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Regulatory Challenges Posed by the Evolution of Cryptocurrencies

by

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Summary

> "Yet, while bitcoin and its cousins are something of a mirage, they might be an early sign of change, just as Palm Pilots paved the way for today's smartphones. Cash will not be king forever, even though it still rules in many parts of the world … and the iGeneration is more likely to reach for a payment app than a purse. To their children, banknotes and coins may look like museum exhibits"[1]

The evolution of cryptocurrencies is posing a significant threat to the traditional financial system and regulation thereof. Cryptocurrencies are designed to be self-governing, decentralized, and to provide anonymity. Currently there is no single definition or position regarding cryptocurrency. Furthermore, the legal status of cryptocurrency remains largely disputed.

Cryptocurrencies provide a platform for those who seek to evade the cumbersome challenges of complying with the financial laws. In general, laws are enacted and enforced with the purpose to regulate social order and bringing harmony between persons.

As a result, numerous agencies are appointed by their respective states to regulate the daily business dealings of persons. Regulations make payment processes to be administrative, expensive and time consuming. Cryptocurrencies are a form of peer to peer payment which provide solutions to traditional payment challenges.

In South Africa Cryptocurrencies are not a legal tender therefore they cannot be used as a substitute for fiat money. The use of crypto currency challenges does not only challenge the traditional form of banking and payment.

It makes it difficult to regulate and identify the individuals who use it to attain criminal objectives. It is a primary legal risk to Anti Money Laundering and terror financing laws, furthermore it may have tax implications and ultimately on state coffers.

Cryptos bring a horizontal dimension to the regulators because they cut across payment, securities and commodities laws. The dissertation therefore investigates these matters in view of the regulatory challenges posed by cryptocurrencies.

[1] Benoît Coeuré "Bitcoin not the answer to a cashless society" https://www.ft.com/content/31abc532-25d0-11e8-b27e-cc62a39d57a0 (accessed 14 November 2019).

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Table of content

Chapter 1:
Introduction

Humans have evolved from the Stone Age paradigms to the present digital era.[2] Irrespective of the era, the lived experience remain moulded by the ability to accumulate and dispose of assets. Bartering was the initial system that enabled individuals to buy and sell goods or services.[3] It is a primitive method, that has become obsolete as a result of its limitations.[4]

Barter could not sustain the need for humanity to engage in commercial trade on a global scale and or in a uniform way.[5] The introduction of currency as a medium of exchange solved some of the challenges encountered in the barter system.[6] The first introduced currency was backed directly by gold in state reserves.[7] However, this currency system depended on the relevant goldsmith's solvency and ability to pay the value presented by commodity money on behalf of the mandate issuer.[8] The ability to honour payments on behalf of the issuer by a goldsmith depended on the goldsmith's solvency and their will to accept commodity money.[9] Thus, there was a need for an alternative monetary instrument that was less cumbersome. Fiat money became the solution, and therefore it substituted commodity-linked money.[10]

Money is the main recognised legal tender for economic interaction around the globe.[11] Money represents an "abstract economic value" in the form of a symbol it embodies.[12] It is widely used to value goods and services. It is a medium of exchange that should be at the core of any payment innovation.

Over the years, parallel technological developments are partly the reason why modern financial systems fail to provide efficient cross-border transfers, immediate

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[2] International Monetary Fund "Money transformed: The future of currency in a digital world" https://www.imf.org/external/pubs/ft/fandd/2018/06/pdf/fd0618.pdf (accessed 13 May 2019)
[3] K Bain & P Howells *Monetary Economics* (2 ed 2009) Hampshire: Palgrave MacMillan 6-7.
[4] G Cooper *The origin of the financial crisis* (2008) Hampshire: Herman House 44.
[5] L Perlman *Legal and regulatory aspects of mobile financial services* (2012) LLD Thesis University of South Africa 59.
[6] Cooper (n 4 above) 50-55.
[7] A Khan "The evolution of money: A story of Constitutional nullification" (1999) 33 *University of Cincinnati Law Review* 394-443 400-402.
[8] Cooper (n 4 above) 45-46.
[9] Cooper (n 4 above) 47-49.
[10] Cooper (n 4 above) 53-55.
[11] G Simmel *The philosophy of money* (3 ed 2004) London: Routledge 190.
[12] Simmel (n 11 above) 118-120.

settlements, and lower transaction costs.[13] For example, the way that society transacts has developed incrementally in the last decade, but the form of payment has remained the same, society still uses fiat money as form of payment.

Digitisation has forged a new conduit for transacting. Cryptocurrencies ("cryptos") are the latest form of medium of exchange.[14] It is debatable among scholars whether or not cryptos should be categorised as a currency because they differ from the traditional forms of currency. Cryptos are digital, seamless, and efficient.[15] They forge a self-regulatory, self-securitised, and decentralised currency.[16] Cryptos come in diverse forms, but they have similar features.

The classification and acknowledgement of cryptos differ from country to country. Cryptos manifest through diverse terminology used in different nations. For example, in Australia, they are classified as a digital currency, while in China, they are a virtual commodity. In German, they are crypto tokens.[17] However, in South Africa, the South African Reserve Bank ("SARB") classifies cryptos as virtual currencies.[18]

Cryptos can be a form of medium of exchange, a digital asset or a financial instrument, but they differ from conventional money. Money has intrinsic value that could be associated or linked to something tangible.[19] The value of Cryptos is subjective since it depends on the intention of the user. There are numerous benefits associated with cryptos that cannot be attained when using fiat money. For example, anonymity features of cryptos will be beneficial for those who seek to engage in illicit activities.[20] On contrast, anonymity will affect the regulators' ability to regulate and enforce regulations. Consequently, this leads to debate primarily amongst the society, financial service providers, and regulators on the efficiency, volatility, safety, and regulatory risks posed by using of cryptos.[21]

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[13] S Nakamoto "Bitcoin: A peer to peer electronic cash system" 2008 1-3.
[14] H Jabotinsky "The Regulation of Cryptocurrencies: Between a Currency and a Financial Product" (2018) *18 SSRN Electronic Journal* 1-39 2.
[15] P Vigna & M Casey *The age of Cryptocurrency* (2016) New York: St Martins 1-15.
[16] As above.
[17] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[18] As above.
[19] G Samid *Tethered Money* (2015) London: Elsevier 4-6.
[20] A Narayanan *et al Bitcoin and Cryptocurrency Technologies* (2016) Oxfordshire: Princeton University Press 139.
[21] Vigna & Casey (n 15 above) 250-261.

The extent to which cryptos may disrupt or evade regulations is still not clearly defined since cryptos are still in their infancy stage of development.[22] Indeed, it may be that the existing regulatory framework is insufficient to capture and regulate cryptos.[23] Nevertheless, regulators are currently doing fieldwork to understand and develop more regulations to deal with the issues surrounding cryptos while the crypto market continues to grow. The below graph shows the market capitalisation of cryptos over the years, and it shows that cryptos have grown to be a billion-dollar market in 6 years.[24]

Consequently, the risk of crypto activity taking place outside regulators' parameters is welcomed by criminals.[25] The evolution of cryptocurrencies poses a significant threat to the traditional financial system and its regulation. Currently, there is no single definition or position regarding cryptocurrency. Furthermore, the legal status of cryptocurrencies remains disputed.

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[22] As above.
[23] S Hoegner *The Law of Bitcoin* (2015) Bloomington: Iuniverse 14 – 16.
[24] Coin Market "Total Market Capitalisation" https://coinmarketcap.com/charts/(accessed 24 September 2019).
[25] The New York Times "Terrorists Turn to Bitcoin for Funding, and They're Learning Fast" https://www.nytimes.com/2019/08/18/technology/terrorists-bitcoin.html (accessed 15 September 2019).

Therefore, the purpose of this dissertation is to investigate the regulatory challenges posed by cryptocurrencies by, firstly, investigating the nature of and risks associated with cryptos and, secondly, by comparing the regulatory approach to cryptos across several jurisdictions.

Chapter 2:
Nature and risks of cryptocurrencies

2.1 What are cryptocurrencies (cryptos)?

2.1.1 Introduction

Cryptographic data underpin cryptos.[26] Cryptographic data is information that is encrypted using a unique key.[27] Most cryptos model after Bitcoin's peer-to-peer system.[28] Bitcoin is the most widely used crypto in the market and is used primarily as an investment asset or a medium of exchange.[29]

Cryptos are a subset of virtual currencies or digital assets that leverage on blockchain technology to enable crypto activity based on cryptographic algorithms.[30] Virtual currencies and cryptocurrency are interchangeably used, and this may result in numerous interpretations.

In this dissertation, reference is made to “cryptos” as a subset of virtual currencies. Cryptos intertwine with blockchain technology. Therefore, it is essential to understand the underlying technology that supports the different types of cryptos.

2.1.2 Blockchain

In simple terms, a blockchain refers to an electronic ledger that is widely used by cryptos.[31] The ledger keeps records data in a series of blocks that are immutable without the consent of the participants.[32]

Blockchain can be decentralised or centralised, but most cryptos are on a decentralised ledger. A trusted independent party who is licensed to administer and have oversight of the ledger administers a centralised ledger.[33] Centralisation is risky. Hence, a decentralised blockchain is essential for mitigating security risks; for

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[26] R Houben & A Snyder "Cryptocurrencies and Blockchain" (2018) *European Parliament Department for Economic, Scientific and Quality of Life Policies* 11-85 18-24.
[27] As above.
[28] Hoegner (n 23 above) 15.
[29] As above.
[30] Hoegner (n 23 above) 14-16.
[31] I Bashir *Mastering blockchain* (2017) Birmingham: Packt 10.
[32] Bashir (n 31 above) 130-135.
[33] A Nieman “A few South African Cents Worth on Bitcoin” (2015) 18 *Potchefstroom Electronic Law Journal* 1979-1999 1986.

example, in a centralised blockchain is more easily hackable, since it has one central point of entry.[34]

In a decentralised ledger, the power is not bestowed on a single intermediary to control and have oversight of the entire chain. Instead, all participants in the network have control.[35] Further, the more participants in a decentralised blockchain, the more secure the chain is, because there are more complex blocks to hack.[36]

Nevertheless, blockchain can be programmed to operate as desired, but it is not the primary enabler of regulators' concerns over cryptos. Instead, blockchain technology can be adopted and used throughout a formal legal economy.[37] All new data is introduced in the form of new linear blocks that are time-stamped and validated through existing blocks per the relevant encryption.[38]

