TECHNOLOGIES MODEL  
REGULATION, 2018**

**A Bill for**

**AN ACT of Parliament to provide for the integration of block chain technology and related information technologies within the financial services sector in the country, to enhance and cultivate innovative digital solutions within the financial sector, and to promote an efficient and technologically advanced financial sector with uniform norms and standards that anchors the global revolution in financial technology, and for connected purposes.**

Enacted by Parliament as follows-

**Part I- Preliminary**

***Short Title***

1. This Act may be cited as the Blockchain and Related Financial Technologies Act, 2018.

***Definitions***

2. In this Act unless the context otherwise requires;

“digital asset”, “digital item”, or “block chain backed asset” means:



- (i) an initial coin offer where a company or a group of individuals seek to raise capital for a company by issuing digital tokens as a reward without the tokens representing a unit of equity but as reward for the contribution;
- (ii) a digital token issued as a reward for any activity and not meant to be utilized as a cryptocurrency within the definition of cryptocurrency provided under this Act;
- (iii) any other derivative or instrument that is electronically created and digitally maintained meant to represent a unit of reward that is does not fall within the definition of cryptocurrency in this Act;
- (iv) any other asset, instrument, or derivative that may be so defined by the current regulator overseeing the Capital Markets.

“Client”, “customer”, or “branch” and any other terminology utilized in this instrument in a non-technical sense shall be taken to have their ordinary meaning within commercial activities, and where a definition is provided for under the Banking Act or other suitable legislation such a definition shall be construed as the persuasive definition unless the context requires otherwise.

“Company”, or “operator” means an entity engaged in commercial activities within the country for the purpose of making a profit whether or not it’s a company, partnership, sole proprietorship, or any other form of commercial vehicle conceived under relevant legislation.

"Cryptocurrency Platform" or "Cryptocurrency Services Provider" means a corporation that prior to the enactment of this Act engaged in foreign exchange trade services and was registered for such purposes, which has subsequently acquired a trading permit from the Central bank to operate as a cryptocurrency fund transfer service platform or as a cryptocurrency exchange services provider within the country.

“Cryptocurrency” or where the context so requires "Virtual Currency" means any of the following:

(i) property value that is exclusively recorded, transferred, and maintained on electronic data processing means that are accepted by persons as means of settling account or as consideration for the purchase, lease, or hiring of a commodity or a service within the country but excludes all legal tenders or currency-backed electronic assets issued by various entities authorized to do so under the banking Provisions of the respective countries; or

(ii) digitally created, transacted, and electronically stored property value popularly referred to as cryptocurrency as long as such item is primarily utilized as a means of settling account between individuals and its creation is outside the control of any central currency issuing authority authorised by its domestic laws to issue currency as legal tender within a given jurisdiction.

(d) “Cryptocurrency Exchange Service”, “Cryptocurrency Services”, “Cryptocurrency Trades”, or "Virtual Currency Exchange Service" means;

(i) the offering of exchange services to convert one virtual currency to another, or

(ii) the offering to convert one virtual currency into a recognized legal tender, or

(iii) the offering to purchase cryptocurrency for a legal tender or to convert a recognized legal tender into a virtual currency; or

(iv) acting as an intermediary or agent of an organization that engages in any of the acts provided above in the course of business; or

(v) offering to manage a user's cryptocurrency whether in exchange for a fee or not in the course of a company's operations.

Provided that the term virtual currency exchange service shall for all intent and purposes be regarded as crypto-exchange services offered by crypto-exchange platforms.

“Initial Coin Offer” means the process through which a company raises funds through the issuance of a digital token that does not amount to a unit of ownership in the company but serves as token of appreciation for their contribution. Such a token must have an ascertainable redeemable value at a future date.

“Issuance of cryptocurrency” means the process of a company developing and availing to the public of a cryptocurrency within the scope of this Act.

## **Part II- Compulsory Registration of Cryptocurrency Platforms**

### ***Registration Requirements***

3. (1) No person or company may engage or offer to provide cryptocurrency exchange services unless they have been issued a license by the Central bank to engage in such activities.