A blockchain can either use a Proof of Work, a Proof of Stake, or another consensus mechanism.[39] Consensus mechanisms enable data on the blockchain to be added and transferred in an efficient and secure way without mutation.[40] Blockchain provides a solution to data corruption, time efficiency and reduced transacting costs amongst crypto users.[41]

Despite the numerous benefits, characteristics such as the preservation of identity anonymity are drawbacks and pose a significant regulatory risk. For example, those who seek to engage in illicit activities can do so and hide behind identity anonymity enabled by the blockchain technology.[42] A person's identity may be secure, but their public address will be visible. However, the public address only shows the transaction and not the identity of the individual who completed the transaction.[43]

The Bitcoin crypto inventors are the first introduce an immutable blockchain ledger technology that also mask the users of the ledger.[44] The original motive behind

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[34] Bashir (n 31 above) 35-39.
[35] Narayanan (n 20 above) 19-20.
[36] Narayanan (n 20 above) 20.
[37] Bashir (n 31 above) 470.
[38] Narayanan (n 20 above) 64-66.
[39] Other mechanism includes Proof of elapsed time, Proof of capacity, proof of service, and other mechanisms that may be enough to validate the blocks or transactions. See A Antonopoulos *Mastering Bitcoin* (2015) Sebastopol: O Reilly 246 & 460.
[40] D Puthal *et al* "The Blockchain as a Decentralized Security Framework" https://pdfs.semanticscholar.org/d87c/0df38c42f4923c929c5d9a5f759ca0b09a71.pdf (accessed 2 October 2019).
[41] Bashir (n 31 above) 21-23.
[42] Narayanan (n 20 above) 142.
[43] Narayanan (n 20 above) 139.
[44] Narayanan (n 20 above) 138.

blockchain technology is to reinvent mainly the payment system and introduces a new technology that removes the role of financial intermediaries.[45] It allows peer-to-peer transactions between individuals as well as transactions to be concluded seamlessly regardless of geographical separation and instant.[46]

2.1.3 Different types of cryptos

Most cryptos leverage blockchain technology as a result of the numerous advantages that the technology offers to virtual currencies. As a subset of virtual currencies, cryptos fulfil a unique role in comparison with other currencies. Moreover, different cryptos serve different purposes even though they might use the same decentralised blockchain technology.[47]

Bitcoin is the most popular crypto, but its primary role differs from that of the second-largest crypto.[48] Ethereum, unlike Bitcoin, is primarily used to execute smart contracts, while Bitcoin is primarily used to make payments and for speculative investments.[49] On the other hand, Solarcoin seeks to encourage solar energy production by rewarding Solarcoins to solar energy producers per megawatt-hour of solar energy they produce.[50]

Therefore, some cryptos may be premised on commercial objectives, while others are an attempt to tackling social issues such as carbon emissions. Depending on the country's economic, social, and political factors, certain types of cryptos may be allowed or have limited use to the extent that the government can have oversight, regulate and know that the crypto is not a significant risk to its macro-economic policies. Thus, the diversity of cryptos should be in mind when designing a crypto regulatory framework. The below table illustrates the different types of leading cryptocurrencies and their market capitalisation in the crypto market.[51]

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[45] Samid (n 19 above) 109.
[46] As above.
[47] Jabotinsky (n 14 above) 13.
[48] As above.
[49] Jabotinsky (n 14 above) 11.
[50] Solar Coin “FAQ” https://solarcoin.org/faqs/ (accessed 2 October 2019).
[51] Coin Market Cap “Top 100 Cryptocurrencies by Market capitalisation” https://coinmarketcap.com/ (accessed 16 September 2019).

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	Bitcoin	$175 515 953 236	$9 775,87	$15 739 588 611	17 954 000 BTC	-1,79%	
2	Ethereum	$21 572 529 671	$199,99	$7 814 176 362	107 870 638 ETH	-4,65%	
3	XRP	$11 627 489 404	$0,269905	$1 642 179 938	43 080 011 224 XRP *	-1,16%	
4	Bitcoin Cash	$5 231 535 556	$290,31	$1 654 519 875	18 020 300 BCH	-5,38%	
5	Litecoin	$4 258 207 370	$67,25	$3 457 031 827	63 323 492 LTC	-8,29%	

2.1.3.1 Bitcoin

Bitcoin is the most widely used crypto. Those who engage in illicit activities find the most value using Bitcoin as a medium of exchange.[52] Speculators speculate on its potential bullishness and bearishness to maximise profit. Bitcoin price is volatile, and thus gains and loses can be quickly realised if traded speculatively.[53] Crypto price movements are relative to the economic theory of supply and demand and regulatory positions of the regulator.[54] For example, Bitcoin rose 800% to $1165,89 between September and November 2013, when the US regulators made positive comments about cryptos.[55]

Satoshi Nakamoto launched this popular crypto in 2009, after publishing a White paper titled “Bitcoin: A Peer to Peer Electronic Cash System”.[56] Nakamoto cites the lack of trust in financial intermediaries, banks and government (“third parties”), since human beings operate them. In the white paper, Nakamoto further highlights trust as an important element whenever dealing with fiat currencies and that third parties are untrustworthy. Nakamoto proposed a decentralised monetary system that will enable electronic cash transfers without third part involvement.[57] Thus he or she developed the Bitcoin as alternative medium of exchange. Bitcoin, like most cryptos, replaces a centralised monetary system through a decentralised ledger.[58]

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[52] Vigna & Casey (n 15 above) 84-87.
[53] Nieman (n 32) 1990.
[54] Jabotinsky (n 14 above) 20.
[55] Vigna & Casey (n 15 above) 108.
[56] Nakamoto (n 13 above) 1.
[57] Nakamoto (n 13 above) 1-2.
[58] As above.

Moreover, Bitcoin provides an alternative for transacting especially to those, that have diminished levels of trust in the financial intermediaries because Bitcoin is inviolable to potential negligence or financial fraud that is attributable to a conventional monetary system.[59]

In addition to the peer-to-peer security feature, Nakamoto had to construct Bitcoin using "cryptographic proof", which is immutable.[60] In terms of the design, once a transaction is confirmed, it is irreversible. The only way a transaction can be reversed or tampered within a blockchain is for an individual to have control of more than 50% of the block chain's hash power.[61] Hash power is the processing power of a blockchain; thus the more blocks in a chain, the higher the hash power of the ledger and the more secure it will be.[62] Consequently, high volumes of power energy will be needed.[63]

Decentralisation of the blockchain rebels against in the current monetary system. It is a material element for a currency that seeks to provide an alternative for those sceptical of third parties and conventional currency.[64] Since the ledger does not have a single point of entry, it cannot easily be tampered with compared to a ledger with a central point of entry.[65] Furthermore, Bitcoin sought to remedy the challenge of "double-spending".[66] Double spending refers to a currency being spent twice or created out of air. Double spending is a concern to all virtual currency users, since such currencies are in a digital format, and thus transactions can easily be replicated or manipulated if the ledger is not secure enough.[67]

The security offered by the Bitcoin's blockchains through proof of work makes Bitcoin to be one of the most secure and reliable cryptos.[68] The proof of work mechanism is a consensus mechanism through which network participants solve mathematical problems for new blocks to add on to the chain.[69]

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[59] As above.
[60] Narayanan (n 20 above) 169-190.
[61] Nakamoto (n 13 above) 1.
[62] Bashir (n 31 above) 136.
[63] As above.
[64] Vigna & Casey (n 15 above) 66.
[65] As above.
[66] Nakamoto (n 13 above) 1-3.
[67] S Syska "Eighty years young: How the New York Bit license stifles Bitcoin innovation and expansion with its premature attempt to regulate the virtual currency industry" (2017) 17 *Journal of High Technology Law* 313-345 320.
[68] Nakamoto (n 13 above) 5.
[69] Bashir (n 31 above) 24.

Every new block contains immutable records of Bitcoin transactions that preceded it and those that will succeed it.[70] Since the ledger is distributed, all the participants need to verify a new block when it is added.[71] Therefore, the more blocks in a chain, the more scrutiny the potential block will undergo before it is approved. A decentralised blockchain consensus mechanism makes it impossible to tamper with previously recorded data or to add a new block that does not correspond with chronologically arrayed blocks in a ledger. Currently, Bitcoin has the most extensively distributed blockchain in the world.[72] The longer the blockchain, the more complex it is to corrupt and thus more secure.[73]

Only a maximum of 21 million Bitcoin will come into existence.[74] Moreover, Bitcoins are not dependent on a central bank or a similar intermediary for issuance.[75] They are automatically discoverable per the encrypted protocol which the crypto uses.[76]

2.1.3.2 Ethereum

Ethereum leverages on a blockchain that anchors the Bitcoin. The founder of Ethereum felt that Bitcoin did not leverage blockchain to its fullest.[77] Thus, there was a need for crypto that would provide a fully-fledged blockchain where individuals can create their own rules of transaction,[78] ownership, and numerous other functions.[79] Ethereum uses a fully-fledged blockchain, while Bitcoin uses a specialised blockchain.[80] A fully-fledged blockchain can use an algorithm to create smart contracts, applications, and extend its functionality beyond transacting.[81]

Smart contracts create the possibility for agreements to be enforced automatically as programmed, without any human censorship or irregularity.

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[70] As above.
[71] Nakamoto (n 13 above) 4-7.
[72] Accenture "Blockchain technology" https://www.accenture.com/_acnmedia/pdf-96/accenture-blockchain-technology-security-pov-digital.pdf (accessed 20 August 2019).
[73] Nakamoto (n 13 above) 1.
[74] Syska (n 67 above) 336.
[75] Nakamoto (n 13 above) 4.
[76] As above.
[77] Jabotinsky (n 14 above)15.
[78] Houben & Snyder (n 26 above) 33-34.
[79] T Minks "Ethereum and the SEC: Why Most Distributed Autonomous Organizations Are Subject to the Registration Requirements of the Securities Act of 1933 and a Proposal for New Regulation" (2017) 5 Texas *A and M Law Review* 405-437 408.
[80] Jabotinsky (n 14 above) 15-17.
[81] As above.

Compliance costs and time become less while enhancing trust and harmony amongst contracting parties.[82] The challenge with Bitcoin is that it has limited use; it does not allow for building software applications like the Ethereum blockchain.[83] Bitcoin's blockchain is fixed and complex and thus cannot be developed or coded like that of other cryptos such as Ethereum.[84]

Ethereum also runs on a decentralised peer-to-peer network on its blockchain.[85] The Ethereum blockchain is not specialised since it is not limited to transacting. Smart contracts can be written on the blockchain, and individuals can create their own rules on how they want a particular contract to operate.[86] Smart contracts use an algorithm encoded on a blockchain to facilitate various agreements such as buying and selling or exchanging of money.[87]

Ethereum can is more than crypto because its value is attached mainly to its fully-fledged blockchain. Ethereum blockchain is similar to Bitcoin's blockchain in terms of security and peer-to-peer features regardless of the minor differences.[88] Like Bitcoin, Ethereum relies mainly on a proof-of-work protocol to validate transactions. Transactions group into blocks. Any new block needs to form a consensus with existing blocks for validation, maintenance of chronological order of and upholding the confidence in the ledger that the crypto uses[89]

Ethereum can also be decentralised,[90] for example a virtual “company” without a CEO can also be built on the Ethereum blockchain running a coded algorithm and owned by individuals who will purchase offered tokens that can equate to equity shares.[91]

In comparing Ethereum blockchain with that of the Bitcoin, the notable difference is that Bitcoin’s blockchain is limited to a financial application, while the Ethereum blockchain goes beyond financial application.

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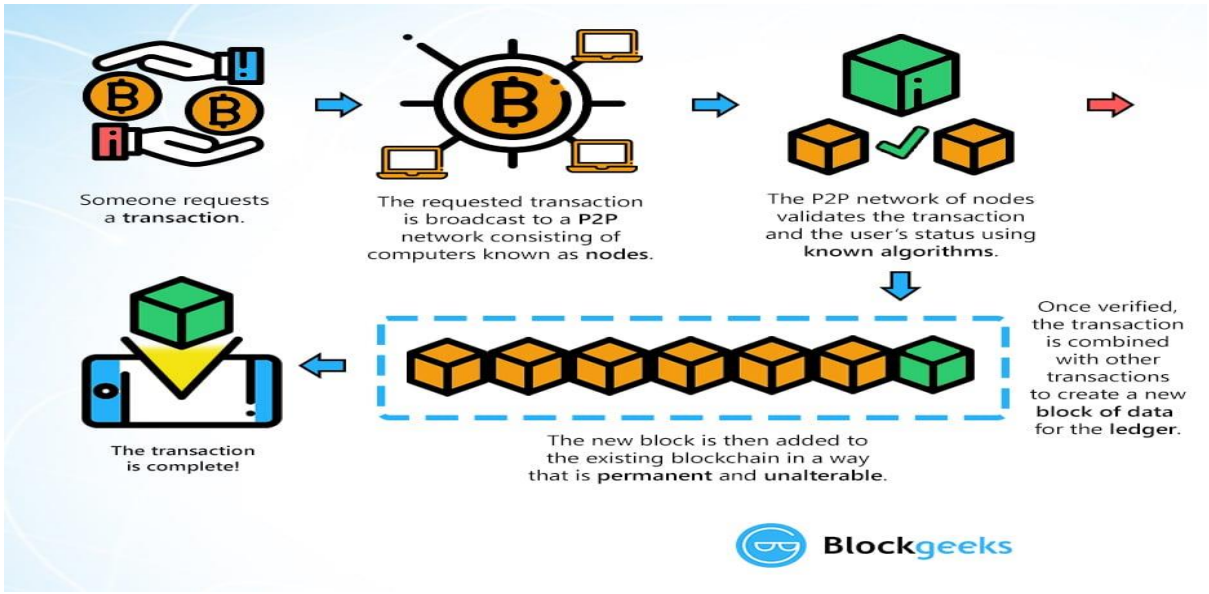
[82] As above.
[83] Narayanan (n 20 above) 263-266.
[84] As above.
[85] Narayanan (n 20 above) 263.
[86] Narayanan (n 20 above) 263-264.
[87] GitHub “What are Smart contracts” https://github.com/ethereumbook/ethereumbook/blob/develop/07smart-contracts-solidity.asciidoc#what-is-a-smart-contract (accessed 26 April 2019).
[88] E. Posnak , “On the Origin of Cardano” https://medium.com/on-the-origin-of-smart-contract-platforms/on-the-origin-of-cardano-a6ce4033985c (accessed 26 April 019).
[89] As above.
[90] Bashir (n 31 above) 45-47.
[91] As above.

2.2 Crypto transaction

The below diagram illustrates how crypto is transacted in a decentralised peer-to-peer system as a medium of exchange.[92]



In order to transact, there need to be sufficient cryptos in the wallet.[93] Crypto transactions include making online payments, exchanging cryptos, or holding on to them with the hope that their trading price will go up to sell them at a profit.[94]

Crypto users buy or exchange them through cryptocurrency exchange service providers.[95] Alternatively cryptos are exchanged for another currency, received as a medium of exchange or a gift or obtained as part of an Initial Coin Offering ("ICO").[96] Furthermore, other cryptos such as Bitcoin are attainable through a process termed "mining".[97]

Mining is key to the entire Bitcoin transaction process. The process requires miners to compete with the hope of being rewarded with cryptos for solving

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[92] Block Geeks "What is cryptocurrency" https://blockgeeks.com/guides/what-is-cryptocurrency/#Understanding_Cryptocurrency_Basics_101 (accessed 20 April 2019).
[93] As above.
[94] E Howden "The cryptocurrency conundrum" (2015) 29 *Emory International Law Review* 741-798 773.
[95] Minks (n 79 above) 414.
[96] Cryptos may be given for free in the initial stages as part of creating demand liquidity in the crypto market for the specific coin. See O Oren "ICO's DAO's and the SEC: A partnership solution" (2018) 2 *Columbia Business Law Review* 618-658 620.
[97] Howden (n 94 above) 748.

mathematical problems faster than other miners.[98] Once all coins are mined, there will no longer be any remuneration for miners. At present, miners earn their reward through minor transactional fees.[99] Mining is not physical, but it takes place in a digital space using a powerful computer.[100]

Some miners have done a lucrative business out of mining cryptos and selling them for fiat money. Mining is considered an expensive business model due to the energy consumption which is involved, hence some miners have resorted to using solar panels in order to save costs.[101] Crypto miners often bundle processing power of their individual computers because of the high processing power and electricity needed to be successful in crypto mining.[102] An individual using a single powerful computer will not be able to conduct mining; hence, it is considered a highly specialised sector that is done using powerful processors. A standard laptop or desktop with a high-end processor cannot be used to mine cryptos for the user.[103]

In summation, mining is essential for discovering new cryptos that have never been in circulation, confirming blocks containing transactions, and securing the blockchain.[104]

Coin offering is not continuous like mining, it takes place during the initial stages of the crypto.[105] Crypto inventors usually offer coins for free or at a discount in exchange for money or some form of payment.[106] An ICO aims to increase the crypto's popularity while it is still new as well as to raise funding.[107]

Since cryptos are digital, they make use of a wallet that is encrypted using a unique key for storage.[108] The most popular wallets are software applications that operate on a user's unique hardware, such as a cellular phone or computer.[109] Wallets can be stored online ("hot storage") or offline ("Cold storage").[110] Offline storage

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[98] J Tuwiner "What is Bitcoin Mining?" https://www.buybitcoinworldwide.com/mining/#what-is-bitcoin-mining (accessed 27 September 2019).
[99] Bashir (n 31 above) 131.
[100] As above.
[101] Bashir (n 31 above) 131, 137-139.
[102] As above.
[103] Bashir (n 31 above) 136-138.
[104] Bashir (n 31 above) 476.
[105] Oren (n 96 above) 618-620.
[106] As above.
[107] As above.
[108] Howden (n 94 above) 747.
[109] As above.
[110] As Above.

primarily takes place in a hardware environment, and it is the least vulnerable wallet to cyber-attacks because it not connected to the internet.[111] Offline storage uses physical hard drives to store cryptos while online storage uses a software application for storage.[112] Regardless of the kind of storage, cryptos are stored in cryptographic data which represents the crypto and its value.[113]

In order to complete a successful crypto transaction, the sender will have to sign using his unique key and specify the number of cryptos that he or she intends to send.[114] The signed transaction in the form of cryptographic data will be broadcasted on a blockchain underpinning the cryptocurrency.[115] The blockchain will then verify and validate the cryptographic data against the blocks that are already in the chain.[116]

A crypto transaction will only be valid once it is transcribed in a block that forms part of a chain.[117]. The entire transaction is conducted without any involvement of a third party, such as a central bank.[118] Thus, if the transaction is not valid, it will be rejected and not stored in a blockchain, and thus a new block would not form.[119]

2.3 Advantages associated with cryptos

Cryptos are transforming global financial markets. They pose a threat to traditional financial institutions and business models.[120] Their decentralised nature provides numerous benefits on a broader global scale, such as seamless transaction and smoother economic interaction between individuals in different jurisdictions at low costs and instantly.[121] Cryptos can be used as an alternative to conventional currency to engage in global markets without being converted into local currency.[122] Cryptos in their present form are criticised primarily by the regulators, but they have instilled the possibility of a cashless society running solely on digital currencies. They are

[111] K Tu & A Meredith "Rethinking virtual currency regulation in the bitcoin age" (2015) 90 *Washington Law Review* 272-346 299.
[112] Bashir (n 31 above) 148-150.
[113] As above.
[114] Jabotinsky (n 14 above) 12-14.
[115] Jabotinsky (n 14 above) 15.
[116] Jabotinsky (n 14 above) 12.
[117] As above.
[118] Tu & Meredith (n 92 above) 332.
[119] Syska (n 67 above) 321.
[120] Howden (n 94 above) 759.
[121] Vigna & Casey (n 15 above) 1-4.
[122] As above.

attractive, especially as a medium of exchange in the retail space.[123] Moreover, cryptos wallets can be set up from anywhere with access to the internet. The designers of cryptos seek to achieve the below advantages, some of which exist in theory, for example, inflation avoidance.

2.3.1 Low transaction fees

Transacting using fiat money or bankcards is costly because of the fees levied by financial intermediaries for their services. In addition to their fees, such intermediaries are criticised for lacking customer-centricity.[124] Using crypto only requires an internet connection. After that, one can transfer cryptos instantly to any individual at a low cost.[125] Crypto transaction fees are low because cryptos primarily do away with intermediaries that are responsible for authorisation and clearance.[126]

Cryptos are designed to be self-governing,[127] While fiat money is issued and controlled by a central authority, usually a country's central bank.[128] In order to complete a transaction, the conventional fiat money has to be effected by the financial institutions that have to execute the payment mandate, namely the bank receiving the payment, as well as the central bank that will clear and settle the transaction.[129] It is only in a few countries like China, where crypto fee transactions cannot be considered a competitive advantage because mobile transactions fees in China cost close to nothing because the government subsidises them.[130] Mobile transacting involves sending and receiving money utilising a software application installed on a personal device such as a cell phone.[131] In this context, mobile transacting involves using applications such as WeChat to send and receive money in China.