(2) For the purpose of this Act, any financial institutions registered for engaging in banking services as defined under the Banking Act or any institution permitted by the Central Bank to engage in foreign exchange shall be a competent institution to engage in cryptocurrency exchange activities so long as it applies to the Central Bank to be permitted to engage in such services as contemplated in Regulation 2(d) above.

(3) A company that wishes to solely issue cryptocurrency without further dealing with cryptocurrency services shall be registered pursuant to this Act. The Central Bank shall make additional regulation to specifically regulate such companies.

***Submission of Application for Registration***

4. (1) A company which intend to obtain registration as per the provisions of Regulation 3 must submit a written application to the Central Bank for registration and issuance of a trading license to deal in cryptocurrencies.

(2) Such an application must disclose;

(i) the corporate name and address of the business;

(ii) all the locations or branches that the company intends to operate with full physical, postal, and email address for each location;

(iii) the directors of the company;

(iv) a full list of the registered owners of the business, and where they differ from the beneficial owners of the company a list of such beneficial owners shall also accompany the list of registered owners;

(v) the amount of capital held by the company;

(vi) name of the auditors of the company of the company;

(vii) content and means of the services it intends to offer;

(viii) type of other business activities it engages in, if any;

(ix) any other particulars as may be required by the Central Bank from time to time to facilitate the consideration of such an application.

(3) For the purpose of approving or rejecting applications made pursuant to Regulation 3 above, the Central Bank shall ensure that every applicant satisfies the following requirements;

(a) the company must have been in operation for at least five years prior to its application engaged in financial services provision;

(b) the company must be in full compliance with all pertinent Provisions on the conduct of financial Provisions as enacted from time to time by relevant regulatory agencies;

(c) the company must not have been fined or in any way sanctioned for engaging in money laundering activities or any other form of financial impropriety contemplated under the relevant Proceeds of Crime and Money Laundering legislation;

(d) Provides a detailed breakdown of the proposed company's financial transfer services and cryptocurrency exchange services that ensures;

(i) it can maintain an accurate register of all its client engaged in cryptocurrency trades and accurate record of all related transactions; and

(ii) it can provide such a register on demand to relevant regulators empowered under the relevant Proceeds of Crime and Anti-Money Laundering legislation to examine the books of accounts for financial services providers; and

(iii) it has an efficacious monitoring provisions to note and report any suspicious financial activity contemplated under the relevant Anti-Money Laundering legislation within a week of such transaction.

(e) the company has sufficient capitalization to enable it continue with its prior business operations while fully serving clients for the new operations it contemplates.

(4) The central bank may impose additional requirements as deemed necessary and desirable for the expeditious processing of such applications. Such conditions shall be published at least six-months in advance before taking effect.

#### ***Approval of application***

5.(1) Once an application is made and subject to its approval, no entity shall engage in any promotional activity or actual transactions before their application is unconditionally approved by the Central Bank within two months of application.

(2) The Central Bank shall communicate its decision regarding an application made pursuant to Regulation 3 within two months of the application being made.

(3) Where there are concerns or need for clarification, such clarification shall be requested for in writing within the two-month period, with a one-month period for the applicant to furnish the Central bank with the required clarifications.

(4) An application shall be rejected if it fails to satisfies the conditions set out in this Act or if the applicant fails to make timely clarification as requested as per Regulation 5(3).

(5) Where clarifications made under Regulation 5(3) are submitted within a month of the request, the Central Bank shall have an additional two-month period to evaluate the response. No additional clarifications may be made or submitted after the initial response has been submitted.

(6) Any rejection of an application shall be in writing setting out the reasons for the rejections.

(7) The decision of the Central Bank shall be final and binding upon all the parties.

(8) Any company whose application is rejected may not make a fresh application within a five-year period from the date the rejection is communicated.

### ***Notification of Changes***

6. (1) Any changes that occur in a company affecting the registration requirements set out under Regulation 4 shall be submitted to the Central Bank within a week of the contemplated changes.

(2) The Central Bank shall change its records to reflect the new developments.