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[123] M Sackheim & A Howell *The Virtual currency regulation review* (2 ed 2019) London: Law Business ness Research 9-10.
[124] Vigna & Casey (n 15 above) 1-4.
[125] As above.
[126] Narayanan (n 20 above) 97.
[127] Narayanan (n 20 above) 27-31.
[128] As above.
[129] International Monetary "Clearing and Payment Systems: The Central Bank's Role Fund" https://www.elibrary.imf.org/view/IMF071/06959-9781557751850/06959-9781557751850/ch03.xml?lang=en&redirect=true (accessed 4 May 2019).
[130] Vigna & Casey (n 15 above) 300-301. See also, Bloomberg "Why China's Payment Apps Give US. Bankers Nightmares" Blomberg https://www.bloomberg.com/graphics/2018-payment-systems-china-US/ "accessed 4 May 2019).
[131] Samid (n 19 above) 22-24.

2.3.2 Efficient payment

Users of fiat money in countries like South Africa face limits imposed through exchange control thresholds, which determine how and to what extent money can be sent or invested overseas.[132] Since any central bank offers no cryptos, they operate in the form of a worldwide currency. Therefore, there is no limit on how much cryptos can be sent or invested abroad.[133] Using fiat money to make payment overseas can take several weeks to clear and settle, while crypto transactions are completed within an hour.[134]

When making a payment, individuals need to use a private and public key without sharing personal details.[135] Thus, the user is not required to provide a card number, pin, names, or other sensitive information.[136] Crypto systems are designed to ensure the confidentiality of the user; thus, the user's true identity is masked through cryptographic means, while only the transactions remain in the public domain.[137]

However, when payment is made using a bank card online, numerous questions that involve providing personal details have to be answered, which may compromise the security of personal information regardless of the laws in place to protect the use of personal information. For example, in September 2019, the South African Fraud Prevention Services released data showing a 99% increase between 2018 and 2019 of the fraudulent use of identity documents.[138]

2.3.3 Inflation avoidance

Inflation is often as a result of "lax monetary policy".[139] The most common cause of inflation is the abundance of currency in circulation compared to the size of a country's economy.[140] Consequently, the currency will lose value.[141] Therefore a currency with

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[132] South African Reserve Bank "Exchange Control Legislation"https://www.resbank.co.za/RegulationAndSupervision/FinancialSurveillanceAndExchangeControl/Legislation/Pages/default.aspx (accessed 4 May 2019).
[133] Vigna & Casey (n 15 above) 88-90.
[134] Vigna & Casey (n 15 above) 304-305.
[135] Howden (n 94 above) 751.
[136] Howden (n 94 above) 750-752.
[137] Samid (n 19 above) 111.
[138] South African Fraud Prevention Services "News" https://www.safps.org.za/news.aspx (accessed 17 November 2019).
[139] International Monetary Fund "What is Inflation?" https://www.imf.org/external/pubs/ft/fandd/2010/03/pdf/basics.pdf (accessed 12 October 2019).
[140] As above.
[141] As above.

diminished value has less purchasing power because the prices for goods and services will be high. The traditional duty to fight inflation is primarily vested with central banks.[142] Central banks use various mechanisms to avoid high inflation rates. In general, these mechanisms include ensuring that the money in circulation corresponds to the country's economy.[143] Inflation control takes place in numerous ways, and the popular way is to control consumer spending through a lending rate.[144] For example, when there is a surplus of money in circulation, the government will increase the lending rate. However, when there is less money than desirable in circulation, the government will decrease the lending rate so that more consumers can have access to money and start circulating it.[145]

Cryptos are designed to be self-anchoring and not depend on the government's inflation control mechanism hence, and they are also decentralised.[146] The decentralisation mechanism of cryptos takes power away from financial intermediaries, thus preventing a scenario where central banks abuse their role and pump more money into circulation without a need to do so.[147] Cryptos seek to maintain the economy and inflation stability by limiting the number of crypto coins that can be made available.[148] For example, only 85% of Bitcoins have been discovered so far, and just less than 15% are still to be discovered.[149]

Furthermore, beyond inflation control, the motivation is also to automatically protect the sustainability of an economy that runs primarily on cryptos.[150] Some cryptos like Bitcoin are divided into two phases: the phase of crypto mining and the phase when all coins have been mined and when they can only be attainable through trading and exchanges.[151] Bitcoin discovery is controlled through numerous mechanisms over a prolonged period. For example, Bitcoin discovery has slowed with

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[142] International Monetary Fund "Monetary Policy and central banking" https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/20/Monetary-Policy-and-Central-Banking (accessed 16 May 3019).
[143] As above.
[144]International Monetary Fund "What is Inflation?" https://www.imf.org/external/pubs/ft/fandd/2010/03/pdf/basics.pdf (accessed 12 October 2019).
[145] As above.
[146] Samid (n 19 above) 114.
[147] Samid (n 19 above) 113.
[148] As above.
[149] Buy Bitcoin Worldwide "How many Bitcoins are there" https://www.buybitcoinworldwide.com/how-many-bitcoins-are-there/ (accessed 12 October 2019).
[150] Money Crashers "Bitcoin history, how it works, Pros and Cons" https://www.moneycrashers.com/bitcoin-history-how-it-works-pros-cons/ (accessed 12 October 2019).
[151] Samid (n 19 above) 113.

time. Slow discovery is implemented through a mechanism that requires more robust mining as more cryptos are discovered.[152] Limitations crypto discovery is to ensure that the market is not oversupplied with cryptos.[153] Otherwise, they may diminish in value prematurely.

2.4 Risks associated with cryptos

While there are benefits associated with cryptos, they are not without risks or disadvantages. Cryptos pose numerous risks, primarily when they are used as a medium of exchange for goods and services.[154] These risks can be economical, operational, and legal. Questions have been raised about the security of cryptos and their volatile value. Security breaches are a concern for any crypto because they hamper the confidence that the user may have in the crypto.[155] A breach is likely to result in severe consequences for the user, such as losing cryptos stored in online storage.[156] Furthermore, the irreversibility of confirmed transactions can also be a disadvantage, especially when payment is disputed, in a case where a transaction is a mistake, or it is fraudulently. Irrevocability of payment limits mechanisms available for dispute resolution.[157]

The number of merchants who accept cryptos as a form of payment has increased since their inception.[158] However, they risk receiving a payment that can either increase or diminish with more than 40% in value of a short period.[159] Thus, to what extent can it be used as a form of payment or even collateral if its value could change overnight. The volatility risk is discouraging to merchants who want to hold on to cryptos over an extended period.[160]

Furthermore, it is difficult to traces the origin of funds when cryptos are used.[161] Regulators around the world are aware of the potential risks posed by cryptos, but they are struggling with how to adequately regulate them.[162] The struggle is evidenced

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[152] As above.
[153] As above
[154] Vigna & Casey (n 15 above) 84-87.
[155] Bank for International Settlements “Digital currencies” November 2015 9. (hereafter “BIS 2015”)
[156] As above.
[157] BIS 2015 (n 155 above) 10.
[158] BIS 2015 (n 155 above) 3.
[159] Sackheim & Howell (n 123 above) 152.
[160] As above.
[161] Vigna & Casey (n 15 above) 84.
[162] Hoegner (n 23 above) 15.

by different approaches that regulators have taken. However, the potential risks of cryptos may increase as crypto usage matures. Presently, cryptos remain mostly inadequately regulated, and thus there are limitations to the acceptance of cryptos as a form of payment.[163]

2.4.1 Decentralised

One of the elements that contributed to the 2008 Global Financial Crisis is the centralisation of economic power in Wall street financial Institutions.[164] Therefore, when the Wall Street financial institutions failed, the global economy went into a crisis because of their interconnectedness.[165] Numerous individuals lost their investments in the 2008 crisis, and the rise of cryptos can be understood with the events that led to the financial crisis.[166] For example, the designers of Bitcoin are also motivated by the limited confidence in centralised financial systems.[167] The rise of cryptos using a decentralising ledger is a response to a centralised monetary system. A decentralised ledger is self-governing; it provides a platform that does not need any intermediaries or regulatory services.[168]

Regulators do not have full oversight of crypto transactions, since the ledger is designed to maintain anonymity of the users.[169] Lack of oversight is a significant challenge for regulators because any proposed regulations must, considering the nature of the blockchain, be coded in the blockchain for them to be enforceable. The nature of the blockchain used by the leading cryptos cannot be corrupted or amended. In jurisdictions such a South Africa and US, regulators are tasked to enforce the legislative provisions on all financial institutions under their regulatory watch.[170] The regulator exercises oversight through inspections and monitoring compliance by the financial institution.[171] Financial institutions establish compliance departments to ensure compliance with applicable legislative requirements.[172] Moreover, if the

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[163] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[164] Vigna & Casey (n 15 above) 63-65.
[165] As above.
[166] Vigna & Casey (n 15 above) 62.
[167] As above.
[168] Bashir (n 31 above) 38.
[169] Hoegner (n 23 above) 2-6.
[170] As above.
[171] As above.
[172] As above.

financial institution does not comply, the power is with the regulator to impose any sanctions. The use of crypto makes it impossible for both the financial institutions and the regulator to fully monitor and have oversight over such transactions. For example, in South Africa, one of the major banks, First National Bank ("FNB"), decided to shut down the bank accounts of a major crypto service provider and cited the inability to oversee the crypto service provider's bank accounts.[173]

The blockchain ledger underpinning the cryptos such as Bitcoin is immutably coded,[174] it makes it impossible for the regulator to embed compliance requirements within it and to monitor transactions and enforce regulations on cryptos. [175]

2.4.2 Anonymity

Over the years, the value of personal information has become indispensable, and this has resulted in personal information markets where such information is bought and sold by companies or individuals.[176] Sharing personal information poses a severe risk to individuals because it is open to abuse. Unlike using fiat money or other forms of virtual currencies, cryptos provide anonymity to the user. For example, with Bitcoin, all users use pseudo generated names that cannot link the user to the individuals behind the transaction. However, the anonymity provided by virtual currencies is a regulatory risk. For example, regulations that are designed to mitigate money laundering are founded on the identity of the transaction originator.[177]

If the originator cannot be identified, there is no way that a regulatory transgressor can be identified. Thus, the adoption of cryptocurrencies is also frustrated by difficulties in satisfying Anti-Money laundering ("AML") and Countering of Terrorist financing ("CTF") requirements.[178] The anonymity element of the blockchain meets the needs of those seeking to evade regulations and engage in illicit activities. However,

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[173] Money Web "FNB to shutdown Cryptocurrency" https://www.moneyweb.co.za/news/companies-and-deals/fnb-to-shut-down-cryptocurrency-platforms-bank-accounts/ (accessed 19 November 2019".
[174] Bashir (n 31 above) 22.
[175] As above.
[176] Garrick Hileman & Michel Rauchs "Global cryptocurrency benchmarking study "2017 *Cambridge Centre for Alternate Study* 107. Personal information can be processed to discover customer behaviour, pitching direct sales to consumers, or for other purposes. Thus there are numerous reasons why there is so much value in personal information. In South Africa, the Protection of Personal Information Act 3 of 2013 ("POPIA") is primary legislation that is designed to regulate how personal1 information is obtained processed and destroyed.
[177] V Dyntu & O Dykyi "Cryptocurrency in the system of money laundering" (2018) 4 *Baltic Journal of Economic Studies* 75-81 76.
[178] BIS 2015 (n 155 above) 8.

regulators are aware of the potential risks, which is noticeable in continuous concerns expressed regarding the use of crypto in general, and numerous warnings that academics and regulators have published on risks associated with cryptos.[179]

Cryptos are continuously being used to finance illicit activities such as political attacks, the selling of drugs, and legitimising money that originates from unlawful engagements and that ultimately finds their way to a legitimate financial system.[180] Dark web payments are now increasingly conducted in cryptos.[181] The dark web is a market place for content and products that cannot be found on traditional internet browsers.[182] The users use specific browsers that are encrypted to disguise their true identity. The dark web is dominated by activities such as drug trade, the sale or exchange of sensitive data, and other illegal products.[183]

Furthermore, hackers target financial Institutions, small and medium enterprises, as well as government entities as they perceive them to be easy targets.[184] For example, the cyber security of government entities, and small and medium enterprises is likely to be less secure than that of a large enterprise.[185] When hackers successfully hack the systems, they demand payment in cryptos because it will be difficult to trace a crypto transaction to the recipient.[186]

Since the true identity of the crypto user remains unknown when a crypto is used as a medium of exchange or exchanged for another currency, the identity can only be assumed using the Internet Protocol address.[187] Every device that can access the internet has a unique internet protocol (IP) address that can be used to trace the location of the device and its internet activity.[188] Therefore, the assumption is that the owner of the internet device is the one who was operating it when it engaged activities such as crypto dealing.[189] The use of an Internet Protocol address to identify the

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[179] As above.
[180] A Kumar & E Rosenbach “The truth about the dark web” (2019) 56 *Finance and Development* 22-25 23.
[181] Kumar & Rosenbach (n 180 above) 24.
[182] As above.
[183] Kumar & Rosenbach (n 180 above) 22.
[184] As above.
[185] As above.
[186] Luke Graham " Hackers have made just 3.7 bitcoin – or less than $10,000 – with the latest cyberattack" https://www.cnbc.com/2017/06/28/ransomware-cyberattack-petya-bitcoin-payment.html (accessed 25 October 2019).
[187] ScienceMag "Why criminals cannot hide behind Bitcoin" https://science.sciencemag.org/ (accessed 7 May 2019).
[188] Narayanan (n 20 above) 148-151.
[189] As above.

parties to a crypto transaction involves complex mathematical processes. However, there is no guarantee that the identity will be discovered.[190]

[190] As above.

Chapter 3:
Cryptocurrencies across jurisdictions

3.1 Introduction

Most regulators have regulatory classified the status of cryptos, but they have not enacted any laws that deal specific with cryptos.[191] In general, the regulators' response has been to issue notices through central banks.[192] These notices aim to raise awareness about the risks associated with cryptos. In some cases, the message from the regulator is to affirm that cryptos are not a legal tender and they are also not banned.[193] Not banning cryptos makes it optional for merchants to accept cryptos as a form of payment. While regulators see cryptos as regulatory risk, they also see the value in the underlying blockchain technology. [194]

Regulators are concerned about increasing awareness on the difference between fiat money and cryptos and the legal consequences thereof.[195] Countries like Marshal Island and Venezuela have created their cryptos that will serve as a legal tender.[196] Other countries, like Russia and China, have imposed total restrictions on dealings with cryptos.[197]

The US and Japanese regulators are among those that have advanced regulations on cryptos even though they have received material criticisms from crypto users.[198] The criticism primarily stems from a failure to consult the crypto community before enacting specific regulations.[199] Hence, the regulatory provisions model after centralised fiat money. In general, the legal status of cryptos differs from country to country. In numerous countries, they are no specific crypto regulations, but cryptos are ordinarily accepted as a form of payment together with fiat money.[200] The acceptance of cryptos as a form of payment does not make them a legal tender, since

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[191] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[192] As above.
[193] As above.
[194] As above.
[195] As above.
[196] As above.
[197] Sackheim & Howell (n 123 above) 145, 152 & 163.
[198] Sackheim & Howell (n 123 above) 145 & 242.
[199] Syska (n 67 above) 344-345.
[200] As above.

a legal tender can only be issued by a central bank.[201]. The European Union does not provide any regulation of cryptocurrencies and regulation is in its infancy stage in most parts of the European Union.[202]

In global capital markets, the overall health of a country's economy is fundamental.[203] Countries such as the USA and China have a more significant influence on the world because they occupy a prestigious position in the world economic hierarchy.[204] Further, their markets are financially mature and supported by well-resourced and skilled regulators.[205]

Thus, it is essential to evaluate the regulators in countries with mature markets and healthier economies on how they have attempted to regulate cryptos since cryptos pose a higher risk to well developed economies than emerging economies.[206] This chapter will, therefore, consider the regulators approach of cryptos in South Africa, China, Japan and the USA.

3.2 South Africa

South African Reserve Bank ("SARB") took a position in 2014 and announced that cryptos are not legal tender, but that the SARB will continue to monitor their development.[207] In South Arica, the issuance of currency and its maintenance is bestowed solely on the SARB.[208] The SARB has considered if cryptos could be qualified as electronic money since they are not a legal tender. In the Electronic Money Position Paper ("EMP"), the SARB found that electronic money should be redeemable in cash.[209] Cryptos are virtual and can only be redeemed in physical cash if they are converted to fiat money first[210].

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[201] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[202] Houben & Snyer (n 26 above) 9-10.
[203] K Lien *Day trading and swing trading the currency market* (2 ed 2009) New Jersery:Wiley 37-43.
[204] World Economic Forum "The world's biggest economies on 2018" https://www.weforum.org/agenda/2018/04/the-worlds-biggest-economies-in-2018/ (accessed 5 September 2019).
[205] As above.
[206] As above.
[207] South African Reserve Bank "Position Paper on Virtual currencies" https://www.resbank.co.za/RegulationAndSupervision/NationalPaymentSystem(NPS)/Legal/Documents/Position%20Paper/Virtual%20Currencies%20Position%20Paper%20%20Final_02of2014.pdf (accessed 26 August 2019).
[208] As above.
[209] As above.
[210] As above.

The 2014 position paper primarily addresses the risk and volatile nature of cryptos. It distinguishes those cryptos that are centralised and those that are decentralised.[211]The SARB considers decentralised cryptos as less acceptable because they pose a higher risk.[212] Presently, there are no laws dedicated to the dealing or use of cryptos in South Africa.[213] Merchants can refuse or accept cryptos as a form of payment since the SARB did not ban cryptos.[214] The SARB did acknowledge that many cryptos do not have a legal tender status, but they are equivalent to real currency. The primary concern is the risk attributable to a decentralized ledger used by cryptos.[215]

Global legal uncertainty, the lack of a legal framework, and the enforcement challenges are some of the barriers that influenced the SARB to continue to monitor crypto developments and not impose any regulations. The SARB expressed some concern about the risks surrounding the lack of oversight of the payment system, price stability, money laundering, countering of financing of terrorism, and consumer risk.[216]

The primary duty of the SARB is to safeguard financial stability.[217] Thus, the SARB does not see any significant risk to the stability of the payment system that requires it to either regulate and, ultimately, ban the use of cryptos at present.[218] If the merchant and the customer decide to deal using cryptos, the risk lies with them as the users. The only legal recourse one may have in South Africa could be in the form of Common law principles, with a potential cause of action arising from the law of contract.[219]

The position paper further expresses that cryptos are regulated by existing laws.[220] For example, a taxpayer in South Africa who intends to purchase cryptos abroad is limited to their single discretional or capital allowance.[221]

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[211] As above.
[212] As above.
[213] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[214] South African Reserve Bank "Position Paper on Virtual currencies" https://www.resbank.co.za/RegulationAndSupervision/NationalPaymentSystem(NPS)/Legal/Documents/Position%20Paper/Virtual%20Currencies%20Position%20Paper%20%20Final_02of2014.pdf (accessed 26 August 2019).
[215] As above.
[216] As above.
[217] As above.
[218] As above
[219] As above.
[220] As above.
[221] As above.

In 2018, the South African Revenue Service ("SARS") clarified the extent to which crypto gains should be taxed. The onus is on the users of cryptocurrency, especially those who engaged in highly speculative trade.[222] Therefore, any gains by an individual who bought or sold or exchanged cryptos must be declared per SARS's income tax rules.[223] Failure to declare could potentially result in sanctions or fines.[224] In general, the approach of the South African regulators has been to try to use existing regulations to bring some form of regulation over cryptos.

There are no laws that have been enacted to deal explicitly with cryptos, but regulators appear to be regulating cryptos using the existing legal framework.

3.3 China

China has taken a strong position regarding cryptos and has decided to ban them outright. Thus, no financial institution is allowed to engage in crypto dealings.[225] The People's Bank of China ("PBOC"), which is the central bank of China, issued a notice in 2017 prohibiting ICOs.[226] An ICO is when the crypto founders issue numerous cryptos in exchange for either fiat money or other cryptos. The PBOC cites the disruption to economic order as a significant contributor to its decision to impose an outright ban on cryptos and ICOs.[227] ICOs are generally considered a type of public financing in the crypto community.[228]

Thus, by banning cryptos, the Chinese regulators believe that they are protecting the interests of their investors and preventing potential financial risks that are likely to ensue. The regulators do not see any value in virtual currencies.[229] However, they perceive virtual currency as a mechanism to avoid compliance with regulatory laws and an alternate way to engage in financial fraud, pyramid schemes, and other illegal criminal activities.[230]

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[222] South African Revenue Services "SARS stance on the tax treatment of cryptocurrencies" https://www.sars.gov.za/Media/MediaReleases/Pages/6-April-2018---SARS-stance-on-the-tax-treatment-of-cryptocurrencies-.aspx (accessed 7 August 2019).
[223] As above.
[224] As above.
[225] Sackheim & Howell (n 123 above) 145.
[226] People's Banks of China "Announcement on Preventing Financial Risks from Initial Coin Offerings" http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3374222/index.html (accessed 7 August 2019).
[227] People's Banks of China "Announcement on Preventing Financial Risks from Initial Coin Offerings" http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3374222/index.html (accessed 7 August 2019).
[228] As above.
[229] As above.
[230] As above.