(3) If the changes touch on ownership, capital requirement, or the monitoring and supervision mechanism contemplated in Regulation 4 the Central Bank may impose additional condition on a company prior to approving such changes.

(4) Any condition issued as per the Regulation above must be satisfied within a month, failure to which the company's operating license shall stand suspended and its activities restricted from opening new account for clients in cryptocurrency services.

(5) Once a company satisfies the conditions contemplated above within three months its trading licence shall be reinstated after payment of a fine amounting to a tenth of its gross profit for the last one year.

(6) A company that fails to satisfy the conditions set out by the Central Bank as per Regulation 6(3) within three months shall have its license revoked and shall be forced to apply afresh for a new license after the passage of a period of time not less than three years.

(7) An application made pursuant to Regulation 6(6) above shall be treated as a fresh application to be processed by the Central Bank like any other application under this Act.

### **Part III- Operation of Licensed Operators**

#### ***Operation of Licensed Platforms***

7. A company licensed to operate under this Act shall only commence operations after;

(a) its application for a license has been approved by the Central Bank;

(b) Its proposed contract templates have been approved by the Central bank; and

(c) upon acquisition of at least ten cryptocurrencies to form its basket of commodities it intends to trade in with each of the cryptocurrencies maintained by the operator valued over one hundred thousand per branch that it anticipates to maintain.

#### ***Exemptions for exclusive mining operators***

8. (1) A company registered under this Act to operate as a cryptocurrency issuing institutions shall be exempted to the requirements of Provision 7 if its activities are exclusively aimed at the issuance and maintenance of a ledger for a given cryptocurrency.



(2) Where a company intends to engage in the issuance of a cryptocurrency and has sought exemptions from the Central bank under Provision 8(1) above, the company may commence operations;

(a) after its application has been approved by the Central Bank where such approval shall be predicated upon the company's provision of;

(i) comprehensive statement detailing its financial reserves to finance its operations;

(ii) submission of a workable and verifiable concept of work and technology that will underpin its operations in such a form as the Central bank may require from time to time;

(iii) submission of a proof of concept in such form as conforms to the *Bitcoin Manifesto* template to ensure transparency and peer verifiability of the proposed currency;

(iv) any other requirement as may be required from time to time by the Central Bank.

### ***Know Your Client Requirements***

9. (1) Any company licensed to operate under this Act shall maintain a detailed records comprising of;

(a) all the clients who have transacted with the corporation including their names, address, personal identification numbers, and their national identity card number;

(b) historical data of all transactions that a particular client has engaged in for the; last five years;

(c) all other reporting records required by the current legislation in place dealing with the combating of money laundering, terrorism financing, and illicit financial flows;

(d) any other record as may be required to be maintained from time to time by the Central Bank as part of its supervisory mandate or as a pre-requisite for approval of a license application.

(2) It shall be an offence for a company to fail to maintain any such record as may be required under this Act.

### ***Cessation of Operations***

10. (1) A company authorized to transact any activity under this Act shall be required to give a notice of at least three months prior to cessation of such operations as may be authorized by this Act.

(2) Such a notice shall be published in a local daily of national circulation and must be prominently displayed in the various offices or branches of the operator that engage in any activity regulated under this Act

(3) During the notice period for cessation of operation, an operator shall be required to indemnify all clients by debiting to their account maintained in a bank, as defined by the relevant Banking Act, the sum total of the value of their cryptocurrency unless the client requires expressly that their account is transferred to another cryptocurrency exchange platform.

(4) An operator shall be obliged to open and accept the transfer of a client's account from an operator winding up business subject to the new client complying with existing requirements for opening an account. No extraneous conditions including fees or membership dues shall be imposed on a transferred account.

#### **Part IV- Consumer Protection in Cryptocurrencies Services Provision**

##### ***Consumer Rights***

11. (1) The money held by a company for a client solely for engaging in cryptocurrency services shall be treated as a bank deposit amenable to all protections afforded to bank depositors under the relevant Banking Act.