Since no Chinese monetary authorities issue virtual currencies, they do not have any status as legal tender in China. The Chinese regulators banned all crypto service providers, including exchange agents and trading platforms, operating in the country.[231]

The telecommunications department was commissioned to investigate and close down all websites and mobile applications that facilitated crypto dealings.[232] In general, despite a blanket ban on cryptos, China remains the most substantial home of crypto miners due to cheaper electricity in the country, which enables miners to earn higher profits.[233] According to the latest draft list by the National Development and Reform Commission of China ("NDRC"), crypto mining is one of the industrial activities that the commission seeks to eliminate.[234] The primary reason cited by the commission is a waste of resources, pollution, and non-adherence to laws by the miners.[235]

In general, the attitude of China towards cryptos has been negative. The Chinese government instead takes pride in its currency, not having contributed more than 1% in Bitcoin trade from a peak of about 90 % before the ban.[236] Most dealers have been forced to relocate to neighbouring countries, and miners have been forced to move away from the main cities of China.[237]

In contrast, China has found value in the blockchain technology used by cryptos. The Chinese government values blockchain so much that it wants to adopt the blockchain technology underpinning the cryptos and use it to develop a "wide array of applications" in the financial, retail and other business sectors.[238] The Chinese government has invested in developing blockchain regulations instead of crypto regulations because of the perceived risks associated with cryptos.[239] The Cyberspace

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[231] Therefore, all merchants are prohibited from accepting cryptos as a form of currency. Sackheim & Howell (n 123 above) 145.
[232] People's Banks of China "Announcement on Preventing Financial Risks from Initial Coin Offerings" http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3374222/index.html (accessed 7 August 2019).
[233] Vigna & Casey (n 14 above) 153.
[234] Reuters "China wants to ban bitcoin mining" https://www.reuters.com/article/US-china-cryptocurrency/china-wants-to-ban-bitcoin-mining-idusKCN1RL0C4 (accessed 8 August2019).
[235] As above.
[236] Xinhua "RMB Bitcoin trading falls below 1% of the world total" http://www.xinhuanet.com/english/2018-07/07/c_137308879.htm (accessed 8 August2019).
[237] Vigna & Casey (n 14 above)153-156.
[238] Crypterium "World crypto map China" https://medium.com/swlh/world-cryptomap-china-ab19a1ac81e7 (accessed 8 August2019).
[239] Cyber Space Administration of China "Regulation for Managing *Blockchain* Information Services" http://www.cac.gov.cn/2018-10/19/c_1123585598.htm (accessed 8 August2019).

Administration of China (“CAC”) published a draft regulation in October 2018 and the final regulation on the management of blockchain information services was published in January 2019.[240]

3.4 Japan

Japanese regulators are arguably at the forefront of crypto regulation. Cryptos do not have the status of currency in Japan, but they are an alternate form of payment.[241] The Payment Service Act (“PSA”),[242] regulated payment services in Japan and was amended in 2017 to include crypto as a form of payment and extend the regulation beyond the scope of money laundering. The regulation of cryptos in Japan initial aimed to address money laundering and terrorist financing.[243]

The crypto regulatory framework developed in 2018 after a cyber-attack on one of the Japanese crypto exchanges, which resulted in material losses.[244] The Financial Service Agency of Japan remedied the situation by establishing a committee that would further study the risks associated with cryptos.[245] The findings were instrumental, and as a result, the existing crypto regulations were amended. The Amendment Bill was passed in May 2019 and is expected to be in full force by May 2020.[246]

Since the Amendment Bill, reference to "virtual currency", has since been substituted to "crypto assets". The Act defines virtual currency or crypto assets as

> “property value that can be used as payment for the purchase or rental of goods or provision of services by unspecified persons, that can be purchased from or sold to unspecified persons, and that is transferable via an electronic data processing system; or property value that can be mutually exchangeable for the above property value with unspecified persons and is transferable via an electronic data processing system.”[247]

[240] As above.
[241] Art 2 (5) of Payment Service Act, 59 of 2009 (“PSA”).
[242] 59 of 2006
[243] Sackheim & Howell (n 123 above) 170-180.
[244] As above.
[245] Tu & Meredith (n 92 above) 342.
[246] Sackheim & Howell (n 123 above) 179.
[247] Article 2 (5) of the PSA.

This definition excludes any national currency or currency-denominated assets.[248] The Act brings all crypto service providers under regulation.[249] Service providers have to be registered in order to provide crypto services.[250] Foreign registered crypto services are prohibited from operating in Japan or soliciting anyone in Japan.[251] These services primarily involve buying and selling, trading, or exchange of cryptos.[252] A service provider may be refused registration if the provider does not have a representative who domiciles in Japan or if the entity is not a stock company.[253] The applicant is further required to satisfy that they have a safe and secure system,[254] a healthy financial muscle to the satisfaction of the regulator,[255] a plan to ensure compliance with the regulators,[256] moreover, that they are legally fit to conduct crypto services.[257] Foreign crypto service providers are prohibited from operating in Japan unless registered through a representative.[258]

A crypto service provider is required to ensure that all information processed or handled in the course of rendering crypto services is securely managed and stored.[259] Customers should also be able to distinguish between cryptos and fiat currency. Thus, the duty is on the provider to draw this distinction to customers' attention before any engagement.[260] The potential inability of customers to distinguish between fiat money and cryptos was also a motive behind renaming virtual currencies as crypto assets.[261]

Moreover, service providers' funds must be separate from cryptos.[262] Compliance with the separation requirement will be audited as prescribed by the regulator.[263] The regulations also empower the Minister to order onsite inspections or inspections of books, documents, or items for ensuring compliance with the

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[248] Library of Congress "Regulation of Cryptocurrency Around the World" http://www.loc.gov/law/help/cryptocurrency/world-survey.php (accessed 5 May 2019).
[249] Art 2 (7) (ii) of the PSA.
[250] Art 63 (2) of PSA.
[251] Art 63 (22) of PSA.
[252] Art 5 (7) (i) of PSA.
[253] Art 63 (5) (1) (ii) of PSA.
[254] Art 63 (5) (1) (iv) of PSA.
[255] Art 63 (5) (1) (iii) of PSA.
[256] Art 63 (5) (1) (vi) of PSA.
[257] Art 63 (5) (1) (vii)-(x) of PSA.
[258] As above.
[259] Art 63 (8) & Art 63 (13) of PSA.
[260] Art 63 (10) of PSA.
[261] As above.
[262] Sackheim & Howell (n 123 above) 174.
[263] As above.

regulations.[264] The operating license may be revoked due to failure to comply with registration requirements or as a result of other regulatory breaches found against the entity.[265]

The PSA, pursuant to its amendment, was narrow and primarily focused on the service provider, and there was a need to develop the Act. The security aspect of the service provider triggered criticism that led to the Amendment Bill that will come into force at the latest by June 2020.[266] A material cyber-attack influenced the Amendment Bill on one of the Tokyo-based crypto service providers, Coin Check.[267] The new provision, which will require crypto service providers to use offline storage[268] for cryptos, is a direct response to the hackers who stole about US $350 million from Coin Check. If the crypto service provider uses online wallets as a manner of storage, they are required to hold funds and assets equal to the value of crypto assets stored on the online wallets because hot storage is riskier than those in cold storage.[269]

Moreover, the user of crypto service providers will have a preferential right of payment of cryptos should the service provider go insolvency.[270] The crypto users of the service provider are entitled to a claim only from those that are designated for crypto service business.[271] Before the amendment, the Japanese regulators received criticism from the public for not having adequate consumer protection laws that will protect consumers who deal in cryptos.[272]

Another amendment introduces extensive disclosure requirements for ICOs. The disclosure requirement is preceded by clarification released by the Financial Service of Japan on ICO in October 2017. Japanese regulators clarified that ICOs might be regulated under the Financial Instruments Exchange Act ("FIEA"),[273] or the PSA

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[264] Sackheim & Howell (n 123 above) 177.
[265] Art 63 (17) of PSA.
[266] Y Yoshida *et al* "Japan Legal update" (2019) 47 *Jones Day 1-6* 2.
[267]Reuters "US Japan Crypto Regulation" https://www.reuters.com/article/US-japan-cryptocurrency-regulation/coincheck-heist-sheds-light-n-japans-rushh-to-create-cryptocurrency-rules-idUSKBN1FW04F (accessed 10 October 2019).
[268] Art 63 (11) & 63 (12), 59 of 2009, amended by Act 62 of 2016 ("PSAA").
[269] As above.
[270] Sackheim & Howell (n 123 above) 175.
[271] Art 63 (11) of PSAA.
[272] Reuters "Heist sheds light on japans rush to create cryptocurrency rules "https://www.reuters.com/article/US-japan-cryptocurrency-regulation/coincheck-heist-sheds-light-on-japans-rush-to-create-cryptocurrency-rules-idusKBN1FW04F (accessed 10 October 2019).
[273] Financial Instruments and Exchange Act, 25 of 1948 ("FIEA").

depending on how the ICO is structured.[274] Any virtual currency that has crypto elements already falls within the definition provided in PSA.

In order for an ICO to fall within the ambit of FIEA regulations, it has to be structured as an investment in which the potential holder of crypto will invest or contribute money into the ICO.[275] In this case, there is an obligation on the issuer to share earnings with investors in the future, depending on the performance of the underlying investment.[276]

Thus, if the ICO is structured as an investment, fiat money or any other form of payment recognised by Japanese authorities is used, and the investor will be entitled to potential returns depending on the amount and value of the cryptos bought. The ICO is a form of collective investment scheme and thus subject to FIEA regulations.[277] Thus, all disclosures required for trading and IPO of equities or secondary listing apply to ICOs.[278]

The cryptos invested in are treated as securities by the regulator.[279] Crypto service provider will have to register under the FIEA as a business operator or a financial institution.[280] The consequence of registration is that the provider will be subjected to further extensive compliance requirements contained in articles 34 to 45 of the FIEA.

Numerous individuals engage in Contract for Difference ("CFD") derivatives trade for speculative purposes.[281] Thus they trade in crypto prices, not in the crypto itself. CFD trading is known as trading derivatives.[282] The amendment proposed to

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[274] Financial Services Agency "Initial Coin Offerings (ICOs) - User and business operator are warning about the risks of ICOs" https://www.iosco.org/library/ico-statements/Japan%20-%20FSA%20-Initial Coin Offerings (ICOs) - User and business ness operator warning about the risks of ICOs – "%20User%20and%20BBusiness ness%20Operator%20Warning%20about%20the%20Risks%20of%20ICOs.pdf (accessed 16 September 2019).

[275] PricewaterhouseCoopers “Bill to revise Regulations on Virtual Currencies and ICO’s in Japan” https://www.pwc.com/jp/en/legal/news/assets/legal-20190425-en.pdf (accessed 19 September 2019).

[276] As above.

[277] Art 2 (2) (5) Art (1) (3) of FIEA.

[278] Art 3 (3), Art 4 (1) & Art 24 (1) of FIEA.

[279] Art 2 (2)(5)-(6) of FIEA.

[280] Art 29 and 33-2 of FIEA.

[281] Sackheim & Howell (n 123 above) 179.

[282] Japan Exchange Group “Derivatives” https://www.jpx.co.jp/english/derivatives/index.html (accessed 7 September 2019.

FIEA is that cryptos should be defined as financial instruments to extend FIEA regulations to crypto derivatives.[283]

The rules that apply to market abuse and price manipulation will apply to cryptos as well, including crypto derivatives.[284] The internet is dominated by crypto advertisement, which promises excellent returns within a short period if individuals invest in cryptos. The Amendment Bill will introduce new regulations that prohibit misleading advertisements that promote speculative trading and solicitation to deal in cryptos.[285]

The Prevention of Transfer of Criminal Proceeds Act ("PTCPA") was amended in 2016[286] to include cryptos on the list of activities subject to money laundering regulations.[287] The PTCPA amendment comes after the 2015 FATF guidance that proposed the regulation of crypto service providers, crypto customer identification, records maintenance to combat money laundering and terror financing.[288]

The initial regulations on cryptos in Japan were concerned with bringing crypto service providers under the microscope of the Japanese regulators through registration requirements. However, the regulations were insufficient to deal with the security and market abuse concerns surrounding cryptos, since crypto service providers that exclusively managed the storage of cryptos were not captured in the regulation.[289]

In 2018, the Financial Task Force ("FTF") recommended that countries regulate crypto custody services for AML and CTF.[290] In response, regulation and crypto custody services are now regulated in Japan.[291] The amendment to the PSA and FIEA now captures the crypto custody services, but provisions that deal with crypto mining remain absent.[292] Furthermore, the PSA and FIEA amendments will make it stricter to

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[283] Art 43 (6) of Financial Instruments and Exchange Act, 25 of 1948 *as amended by* Cabinet Bill 49 of 198th Diet Session ("FIEAA").
[284] Art 185 (22)-(24) of the FIEAA.
[285] Art 63 (9) (2) & (3) of PSAA.
[286] 22 of 2007, *amended by* Act No. 67 of 2017 ("PTCPAA").
[287] Art 2 (2) (31) of PTCPAA.
[288] As above.
[289] Sackheim & Howell (n 123 above) 170-180.
[290] Financial Action Task Force" International standards on combating money laundering and the financing of terrorism & proliferation the FATF recommendations" http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf (accessed 7 September 2019).
[291] Sackheim & Howell (n 123 above) 170-180.
[292] As above.

operate crypto services and encumber the crypto service providers with ensuring that crypto users are protected from market abuse and that their cryptos are safe.[293]

Japanese regulators have managed to bring numerous crypto activities within the ambit of insolvency, securities, and financial instruments law. The regulator acknowledges crypto as a medium of exchange, but cryptos in Japan do not have the status of a Japanese currency.[294]

Crypto miners who create a mining scheme that qualifies as a collective investment scheme could find themselves within the ambit of FIEA regulations. However, it is essential to note that crypto regulation in Japan is still in its infancy development. Subordinate legislation still needs to be enacted to supplement the PSA and FIEA.[295] Japan regulators appear to be less concerned about crypto users and more with those who provide crypto services.

3.5 United States of America (US)

The Constitution of the USA is the apex law of the land, and it establishes a federal system in which the powers are bestowed upon the federal government and the different state governments.[296] The federal government is the national government, which is made up of different states with legislative, judicial and executive branches.[297] All states have their Constitution, statutes, and courts which operate within the confines of the Federal Constitution. All federal states can enact laws that accord their citizens more comprehensive rights if they do not conflict with the federal Constitution.[298] Thus most day to day activities of the citizens are regulated by state laws.

Owing to the nature of the US legislative structure, the US has a multifaced regulatory approach to cryptos.[299] In states like New York, cryptos are regulated while

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[293] As above.
[294] As above.
[295] Sackheim & Howell (n 123 above) 179.
[296] United States of America Government “How the US Government is organised” https://www.usa.gov/branches-of-government#item-214495 (accessed 1 October 2019).
[297] As above.
[298] As above.
[299] US Commodity futures trading commission "CFTC Backgrounder on Oversight of and Approach to Virtual Currency Futures." Marketshttps://www.cftc.gov/sites/default/files/idc/groups/public/%40customerprotection/documents/file/backgrounder_virtualcurrency01.pdf (accessed 3 October 2019).

in some states, they are not regulated.[300] The Federal Reserve attempts to oversee cryptos through federal regulators; the Internal Revenue Service ("IRS") subjects cryptos to taxation laws; the Treasury's Financial Crimes Enforcement Network ("FinCEN") monitors cryptos using the money laundering and terror financing lenses; the Securities Exchange Commission ("SEC") regulates specific cryptos to be securities; and the Commodity Futures Trading Commission ("CFTC") regulates specific cryptos as commodities.[301]

According to the SEC, all crypto service providers, clearing agencies, brokers, dealers, and other market participants, are regulated under the securities law and should register under the Securities Exchange Act ("SEA"),[302] alternatively, operate under the SEC exemption.[303] The SEC regulates all dealings in securities. Thus, if crypto meets the criteria for securities classification, the service provider must comply with the SEA. The SEC considers an ICO as an investment contract, considering the way they are advertised to the public. Thus, they are also subject to securities law.[304] According to the SEC, calling something "currency" does not exempt it from being classified as a security.[305] Therefore, those who provide trading platforms, exchange services, crypto custody brokers, and other crypto services must comply first with SEA if the crypto services offered are an investment contract.[306]

Further, the SEC imposes stringent disclosure obligations on those who offer and sell securities.[307] Any failure to make the necessary disclosures and making material misstatements will result in sanctions.[308] Even though the SEC is of the view that cryptos are under the purview of securities law, the regulator is still to layout procedural aspects of compliance with securities law. In April 2019, the SEC's FinHub, which is a strategic hub for innovation and technology, published a framework for analysing

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[300] As above.
[301] As above.
[302] Of 1934.
[303] US Securities and Exchange Commission "Statement on Potentially Unlawful Online Platforms for Trading Digital Assets" https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading (accessed 3 October 2019).
[304] *SEC v. W.J. Howey Co* 328 US 293 (1946) (*"Howey Co"*).
[305] US Securities and Exchange Commission "Chairman's Testimony on Virtual Currencies: The Roles of the SEC and CFTC" https://www.sec.gov/news/testimony/testimony-virtual-currencies-oversight-role-US-securities-and-exchange-commission (accessed 5 October 2019).
[306] S 5 of SEA.
[307] Sackheim & Howell (n 123 above) 335-336.
[308] Sackheim & Howell (n 123 above) 335-336.

whether or not crypto can be classified as securities to determine whether or not securities law applies.[309]

The framework includes factors to consider, including profit expectation, whether the blockchain network is centralised or decentralised, whether crypto is offered for consumption or investment, and elements of the Howey test.[310] In terms of the Howey test, security is an investment contract. An investment contract is when there is an "investment of money in a common enterprise and is led to expect profits solely for the efforts of the promoter or third party".[311] For example, Bitcoin qualifies as security in terms of the FinHub framework because it can be traded, even though it was designed for retail use and not investment purposes.[312] However, the mentioned factors are not exhaustive, and they only serve to provide guidance. Thus, the SEC is concerned with ICOs of cryptos. Its jurisdiction is limited to enforcement action on securities, unlike the CFTC, which has a broader regulatory provision concerning any dealing in commodities.[313]

The CFTC regulates derivatives at a federal level through the Commodities Exchange Act[314] ("CEA"), which is the primary derivatives legislation in the US. The commission indicated that specific cryptos are commodities that are subject to its regulations, for example, Bitcoin.[315] Bitcoin derivatives are permitted to be traded on a CFTC regulated exchange for derivatives known as the Designated Contract Markets ("DCM").[316] The CFTC views cryptos as a digital representation of value, unlike commodities that have a tangible representation of value. The only difference is the form in which value is bestowed. Derivatives include prospective contracts and options swaps with the underlying asset being a commodity.[317] The definition of a

[309] US Securities and Exchange Commission "Framework for "Investment Contract" Analysis of Digital Assets" https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets (accessed 8 October 2019)
[310] As above.
[311] *Howey Co* (n 253 above).
[312] Sackheim & Howell (n 123 above) 338.
[313] Hoegner (n 23 above) 205.
[314] Of 1936.
[315] US Commodity Futures Trading Commission "CFTC Wins trial against Virtua currency fraudster" https://www.cftc.gov/PressRoom/PressReleases/7774-18 (accessed 9 October 2019).
[316] NASDA Bitcoin "Futures Are Here: The Story So Far" https://www.nasdaq.com/articles/bitcoin-futures-are-here-story-so-far-2017-12-11 (accessed 9 October 2019).
[317] S 1 (a) 9 of CEA.

commodity in terms of the CEA is broad and includes agricultural products, goods, interests, articles, and services for which there is a future agreement for delivery.[318]

Consequently, crypto service providers who deal in crypto derivatives must comply with the CEA as well, to avoid the various administrative enforcement actions.[319] Thus, each virtual currency will have to be assessed individually depending on how it is exchanged or traded to determine if it falls under the jurisdiction of the CEA, CFTC or other regulations.