(2) For the purposes of this Regulation and to protect cryptocurrency services consumers, company's engaged in cryptocurrencies activities shall be required to seek insurance services for the deposits they retain on behalf of their clients.

(3) Upon dissolution of a company, under any relevant law, previously engaged in cryptocurrency services, the deposits provided by clients shall be treated as the first charge on the company's assets.

(4) All rights, entitlement, and remedies available to a consumer under any written law shall be analogously provided for clients who access cryptocurrency services within the country.

##### ***Liability for violation of consumer rights***

12. (1) In instances of fraud within a company engaged in cryptocurrency services, any person who is found criminally liable for fraud shall be personally and individually responsible in civil law for damages to recover the monies lost in the fraudulent action.

(2) A client to a cryptocurrency services provider may institute a civil suit against an official or company found liable for fraudulent action to recover any monies lost from a fraudulent activity.

(3) Nothing in this Act preclude an individual or company from pursuing any remedy available in law for damages suffered in the conduct of a cryptocurrency services provider business.

***Public sensitization of uniqueness of crypto-assets***

13. (1) A company licensed to engage in any activities under this Act must provide comprehensive explanation to consumers on the associated risks of the business they engage in pursuant to this Act.

(2) A company licensed to operate under this Act shall provide guidance notes to third-parties and its customers distinguishing its cryptocurrency services from any other services it may provide.

***Need for all transactions to be in writing***

14. (1) A company registered under this Act may only engage in its licensed operations by entering into a written contract with prospective clients.

(2) A template of all written contracts that a company anticipates to utilize as part of its licensed operations must get prior approval by the Central Bank during the approval stage for a license for the company. Subsequent changes or new templates must be submitted for approval and approved by the Central bank prior to their usage.

(3) All contracts contemplated under this Act shall be in writing, and must provide for alternative dispute resolution process in the first instance where a dispute arises between the parties.\

### ***Central Bank Dispute Resolution mandate***

15.(1) The Central Bank shall institute and maintain the alternative dispute resolution panel contemplated under Provision 10(3) as part of its supervisory mandate over the sector.

(2) The Central Bank shall also operate a Complaint Processing Centre as an incidental administrative entity to handle disputes filed under Provision 11(1).

### ***Information Security***

16. (1) Any company licensed to operate under this Act must take all necessary measures to prevent the leakage, loss, damager, or publication of information within their custody by virtue of their licensed operations.

(2) It shall be a strict liability offence for a company to knowingly or negligently fail to secure and protect the confidentiality of any information within its control while engaged in cryptocurrency services provision.

(3) Any breach of privacy, confidentiality, of information security shall be notified to the Central Bank within forty-eight hours of the breach with a comprehensive report detailing the nature and extent of the breach.

(4) Any client whose information shall be subject of the breach must be notified within six hours of the company noticing the breach.

(5) A company that is found to have negligently contributed to a breach or has having failed to properly secure itself against a breach shall be liable for damages to compensate its client for the breach. The damages shall be set by the Central Bank and shall be adjusted to reflect the scope, extent, and nature of the breach.

(5) Repeated data breaches may be the grounds for revocation of a license issued per this Act upon petition by the affected clients, information security regulators, or other concerned third-parties to the Central Bank.

## **Part V- Monitoring and Supervision of Cryptocurrency Services Providers**

### ***Central Bank Supervision***

17. (1) The Central Bank shall constitute an independent department, the Department of Block Chain Technology hereinafter “the Department”, from amongst its officers empowered to undertake all actions contemplated within this Act.

(2) All mentions of the Central Bank within this Act shall be taken to refer to the Department of Block Chain Technology formed pursuant to Provision 12(1).

(3) The Department shall be headed by a Director appointed by the Minister of State in charge of the Treasury at that time. The Director shall serve for non-renewable term of six years.

(4) At all times, the Department shall also consist of the following officials:

(i) The Director;

(iii) A minimum of three and a maximum of five Assistant Directors appointed by the Governor of the Central Bank to serve for a maximum of five year terms renewable once.