US taxation law treats cryptos as a property that is subject to "tax principles applicable to property transactions".[320] Thus, all taxpayers who receive payment in the form of cryptos are obliged to declare the "fair market value if the crypto" at the date of the payment.[321] Crypto miners who successfully mine cryptos have the same tax obligation as well.[322] In March 2018, a notice was issued by the IRS warning that those who do not report crypto income could be criminally prosecuted for evading tax.[323]. The IRS is not explicit if cryptos are commodities or securities for tax. The SEC regards cryptos to be securities, and CFTC classifies cryptos as commodities.[324] The classification is essential for foreign investors who invest in cryptos or trade at an exchange regulated and registered in the USA, since the classification of cryptos as securities or commodities will exempt non-residents from Effectively Connected Income ("ECI") because their income will not be treated as derived from a trade or business in the US.[325]

The IRS guidance on crypto taxation appears to be primarily applicable to remuneration, income and even realised gains that are more than the adjusted basis

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[318] As above.
[319] As above
[320] US Internal Revenue Services "Notice 2014-21: How existing general tax principles apply to transactions Business ng virtual currency " https://www.irs.gov/pub/irs-drop/n-14-21.pdf (accessed 10 October 2019).
[321] As above.
[322] As above
[323] US Internal Revenue Services "IRS reminds taxpayers to report virtual currency transactions" https://www.irs.gov/newsroom/irs-reminds-taxpayers-to-report-virtual-currency-transactions (accessed 12 October 2019).
[324] US Commodity futures trading commission "CFTC Backgrounder on Oversight of and Approach to Virtual Currency Futures." Marketshttps://www.cftc.gov/sites/default/files/idc/groups/public/%40customerprotection/documents/file/backgrounder_virtualcurrency01.pdf (accessed 3 October 2019).
[325] S 864(b)(2) & 864(c)(1)(b) of Internal Revenue Code of 1986.

as a result of sale or exchange transactions.[326] The regulations remain mostly uncertain, and each case will have to be considered on an individual basis. Consideration will be given to activities undertaken using the crypto.[327] As of August 2019, the IRS started notifying all those who may have omitted to declare income derived from cryptos.[328] This comes after the IRS received court approval to obtain transaction details of crypto transactions in Bitcoin.[329]

FinCEN considers those that facilitate crypto transmission services to be in the money transmission business and expects them to register and have licenses to operate.[330] Users and miners are exempted in this regard. The Code of Federal Regulations ("CFR") defines money transmitters as:

> "A person that provides money transmission services. The term money transmission services mean the acceptance of currency, funds, or other value those substitutes for currency from one person and the transmission of currency, funds, or other value that substitutes for currency to another location or person by any means."[331]

In terms of the FinCEN 2013 guidance, a person providing payment transmission services can be a natural or juristic person. The term "virtual currency" is defined in the CFR as a "medium of exchange that operates like a currency".[332] Cryptos are a type of virtual currency captured under the definition of money transmission. Therefore, any crypto that acts as a substitute for virtual currency should comply with FinCEN regulations.[333]

All money transmitters have the primary obligation to conduct due diligence, know their clients, and report suspicious transactions to combat money laundering and

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[326] US Internal Revenue Services "Notice 2014-21: How existing general tax principles apply to transactions Business ng virtual currency " https://www.irs.gov/pub/irs-drop/n-14-21.pdf (accessed 10 October 2019).
[327] As above.
[328] US Internal Revenue Services "IRS reminds taxpayers to report virtual currency transactions" https://www.irs.gov/newsroom/irs-reminds-taxpayers-to-report-virtual-currency-transactions (accessed 12 October 2019).
[329] *United States v. Coinbase, Inc* 2017 WL 5890052.
[330] Department of the Treasury Financial Crimes Enforcement Network "Application of FinCEN's Regulations to Persons Administering, Exchanging or Business ng Virtual Currencies" https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001. (accessed 6 October 2019).
[331] S 1010.100 (ff) (5) (i) (a) of Code of Federal Regulations, 1938. ("CFR")
[332] S 1010.100(m) of CFR.
[333] Department of the Treasury Financial Crimes Enforcement Network "Application of FinCEN's Regulations to Persons Administering, Exchanging or using Virtual Currencies" https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001. (accessed 6 October 2019).

terror financing.[334] Moreover, any virtual currency participant is prohibited from engaging with any country or individual on the sanctions list.[335]

3.6 Concluding remark

Some countries remain on the fence, and they do not have explicit provisions relating to cryptos, for example, South Africa has not banned cryptos, but any dealing should take place within the South African laws. China banned cryptos, while the US introduced some form of regulation on cryptos which is still developing. Japan welcomes the use of the cryptos. Japanese regulators appear to be on the leading path amongst crypto regulators.

However, it is important to note that crypto-friendly countries have not given cryptos the role of a legal tender. Consequently, they do not have the status of conventional fiat money or even electronic money. Money is redeemable in cash and has intrinsic value denominated in a sovereign currency.[336] However, cryptos do not interconnect with any nation's currency. Furthermore, money is stored in bank accounts, while cryptos make use of digital wallets to store crypto coins.[337]

Cryptos may not be a legal tender or money, but the inception of cryptos highlights the trust deficit in the present monetary system.[338] Crypto inception is an attempt to design a medium of exchange that is viable, but that makes it impossible for trusted role players in the monetary system to abuse trust that comes with their role.[339] The success of any currency, be it centralised or decentralised, depends on the trust of the society using it as well as the ability for regulators to be able to regulate and have oversight over it.[340]

The present monetary system may not be reliable and trustworthy. However, society has a peace of mind that the regulators have regulations that are enacted to

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[334] Financial Task Force "International standards on combating money laundering and the financing of terrorism & proliferation the FATF recommendations" http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf (accessed 27 September 2019).
[335] US Department of Treasury "OFAC FAQs: Sanctions Compliance" https://www.treasury.gov/resource-center/faqs/Sanctions/Pages/faq_compliance.aspx (accessed 8 October 2019).
[336] BIS 2015 (n 155 above) 1.
[337] Oren (n 96 above) 618-620.
[338] Vigna & Casey (n 15 above) 21.
[339] As above.
[340] As above.

protect them in events where the financial intermediaries abuse the role which comes with being trustworthy.[341] Since the 2008 crisis, laws that regulate financial intermediaries have become much stricter.[342] The 2008 Global Financial Crisis ("GFC") serve to evince failure by financial intermediaries to uphold trust and confidence of the society.

Consequently, failure led to the inception of cryptos that purport to imbue trust using a decentralised monetary system that is, in theory, inviolable.[343] Financial intermediaries relies on human intervention while cryptos use an automated algorithm that relies on mathematic laws to uphold trust.[344] However, the decentralised monetary system used by cryptos has not solved the trust problem demanded by society.[345]

This failure to win trust is attributable to inadequate regulation and risks associated with cryptos. Instead, most regulators have drilled fear and inadvertently discouraged the use of cryptos through position papers that primarily highlight crypto risks and stringent regulations if cryptos are not outrightly banned.

[341] Narayanan (n 20 above) 183-189.
[342] International Monetary Fund "The Regulatory Responses to the Global Financial Crisis: Some Uncomfortable Questions" https://www.imf.org/external/pubs/ft/wp/2014/wp1446.pdf (accessed 23 October 2019).
[343] Vigna & Casey (n 15 above) 64-68.
[344] Vigna & Casey (n 15 above) 21.
[345] Vigna & Casey (n 15 above) 316.

Chapter 4:
Conclusion

If cryptos are to be a revolutionary as a medium of exchange, regulators will need to be comfortable that cryptos can be efficiently regulated and not threaten the existing system. The misconception is that cryptos are not regulated.[346] These claims are widely conventional in the traditional media but do not suffice considering numerous enforcement procedures what regulators in the US have conducted and the advanced regulations in countries like Japan.[347] Furthermore, where there are no explicit statutes or precedents that explicitly deal with crypto issues, the existing laws can be applied in their original form or developed to apply to novel circumstances. Thus, cryptos are regulated but not fully, as a result of numerous challenges faced by the regulators who have attempt to regulate cryptos.

The challenges with crypto specific regulation stems primarily from a decentralised ledger underpinning cryptos and risks highlighted in chapter 2 that are associated with crypto usage. Therefore, cryptos in their present form are undesirable, since the regulators cannot adequately regulate and define them.[348] Furthermore, for cryptos to be efficiently regulated, the blockchain technology that underpins them will have to be impinged. An impinged blockchain will anchor cryptos that a will not erode the role of central banks but innovate and make it more efficient. Central banks have an important monetary role that involves overseeing the payment systems, issuing and certify money as a legal tender.[349] Thus central banks and regulators must have a degree of control and oversight over cryptos and be able to issue desired cryptos per monetary policy. An impinged blockchain will enable the regulator to enforce regulations fully on cryptos. Identity anonymity amongst users will be adequately controlled and allowed in relevant circumstances where there is a need to uphold privacy or secrecy. Ultimately, this may bring accountability on the conduct of crypto users since the regulators will be having control and oversight on the ledger anchoring cryptos.

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[346] Hoegner (n 23 above) 1.
[347] As above.
[348] Vigna & Casey (n 15 above) 293.
[349] BIS 2015 (n 155 above) 1.

Furthermore, an impugned blockchain will limit the issuance and creation of cryptos to a central bank. The present different type of cryptos are challenging to regulate uniformly and thus pose a regulatory arbitrage risk. At present, there are more than 1500 different cryptos reported in the world, with different encryption and operation models.[350] It is also undesirable for Cryptos to have a finite amount. A ceiling imposed on the number of cryptos has the potential to lead to crypto hoarding in times of undesirable economic conditions. Consequently, shortages of cryptos in circulation could lead to global crypto turmoil.[351] Thus, there is no monetary policy which could be expertly drawn to deal with crypto circulation and issuance since the present major cryptos are self-governing and self-issuing.

Cryptos will remain challenging to regulate for as long as a decentralised blockchain and anonymity anchor them. Regulation of cryptos remains limited to situations where they are exchanged for conventional fiat currency. Consequently, consumers who deal in cryptos are left with limited regulatory recourse should disputes arise. The existing regulation is well suited for conventional fiat money, but new technological innovation requires a new regulatory framework that is desirable but does not hamper innovation. A desirable regulatory framework may be challenging to achieve as long as innovations are designed to resist regulations.

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[350] Coin Market "Total Market Capitalisation" https://coinmarketcap.com/charts/(accessed 24 September 2019).
[351] Vigna & Casey (n 15 above) 294.

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