(iii) Section heads not exceeding ten to head the various sections within the Departments;

(iv) A minimum of fifty associates, with no fixed maximum number, to provide all assistance necessary for the Department to effectively regulate the sector;

### ***Record Keeping***

18. (1) A company licensed under this Act shall prepare and maintain a written record of the books of accounts and other relevant document utilized in its operations.

(2) A company licensed under this Act shall submit an Annual Report of its activities to the Central Bank within a month of the end of its accounting period.

(3) At the request of the Central Bank, a company licensed to operate under this Act shall provide various records as may be deemed necessary to ensure its compliance with the prevailing legislation on Anti-Money laundering obligations.

(4) The Central Bank may undertake on-site inspections of any branch or facility operated for cryptocurrency services by a company licensed under this Act without any prior notice to ensure compliance with the prevailing regulatory provisions.

### ***Order to Improve Business Operations***

19. If the Central Bank finds it necessary for the proper regulation of the cryptocurrency service providers it may issue notices to all licensed operators or may issue specific orders to a company to take necessary measures aimed at improving the security or operational stability of the industry.

### ***Suspension and Revocation of licenses***

20. A license to operate a business issued under this Act may be suspended for a period not exceeding six months if in the Central Bank's opinion;

(a) an operator has substantially changed their operations without notifying and seeking prior approval of the Central Bank; or

(b) an operator activities pose a significant information security risks due to repeated intrusion of their networks without sufficient protective measures being undertaken by the operator;

(c) an operator has failed to meet any condition or measure required by the Central Bank in the exercise of its supervisory mandate over the industry;

(d) any other just cause.

### ***Disciplinary measures***

21. (1) A suspension of a license shall be published within three days of such communication to the relevant operator in the official Gazette and at least one daily of nation circulation at the cost of the operator.

(2) An operator must prominently display all notices affecting their operations issued by the Central Bank in all their physical facilities and their communication mediums (digital, electronic,



or otherwise) for the period covered by the notice. Failure to do so shall amount to a misconduct by the operator.

(3) Notice of suspension shall detail the reasons for the suspension, remedial measures to be taken by the company, the limited operations that the operator may engage in, and consequences of non-compliance with the Notice.

(4) If after the expiry of the notice period, which may not exceed six months, the operator has met the conditions, their license shall stand reinstated and such communication shall be made in a similar manner as the license of suspension was made.

(5) If an operator fails to satisfy the requirements or conditions imposed by the Central bank, their license shall stand revoked immediately after the expiry of the notice period. No extension of notice period shall be provided and the revocation of license shall be communicated in a similar manner as the license suspension was made.

### ***Taxation***

22. (1) Every company licensed to operate under this Act shall maintain a separate book of accounts for its activities regulated under this Act from its other business.

(2) By the 31<sup>st</sup> of March of a given year,

(a) a company licensed to operate under this Act shall submit a special tax return to be provided for by the relevant revenue agency detailing its operations for the last twelve months as ending at 31<sup>st</sup> December of the previous year.

(b) an individual who has engaged in cryptocurrency transactions as provided for under this Act shall submit a special tax return to be provided by the relevant taxation agency declaring all profits and gains realized from such transactions for the twelve-month period ending 31<sup>st</sup> December of the previous year.

(4) The relevant taxation agency shall treat any returns made pursuant to Provision 22(2) as a tax declaration form for a miscellaneous income source by either a company or an individual and shall be taxable at the prevailing rates for profits realized by companies even where such a declaration is made by an individual.

(5) It shall be an offence for an individual or a company to falsify any records related to its transactions within this Act in an attempt to reduce or eliminate their tax obligation, and such an infraction shall be treated as tax avoidance as provided for by the relevant Income Tax Act.

## **Part VI- Issuance of Block chain backed asset**

### ***Compulsory Registration of Companies issuing Block chain backed assets***

23. (1) A company that wishes to engage in the issuance of an Initial Coin Offer, any other form of Coin Offering, a Digital Token, or any other form of block chain technology backed asset that is not to be treated as a means of settling an account shall apply for a certificate to operate from the relevant agency in charge of regulating the capital markets.

(2) An individual who wishes to promote, publicize, or in any other way raise awareness of a block chain backed security shall be under a strict liability duty to ensure their activities have been licensed by the relevant Capital Markets regulator.

### ***Requirements for Issuance of a Certificate***

24. (1) An individual who wishes to be issued with a Certificate to Deal with block chain backed assets must form a special purpose vehicle prior to application for the certificate.

(2) The Capital Markets regulator may only consider for certification to deal with block chain backed security a special purpose vehicle exclusively formed for such a purpose.

(3) A private company or any form of a partnership under the relevant statutory provisions may be treated as a special purpose vehicle if upon registration its proposed primary objective is to deal in block chain backed securities and assets.

(4) Upon application to the Capital Markets regulator, a special purpose vehicle shall be issued with a Certificate to Deal in block chain assets and securities if the application is accompanied by;

(i) the name and address of the special purpose vehicle;

(ii) all the locations or branches that the company intends to operate with full physical, postal, and email address for each location;

(iii) the directors of the company;

(iv) a full list of the registered owners of the business, and where they differ from the beneficial owners of the company a list of such beneficial owners shall also accompany the list of registered owners;

(v) the amount of capital held by the company;

(vi) name of the auditors of the company of the company;

(vii) the type of block chain backed assets it intends to issue;

(vii) class of rights that vest for each block chain backed asset it intends to issue;

(ix) means of ascertaining the date and redemption value of the asset;

(x) sample templates for all contracts underpinning the security it intends to issue;

(xi) any other particulars as may be required by the Capital Markets regulator from time to time to facilitate the consideration of such an application.

(5) Upon the filing of an application and the payment of requisite fees, the relevant Capital Markets Authority shall review the application and either

(i) write to the applicant with a statement for clarification over any contentious issue; or

(ii) accept the application by issuing a Certificate to Deal;

(iii) reject it by issuing a written statement for the rejection identifying the rationale for the rejection;

(iv) invoke the Howe Test and deem a class of contemplated asset to be a security, derivative, or futures commodity contract regulated by existing regulatory provisions.

(6) where an application is rejected with reasons an applicant shall be free to modify their application in light of the rationale provided.

(7) The relevant Capital Markets regulator shall seek to expeditiously determine the applications and issue decision as soon as possible from the date of application but within a period not exceeding one month from date of application.

(8) The decision of the relevant Capital Markets regulator shall be final and binding on all application made pursuant to this Section.

***Howe Test***

25. The relevant Capital Markets shall invoke the Howe Test for any proposed block chain backed asset where the proposed security meets the Howe test as established in securities law where a proposed security exhibits any combination of the following characteristics;

(i) an investment of money;

(ii) with the expectation of profit:

(iii) in a common or joint enterprise amongst individuals, companies, or other entities recognized by law as profit making ventures;

(iv) the profit is generated by a third party.

***Howe Test securities to be treated as investment contracts***

26. (1) Any proposed security or commodity that meets the Howe Test shall be treated as an investment contract or a security to be governed by the established regulations prevailing at that time on securities.

(2) No company shall issue an asset, security, derivative, or commodity that meets the Howe Test even where such a commodity, security, assets, or derivative is backed by block chain technology unless such issuance confirms to existing regulations on the issuance of a security.

(3) A company that receives notification that its proposed investment asset meets the Howe Test shall promptly terminate all operations regarding such an item unless it wishes to adhere to established regulations and governing rules on issuance of a security.

(4) A company or individual that proceeds to engage in any further acts upon receipt of a Howe's test notification shall be deemed to have committed the offence of digital security's fraud.

### ***Capital Markets supervision***

27. The relevant Capital Markets regulator shall issue guidelines from time to time governing the classification of block chain backed items as either digital security's, digital tokens, or initial coin offers and any other category as may be deemed necessary to expedite the regulation of the commodity.

(2) Only a special purpose vehicle with a Certificate to Deal may petition the relevant Capital Markets regulator to create a new class of digital security by providing the unique features that identify such an item.

(3) Upon such an application the regulator shall proceed to convene a panel to evaluate the application and may call for public participation as part of the evaluation process.

(4) The panel contemplated above shall comprise of five persons, three members currently working for the relevant regulator and two independent members with at least three years' experience in the digital securities market.

(5) The panel shall issue a report within a month proposing the acceptance or rejection of the petition and its decision shall be binding upon the regulator.

(6) The relevant regulator shall from time to time issue regulations to govern the various digital securities by promulgating guidelines and regulations on;

(a) consumer protection;

(b) disclosure regulations for promoters and publicist of a digital security;

(c) security of investment and confidentiality of client information.

(d) any other matter necessary for the expedient regulation of the industry.

## **Part VII- Miscellaneous Provisions**

### ***Criminalization of Dealings in Unlicensed Block Chain Backed Assets***

28. (1) It shall be a criminal offence for a company or individual to engage in any activity that seeks to facilitate or support the unlicensed issuance or sale of block chain backed asset amounting to digital security's fraud.

(2) A company that issues a block chain backed asset, token, or coin without the prior approval of the relevant agency in charge of the capital markets shall have committed an offense punishable by a fine of at least ten million shillings or three times the value of money raised by the company, whichever amount is higher.

(3) An individual who engages, participates, facilitates, or supports a company in the commission of an offence contemplated in Provision 23(2) in exchange for any consideration shall be liable for the commission of digital security's fraud.

(4) A person who publicizes, promotes, or engages in any other acts aimed at raising the profile of unlicensed business issuing block chain backed assets shall be liable individually and personally liable for the commission of the offence of digital security's fraud.

(5) Any offence contemplated by this Act and whose punishment is not readily ascertainable upon the plain reading of the provision shall be punished by a sentence of at least five years in prison and a fine of an amount equal to double the value of money defrauded from the public.

### ***Delegated regulations***

29. (1) In exercise of its supervisory mandate, the Central Bank shall make necessary Regulations from time to time that seek to streamline operations and offer guidance to operators within the industry.

(2) Any Regulation made by the Central Bank shall be the result of an open and inclusive public consultation process.

(3) Notwithstanding Provision 17(2) the Central Bank may arbitrarily impose any requirement or regulation as it may deem necessary for the stability and expedient supervision of the industry.

(4) Any Regulation made pursuant to Provision 17(3) must be publicized for a reasonable duration of time prior to its enforcement.

### ***Foreign operator requirements***

30. (1) A foreign operator, denoting an operator not licensed to operate within the jurisdiction although they may be licensed to operate in other jurisdictions, may not solicit or in any a manner approach a citizen with the purpose of engaging in cryptocurrency services.



(2) Where an operator's activities or failure to act amounts to a misconduct contemplated under this Act they shall be liable to a fine of an amount not less than a million shillings but not exceeding a tenth of their reported gross profits in the last financial year.

### ***Residual powers***

31. The Central Bank and the relevant Capital Markets regulator shall retain the mandate of developing an efficacious enforcement mechanism that provides for proscribed conduct by market players and relevant fines to be imposed for any indiscretion as long as any proposed sanction does not exceed double the amount of revenues generated by a company regulated under this Act.

### ***End year reporting***

32. At the end of every financial year, the Central Bank and the relevant Capital Markets regulator shall submit a report to Parliament at the end of every government financial year detailing;

(1) any emerging governance issue in their respective domains that may require an amendment or repeal of any part of this Act to stimulate innovation or enhance regulation of the industry;

(2) any disciplinary or regulatory sanctions imposed on a player on the industry together with recommendations on areas for reform to better handle the identified misconduct;

(3) trends in other jurisdictions that may be adopted for the domestic market or that significantly affect the conduct of the domestic market together with recommendations for consideration by parliament.

(4) Any other matter that they may regard significant for the sector.

### ***Relevant capital market regulator defined***

33. Upon the enactment of this Act, the relevant Capital Markets regulator shall be expressly identified at the time of coming into force by a declaration made by the Minister of state then in charge of the National Treasury. Any change to the regulator shall be notified in the usual way of publicizing changes in regulatory mandate.

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